

REPORT
OF THE
WORKING GROUP
FOR FORMULATION OF
FOURTH FIVE YEAR
PLAN PROPOSALS
ON
DEMAND PROJECTIONS



DEPARTMENT OF FOOD & AGRICULTURE
MINISTRY OF AGRICULTURE
OF INDIA

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PREFACE

Preparatory work for the formulation of proposals for agricultural development under the Fourth Five Year Plan was taken up in the Ministry of Food & Agriculture in June, 1963, at the instance of the Planning Commission. Following the lines adopted in connection with the preparation of Third Five Year Plan, a Working Group on Demand Projections was set up in the Department of Agriculture with the following terms of reference.

1. To make a critical review of the progress of the programmes and schemes in the Third Five Year Plan period;
2. To assess, in the light of current trends and other available data, the position likely to be reached at the end of the Third Plan period; and
3. To formulate proposals for the Fourth Five Year Plan in the perspective, wherever possible, of development over a 10-year period.

On the basis of the material that is available in the Department of Agriculture and the results of studies, if any, already made, the Working Group has attempted to make an assessment of the requirements, the potentialities for development and the organisational and technical considerations involved therein and has given broad indication of the physical programmes proposed and the financial outlays needed. The Report was transmitted to the Planning Commission.

The proposals and recommendations made in this Report have been taken into account in the consolidated Memorandum 'Approach to Agricultural Development in the Fourth Five Year Plan' submitted by the Ministry of Food & Agriculture to the Planning Commission.

New Delhi
Dated 10th June 1964

J. S. PATEL
Chairman of the
Working Group on Demand Projections.

CHAPTER I

INTRODUCTION

1.1. In accordance with the proposal of the Planning Commission for preparation of long term economic development plans, a Working Group was set up in the Department of Agriculture, under the Chairmanship of Dr. J. S. Patel, Agricultural Commissioner, to work out estimates of demand for major agricultural commodities by 1970-71 and 1975-76. The Working Group Consisted of the following :

1. Dr. J. S. Patel—Chairman.

I.C.A.R.

2. Dr. S. M. Sikka.
3. Dr. V. G. Panse.
4. Dr. G. R. Seth.

Dte. of E & S

5. Shri S. C. Chaudhri.
6. Shri J. S. Sarma.
7. Dr. P. K. Mukherjee—Convenor.

Planning Commission

8. Dr. S. R. Sen.
9. Dr. K. S. Krishnaswamy.
10. Dr. J. P. Bhattacharjee
11. Shri Pitambar Pant.
12. Shri D. P. Singh.

Department of Statistics—C.S.O.

13. Dr. K. S. Rao.

Department of Food

14. Shri S. Bansi.

Ministry of Industry

15. Dr. R. M. Honavar.

1.2. The Working Group met on 5-8-1963, 23-12-1963, 6-3-1964 and 20-3-1964. In the first meeting of the Working Group, the nature and scope of the work to be done was discussed. In the subsequent meetings, the Working Group discussed the demand projections of foodgrains, milk and milk products, fruits and vegetables, as worked out by the Directorate of Economics & Statistics and of commercial crops—cotton, oilseeds, jute and tobacco as worked out by the respective Commodity Sub-Groups of the Working Group on Commercial Crops Production.

1.3. As an ideal, demand estimates should be worked out for all the commodities, for which targets are proposed under the Plan. In the agricultural sector, targets are fixed for different agricultural commodities like foodgrains (rice, wheat, millets, pulses) and commercial crops like cotton, jute, oilseeds, sugarcane and tobacco. For certain commodities like lac, pepper, and cashewnut, the demand is mostly of export type. It is more difficult to work out export demand as compared to domestic demand. The Working Group, therefore, felt that for the present, demand projections might be worked out for the following commodities :

1. Foodgrains (as far as possible separately for rice, wheat, other cereals and pulses).
2. Milk and milk products.
3. Meat, fish and eggs (combined).
4. Fruits.
5. Vegetables.
6. Sugar and gur.
7. Edible and non-edible oils (if possible separately).
8. Cotton.
9. Jute.
10. Tobacco.

It was also decided that the areas in which basic statistics required for demand projections were not readily available, should also be discussed by the Group.

1.4. The demand projections of different commodities like cereals, pulses, meat, fish, eggs, fruits, vegetables and sugar may also be attempted from the point of view of requirements of calories, proteins etc. This approach may be useful to judge how far the demand projected on the basis of economic considerations will meet the nutritional standards. Dr. Panse and others¹ have worked out minimum nutritional requirements for India's population on the basis of Dr. Sukhatme's² least cost combination of quantities of major food items.

1.5. Generally speaking, there are two broad approaches that may be followed for working out demand estimates. The first one is a time series approach taking into account consumption, prices, disposable income etc. and time as factors or variables in the analysis. Using the methods of simultaneous estimation of structural equations, the demand for the commodity may be estimated. However, this method may be appropriate or yield good estimates only when we have reliable time series data over a number of years so as to get a reasonable number of degrees of freedom. In India, much attempt has not been made in this direction mainly due to non-availability of reliable statistics for a number of years. The second method may

be called elasticity approach. Under this approach, taking into account the likely changes in per capita income and the expected increase in population over the projected period, the likely per capita consumption is estimated by making use of the income elasticity of demand. A number of limitations have, however, to be kept in view in using the co-efficient of elasticity as a tool for projecting demand. The co-efficient of income elasticity is derived by an analysis of expenditure behaviour of families belonging to different groups in a given set of relative prices. The income elasticity of demand at a given time holds true over longer periods when it is assumed that tastes and habits of the population do not change over time. It may not, however, be inappropriate to assume them to remain constant over short periods in respect of agricultural commodities like foodgrains, because their demands are not susceptible to changes in fashions and also because the habits of the population with respect to these commodities may change over relatively longer periods only.

1.6. Another difficulty in using the co-efficient of income elasticity of demand is that the slope of the expenditure curve (i.e. the curve correlating expenditure and income) may be different at different levels of income. An example of this would be the demand for cereals. At low levels of per capita income, income elasticity of demand for cereals may be much higher than that at higher levels of income. Also, as the level of per capita income rises, the substitution of inferior grains by superior grains and coarse cloth by finer cloth may become more significant. It is also quite likely that the pattern of distribution of total expenditure at different levels of income may not remain the same. Again, the change in the pattern of distribution of purchasing power amongst various sections of the population is another factor which may cause variations in the co-efficient of income elasticity.

1.7. Also, since significant regional variations in habits, customs etc. are found in our country, it is desirable to assess the requirement of different commodities according to different regions especially for rice and wheat. It is also necessary to estimate the demand for rural and urban areas separately.

1.8. In the absence of reliable and adequate information regarding changes in pattern of distribution of income, the effect of substitution etc., the effect of population and changes in total income only were taken into account in our demand estimates. The Planning Commission in collaboration with the Central Statistical Organisation and the Registrar General had estimated the population for the country up to 1976. These estimates are incorporated in the Report on Third Five Year Plan. The population is likely to increase from 439 million in 1960-61 to 555 million in 1970-71 and 625 million in 1975-76. From the last census we have estimates of population in rural and urban areas separately for 1961.

1.9. The Report on Third Five Year Plan also gives estimates of national income at 1960-61 prices in 1970-71 and 1975-76. According

to this Report, the total national income in 1970-71 and 1975-76 will be Rs. 25,000 crores and Rs. 33,500 crores respectively. The co-efficients of elasticities that are used in our exercises are those that are determined from an analysis of the family consumer expenditure data collected by the Directorate of National Sample Survey in their Rounds. These elasticity co-efficients are available for a number of agricultural commodities for rural and urban areas separately at the all-India level. Again, these co-efficients are in terms of expenditures or values. Thus, in the absence of income elasticity co-efficients, the national income data will have to be converted into consumer expenditure data taking into account the projected savings or the expenditure elasticities will have to be converted into income elasticities by multiplying the expenditure elasticities by the income elasticity of consumer expenditure which may be arrived from regression analysis of national income and expenditure data of the past years. In our exercise, we have adopted the former procedure. Taking into account the projected rates of savings and the projected population and income given in Third Plan Report, the total per capita consumer expenditure has been worked out. The total per capita consumer expenditure in 1960-61 is estimated at Rs. 295. This is expected to increase by 28.97 per cent in 1970-71 over 1960-61 and 14-77 per cent in 1975-76 over 1970-71.

1.10. The methodology that is followed in assessing the future demand is to estimate the per capita consumption and multiply it by the projected population at the end of the projected period. The increase in per capita consumption at the end of the projected period is obtained as a product of the estimated per capita consumption/availability during the base period and the percentage increase in per capita consumption at the end of the projected period which in turn is a product of the percentage increase in per capita income/expenditure and the income elasticity¹ expenditure elasticity.

1.11. Estimates of elasticities of a number of consumer goods and services are available in detail from 10th Round of N.S.S. The estimates worked out by A. K. Biswas and H. P. Biswas³ do not provide elasticity for the item, 'other cereals' and further 46 items only are covered by them. On the other hand H. F. Lydall and M. Ahmad⁴ have worked out expenditure elasticity for as many as 69 items of consumption including 'other cereals' on the basis of a method developed by N. S. Iyengar⁵ using concentration curves. As we are interested in working out demand estimates for individual foodgrains, the elasticities computed by Lydall and Ahmad have been made use of in our calculations. The elasticities for rural*and urban areas have been combined to get all-India estimates, the weights being the expenditures on the commodity concerned in rural and urban areas as revealed by 10th Round data in respect of foodgrains. For milk and milk products, meat, fish, egg and fruits and vegetables, the per capita expenditure on these commodities in rural and urban areas as revealed by 15th Round data of N.S.S. were used as weights to get the all-India estimate of co-efficient of elasticity in respect of

these commodities. The co-efficients of elasticity used for different items of consumption are given below in Table I.

TABLE 1—Elasticities used for estimation of demand

| Item of consumption | Elasticity coefficient | | |
|----------------------------------|------------------------|-------|-----------|
| | Rural | Urban | All-India |
| (1) | (2) | (3) | (4) |
| Rice | 0.633 | 0.240 | 0.575 |
| Wheat | 1.536 | 0.682 | 1.336 |
| Other Cercals | 0.311 | 0.094 | 0.279 |
| Pulses | 0.769 | 0.605 | 0.739 |
| Milk and milk products | 1.726 | 1.350 | 1.612 |
| Meat, fish and eggs | 0.883 | 1.018 | 0.926 |
| Fruits and nuts | 1.171 | 1.515 | 1.296 |
| Vegetables | 0.823 | 0.924 | 0.856 |

Reference :

- ¹ Panse V. G., Amble V. N., and Abraham T. P. (1963) :—A plan for improvement of Nutrition of India's population—Agricultural Projections in India, Brochure prepared in connection with F.A.O. conference on Agricultural Projections in India September 1963, Ministry of Food & Agriculture.
- ² Sukhatme, P. V. (1962) :—Food and Nutrition Situation in India—Indian Journal of Agricultural Economics—Vol. XVII Nos. 2 and 3.
- ³ Biswas A. K., and Biswas H. P., (1961) :—Engel elasticities of consumption expenditure on some selected items and estimation of increase in their demand during the Third Five Year Plan—Mimeographed Working Paper No. 238, Studies Relating to Planning for National Development, Indian Statistical Institute, July, 1961.
- ⁴ Lydall H. F., and Ahmad, M., (1961) :—An exercise in forecasting consumer demand and taxation yields in 1965-66 Mimeographed Working Paper, Indian Statistical Institute.
- ⁵ Iyengar N. S. (1960) :—On a method of computing Engel Elasticities from concentration curves—Econometrica Vol. 28, No. 4.

CHAPTER II

ESTIMATES OF DEMAND FOR SELECTED AGRICULTURAL COMMODITIES

2.1. The estimates of demand worked out for specific commodities are described in the following paras.

Foodgrains

As regards foodgrains, consumer demand has been worked out separately for individual grains like rice, wheat, other cereals and pulses. The base period for projection is taken as the three year average ending 1961-62. The net availability figures of these consumption goods are taken from the Directorate of Economics and Statistics. The co-efficient of elasticity available for the group, other cereals has been used for individual grains like jowar, bajra, ragi, etc. that constitute this group. The estimates of consumer demand for different foodgrains in 1970-71 and 1975-76 are given below in Table 1.

TABLE 1—*Estimates of consumer demand for foodgrains in 1970-71 and 1975-76*
(Million tonnes)

| Item | 1970-71 | 1975-76 |
|-------------------------|---------|---------|
| (1) | (2) | (3) |
| Rice | 46.49 | 56.80 |
| Wheat | 20.53 | 27.69 |
| Barley | 2.14 | 2.50 |
| Jowar | 9.98 | 11.71 |
| Bajra | 3.90 | 4.57 |
| Maize | 4.07 | 4.78 |
| Ragi | 2.18 | 2.56 |
| Small Millets | 3.62 | 4.24 |
| TOTAL CEREALS | 92.91 | 114.85 |
| Pulses | 14.51 | 18.12 |
| Foodgrains | 107.42 | 132.97 |

2.2. In working out the aggregate demand for foodgrains, allowance has to be made for requirements of seed, feed and wastage. It has been estimated that about 12½ per cent of total foodgrains requirements are for non-human consumption i.e. for seed, feed and wastage. That is, the requirements of non-human consumption are one-seventh of the requirements for human consumption. Thus, the requirements for seed, feed and wastage in 1970-71 and 1975-76 work out as 15.34 and 19.00 million tonnes respectively. The aggregate demand for foodgrains in 1970-71 and 1975-76 becomes 122.76 and 151.97 million tonnes respectively. The per capita consumption of

different grains per day in 1970-71 and 1975-76 on the basis of Table I work out as given in Table 2 below :

TABLE 2—*Estimated per capita consumption requirements per day of different foodgrains in 1970-71 and 1975-76*

| Commodity | (ozs.) | |
|--------------------------------|--------------------------------|-----------------|
| | Per capita consumption 1970-71 | Per day 1975-76 |
| Rice | 8.1 | 8.8 |
| Wheat | 3.6 | 4.3 |
| Other cereals | 4.5 | 4.7 |
| TOTAL CEREALS | 16.2 | 17.8 |
| Pulses | 2.5 | 2.8 |
| Foodgrains | 18.7 | 20.6 |

2.3. According to nutritional standards, the per capita consumption of cereals is high but that of pulses is low according to the above estimates. As long as substitution of cereals by other foods like milk, fruits and vegetables does not take place, larger consumption of cereals would continue to take place. This is particularly true in our country where the production level of these protective foods is much below the requirements.

2.4. The availability of milk and milk products in the base period (1960-61) is estimated as 18.6 million tonnes or 4.1 ozs. per capita per day. As a result of increase in population and changes in per capita income or expenditure, the per capita per day demand for milk and milk products in 1970-71 and 1975-76 is likely to increase to 6.0 ozs. and 7.5 ozs. respectively. Thus the aggregate demand for milk and milk products works out to 34.53 and 48.18 million tonnes in 1970-71 and 1975-76 respectively.

Fruits and Vegetables, Meat, Fish and Eggs

2.5. In respect of fruits and vegetables, meat, fish and egg, the Working Group felt that in the absence of reliable estimates of data regarding availability of these items for consumption in the base year 1960-61, it would be better to give estimates of index of per capita consumption of these items, instead of giving quantitative estimates of demand at the end of Fourth and Fifth Plan periods. The elasticities available for rural and urban areas for these items have been combined to get all-India estimates, the weights being the proportionate expenditures on the commodity concerned, in the rural and urban sectors. The indices of per capita consumption of these commodities concerned, in 1970-71 and 1975-76 are given below in Table 3.

TABLE 3—*Indices of per capita consumption of fruits, vegetables, meat, fish and eggs. (1960-61—100)*

| Commodity | 1970-71 | 1975-76 |
|------------------------------|---------|---------|
| Fruits and nuts | 137.5 | 163.9 |
| Vegetables | 124.8 | 140.6 |
| Meat, fish and eggs. | 126.8 | 144.2 |

Cotton, Jute, Oilseeds, Sugar and Tobacco

2.6. In respect of commodities like cotton, jute, oilseeds, sugar and tobacco, the Working Group desired that the concerned commodity Committees might be asked to work out the demand for their commodities for 1970-71 and 1975-76. The estimates of demand worked out by these Commodity Committees were discussed by the Working Group at its Second Meeting. The projections in respect of cotton, jute, oilseeds, sugar and tobacco are summarised in the following Tables. The details relating to these estimates are given in Appendix.

TABLE 4—*Estimation of demand for cotton in 1970-71 and 1975-76*

| Component of demand | Unit | 1970-71 | 1975-76 |
|--|---------------|---------|---------|
| (1) | (2) | (3) | (4) |
| 1. Population | Million | 555 | 625 |
| 2. Per capita consumption of cotton cloth | Yards | 19.5 | 22 |
| 3. Requirements of cloth for internal consumption | Million yards | 10,823 | 13,750 |
| 4. Exports of cloth | " | 850 | 850 |
| 5. Total requirements of cloth | " | 11,673 | 14,600 |
| 6. Total cotton required to produce the above quantity of cloth at 3,626 yards per lb. of cotton | lakh bales | 82.12 | 102.72 |
| 7. Exports of cotton | " | 4.00 | 5.00 |
| 8. Extra factory consumption | " | 3.37 | 3.80 |
| 9. Total requirements of all cotton | " | 89.49 | 111.52 |
| 10. Imports of cotton | " | 3.00 | 3.00 |
| 11. Total requirements of Indian cotton | " | 86.49 | 108.52 |

TABLE 5—*Estimation of demand for Jute and mesta in 1970-71 and 1975-76*

(Lakh bales)

| Component of demand | 1970-71 | 1975-76 |
|--------------------------------|---------|---------|
| Exports | 63.36 | N.A. |
| Internal consumption | 34.56 | N.A. |
| Village consumption | 2.50 | N.A. |
| TOTAL | 100.42 | 125.00 |
| | or | |
| | 100.00 | |

N. A.—Not available.

TABLE 6(a)—*Estimation of demand for oilseeds in 1970-71*

(Lakh tonnes)

| Crop | Seed for oil extraction | Seed for sowing | Seed for direct edible use | Export of seed only | Total seed requirements |
|--------------------------------|-------------------------|-----------------|----------------------------|---------------------|-------------------------|
| Groundnut | 49.04 | 8.54 | 3.91 | 0.66 | 62.15 |
| Rapeseed and Mustard | 21.99 | 0.14 | 1.14 | — | 23.27 |
| Sesamum | 9.38 | 0.11 | 1.03 | 0.01 | 10.53 |
| Linseed | 5.79 | 0.25 | 0.35 | — | 6.39 |
| Castor | 3.30 | 0.08 | — | — | 3.38 |
| Safflower | 3.13 | 0.10 | — | 0.02 | 3.25 |
| Niger | 0.51 | 0.02 | — | 0.02 | 0.55 |
| Others | 15.96 | — | — | — | 15.96 |
| TOTAL | 109.10 | 9.24 | 6.43 | 0.71 | 125.48 |

TABLE 6(b)—*Estimation of demand for oilseeds in 1975-76*

(Lakh tonnes)

| Component of demand | 1975-76 |
|--|---------------|
| 1. Requirements for oil extraction | 142.36 |
| 2. Seed for sowing | 9.50 |
| 3. Seed for direct edible purposes | 7.00 |
| 4. Seed for export | 0.84 |
| TOTAL | 159.70 |

TABLE 7—*Estimation of demand of sugarcane (gur) in 1970-71 and 1975-76*

(Lakh tonnes)

| Component of demand | 1970-71 | 1975-76 |
|-------------------------------|--------------|--------------|
| Internal consumption | | |
| (a) White sugar | 40.0 | 50.0 |
| (b) Gur | 67.0 | 78.0 |
| (c) Khandsari | 7.0 | 8.0 |
| Export of sugar | 5.0 | 5.0 |
| Seed and other uses | 16.0 | 19.0 |
| TOTAL | 135.0 | 160.0 |

TABLE 8—*Estimation of demand for tobacco in 1970-71 and 1975-76*

| | | (Million kgs.) | |
|--------------------------------|--|----------------|---------|
| Component of demand | | 1970-71 | 1975-76 |
| (1) | | (2) | (3) |
| Exports | | 70.0 | 80.0 |
| Internal Consumption | | 361.5 | 445.3 |
| TOTAL | | 431.5 | 525.3 |

2.7. A comparative statement showing the export targets for 1970-71 as suggested by the various commodity working groups in the Ministry of Food & Agriculture and the working group set up in the Ministry of International trade is shown in Table 9. The difference between the two sets of figures need to be reconciled.

TABLE 9—*Export targets of selected agricultural commodities by the working groups set up in the Ministry of Food & Agriculture and the Ministry of International Trade.*

| Commodity | Units | Working group in Min. of Food & Agrl. | Working group in Min. of In- ternational trade |
|-----------------------|-----------------|--|--|
| (1) | (2) | (3) | (4) |
| Oilseeds | Thousand tonnes | 47* | 63* |
| Edible oils | Thousand tonnes | 255 | 144 |
| Raw cotton | Thousand bales | 400 | 400 |
| Sugar | Thousand tonnes | 500—1000 | 1000 |
| Tobacco | Thousand tonnes | 70 | 83 |

*Groundnuts have been converted into kernels.

2.8. During the course of working out the demand projections for different agricultural commodities, the Working Group have come across a number of gaps in the availability and requirements of statistics needed in demand projections. The gaps in the strategic factors that have to be taken into account in working out the demand for any commodity and the specific gaps/requirements of statistics for specific agricultural commodities were discussed by the Working Group at its third meeting held on 6th March, 1964. These are given in Chapter III. The main gaps relate to data regarding income in rural and urban sectors, consumption, quantity and price elasticities, and production of fruits, vegetables, meat, fish, egg, milk and milk products. In working out the derived demand, the main lacunae are in the field of estimating requirements of foodgrains for seed, feed and wastage, and using appropriate conversion factors from oil to seed, yardage to bales etc.

CHAPTER III

GAPS IN THE AVAILABILITY AND REQUIREMENTS OF STATISTICS NEEDED IN DEMAND PROJECTIONS OF AGRICULTURAL COMMODITIES

Population

3.1. It is known that the demand for a commodity is a function or is determined by the price of the commodity, the prices of other commodities, the disposable income of the consumer, population and tastes and habits of the people. Of these, the most directly affecting factors are population and income. The subject of projection of population is a specialised job for the demographers and the problems of projection of population are not discussed in this Chapter. The Planning Commission in collaboration with the Central Statistical Organisation and the Registrar General of census have estimated the population for the country up to 1976.

Income

3.2. The second important factor relates to income. The Planning Commission have also projected the national income up to 1976. These estimates were made at the time of framing the Third Five Year Plan and will undergo changes in the context of the growth of the economy since the time when these estimates were prepared. These revised estimates of national income are not yet available. One major gap in these national income estimates is their non-availability at State level and also for rural and urban areas separately at the national level. At present, national income statistics are published at all-India level. The corresponding figures at the state level are not available, although a number of States in the country have started working incomes, at the state level. Further, the time lag in availability of State level income estimates is quite high in respect of some States. The estimates of demand for certain commodities like foodgrains have to be made for rural and urban sectors separately, as it is known that the consumption pattern of such commodities as foodgrains in the two sectors differs widely. Consequently, the estimation of demand for rural and urban sectors will be conditioned by the availability of estimates of income for rural and urban sectors separately.

3.3. In a country like India where variations in consumption habits are noted for different regions, it is necessary to estimate demand for different regions/States. As such, the statistics relating to the above strategic factors, *viz.* population and income, should be known for regions or States.

Income Elasticity Co-efficient

3.4. The co-efficient of elasticity is determined from an analysis of the family consumer expenditure data being collected by the Directorate of National Sample Survey in the rounds. These elasticity co-efficients are available for a number of agricultural commodities for rural and urban areas separately at the all-India level. Again, these co-efficients are in terms of expenditures or values. Thus, in the absence of income elasticity co-efficients, the national income data will have to be converted into consumer expenditure data taking into account the projected savings or the expenditure elasticities will have to be converted into income elasticities by multiplying the expenditure elasticities by the income elasticity of consumer expenditure which may be arrived at from regression analysis of income and expenditure data for the past years. (The income elasticity of total expenditure has been derived by this method by the National Council of Applied Economic Research in their studies on projections). At this stage, it may however, be pointed out that the problem of choice of the co-efficient of elasticity arises. As the elasticity co-efficients are available for a number of rounds, the problem arises as to the co-efficients to be used, either it should be the one from the latest round for which more comprehensive data are available or a weighted average of the elasticities over different rounds. For certain commodities, the value elasticity is available at regional level. These regions correspond to the population zones of the country. The commodities for which the elasticities are available and the rounds for which they are available are given in Annexure A-1.

Price Elasticity

3.5. Information on price elasticities is lacking. The NCAER have worked out estimates of price elasticity for certain crops like rice and wheat. However, this is one field in which there is need for considerable research. While an accurate estimate of income elasticity is required so as to project demand at constant prices, an idea of the magnitude of the price elasticity is required so as to know to what extent adjustments can take place through changes in prices and how the policy maker can modify the consumption pattern by acting through prices. As it has been pointed out earlier, the elasticities, at present available for a number of commodities, are in terms of value only and not in terms of quantities. For certain commodities like cereals quantity elasticities have been worked out by the Indian Statistical Institute for certain rounds. Although basic information for working out quantity elasticities is collected through the N.S.S. rounds, the estimates of quantity elasticity as such have not been framed or released for different rounds. The agricultural commodities and the rounds for which quantity elasticities could possibly be worked out are given in Annexure B.

3.6. Another problem relating to non-availability of reliable statistics arises in connection with estimation of consumption at different levels in the base period. The consumption is estimated from data on production, imports and exports and changes in stocks.

Although statistics relating to Government stocks are available, no data regarding private stocks are available. If it is proposed to estimate consumption at State level, inter-state movement of the commodity concerned has also to be taken into account and no adequate data in this regard are available. Even at all-India level, the consumption figures for rural and urban sectors are not available.

3.7. The specific gaps or requirements of statistics for selected agricultural commodities are discussed below.

(i) **Foodgrains.**—As regards the production statistics of individual grains that constitute foodgrains namely rice, wheat, jowar, bajra, maize, ragi and pulses, estimates of production are available at all-India level as well as at State levels. Estimates of availability only and not of consumption of major crops like rice and wheat and other cereals and pulses are available at all-India level. In working out the consumption estimates at State level one has to take into account the inter-state movement of different grains and the stocks. In the absence of availability of reliable data on these factors it is difficult to work out estimates of consumption of different foodgrains at the State level. As regards the co-efficient of elasticity either in terms of value or quantity, for certain crops like rice, wheat and total cereals only these are available for rural and urban areas at the all-India level. Expenditure elasticities for rice, wheat and total cereals are available for different zones of the country from the 7th, 9th and 10th rounds of N.S.S. (Annexure C). The quantity elasticity for cereals as a whole is available for rural and urban sectors at all-India level for 4th, 5th, 6th, 7th, 8th, 10th and 13th rounds.

The basic data for estimating quantity elasticity for rice, wheat and total cereals are available for certain rounds (Annexure B) but it is understood that they have not been tabulated. It is thus seen that even the expenditure elasticity for individual crops like jowar, bajra that constitute the item other cereals are not available even at all-India level. Similarly for pulses as a whole, expenditure elasticities are available but not for the individual crops under the pulses group like gram and tur.

In estimating the demand for foodgrains, one has to take into account the requirements for seed, feed and wastage, in addition to the demand for human consumption. At present, requirements of seed, feed and wastage are worked out on conventional basis only. Specific studies need to be undertaken in this field to place these estimates on a more scientific basis.

(ii) **Cotton.**—Estimates of availability of cloth, handloom, khadi and mill made, are published. Value elasticities of clothing are also available for a number of rounds for rural and urban areas separately at all-India level. The main gap in statistics for working out the demand for cotton lies in the field of working out derived demand. In working out the demand projection for cotton, in addition to the general factors like population, per capita consumption, other factors like exports and imports of cloth, imports and exports of

cotton, extra factory consumption of cotton and consumption of cotton by mills have to be taken into account. Estimates of imports and exports targets have to be viewed from the international trade point of view and it is difficult to estimate this factor with reasonable degree of accuracy. It is also difficult to project or estimate the future requirements of extra-factory consumption of cotton and also the consumption requirements by mills. The likely change in the conversion rates from yardage to bale of raw cotton may also have to be estimated in view of the refinements in manufacturing process.

As it is generally the case with foodgrains, in respect of clothing also even value elasticities are not available at levels lower than all-India, although for the 4th round expenditure elasticities of clothing, cotton, silk and woollen, have been tabulated for different States.

(iii) **Jute.**—In respect of jute the method of working out demand is not the one based on elasticity co-efficients. Demand for jute has to be assessed after estimating the anticipated internal consumption of jute goods in the light of increased agricultural production, anticipated imports and exports of raw jute, exports of jute goods and the village or ex-factory consumption of jute goods. The conversion rates between raw jute and jute goods that are likely to change in view of improved technology may also have to be worked out for the projected period.

(iv) **Oilseeds.**—As it is the case with cotton, in respect of oilseeds also the main difficulty lies in estimating the derived demand for oilseeds. The consumption requirements of edible oil can be estimated in the usual manner using the elasticity approach. The expenditure elasticities are available for rural and urban areas separately at all-India level. The conversion of consumption requirements of oil to requirements in terms of seed is done through conventional factors. As such this is another field in which the related statistics have to be collected for arriving at reasonable estimates of conversion factors. The requirements of vegetable oils in the manufacture of soap, paints and varnishes and toilets lubrications and miscellaneous uses have also to be taken into account in working out the total demand for oilseeds. The industrial programmes regarding these sectors have to be assessed taking into account the demand for these products. The requirements of seed for sowing etc. are worked out on the basis of conventional conversion ratios. Reliable estimates of statistics relating to seed requirements are not available.

(v) **Sugarcane.**—The earlier remarks made in respect of availability of elasticities, value as well as quantity, and consumption, apply to sugarcane also. As in the case of other commodities, derived demand for sugarcane, i.e. the requirements for chewing and seed purposes, etc. are generally worked out on the basis of conventional ratios. As such, in this field also steps have to be taken for collecting necessary statistics that will enable one to put these ratios on a more sound basis. The conversion rates between sugar and sugarcane and between gur and sugar are at present

conventional. The related statistics required for putting these rates on a sound basis have to be collected and the effect of improvement in technology or processing of sugar and gur on these conventional rates has also to be assessed. Further, the targets for exports of sugar have also to be taken into account in working out the derived demand for sugar.

(vi) **Tobacco.**—In regard to tobacco, there is need to estimate the demand for different varieties of the product. The elasticity of expenditure on tobacco is, however, available for tobacco as a whole and not according to its varieties. The expenditure elasticity also is not available for all rounds of N.S.S. but only for selected rounds like 4th and 10th with the result that one cannot have an idea of the variations in the elasticity co-efficient from round to round. The NCAER have, however, made estimates of elasticities in respect of tobacco for different varieties like beedi, cigarette and others. As it is the case with other commercial crops like cotton and oilseeds, in regard to tobacco also, difficulties arise in projection of export demand.

(vii) **Milk and Milk Products.**—The basic gap in respect of this commodity is availability of reliable statistics relating to production of milk and milk products. The estimates available at present are only rough and are not based on any scientific method of collection of data. However, from the surveys of IARS, reliable estimates of production of milk are available for certain States.

(viii) **Meat, Fish and Eggs.**—This is yet another field in which basic statistics relating to productions of these products are not available on a sound basis. Although some steps are being taken to improve statistics of production of fish, the progress in improving the quality of statistics relating to meat and eggs is quite slow. Estimates of production of eggs in certain regions/States are however available from the sample surveys conducted by I.C.A.R. in those regions. Even the available elasticities are not available separately for meat, fish and eggs.

(ix) **Fruits and Vegetables.**—In respect of fruits and vegetables also, the position regarding availability of reliable estimates of production is not satisfactory. As such, in this field, concrete steps have to be initiated for putting the rough estimates of production available on a more scientific basis. The surveys initiated by the IARS for estimation of production of some of the fruits and vegetable crops *viz.*, mangoes, bananas, etc. have to be extended further so that reliable estimates of these commodities might be made available. The value elasticities available are for fruits and vegetables separately and further those relate to the groups of commodities which come under the category of fruits and vegetables and not to individual commodities. To that extent, the application or use of the available information on elasticities is limited.

3.8. Thus, it is seen that in respect of some items like milk and milk products, meat, fish and eggs, and fruits and vegetables, the basic statistics relating to production have to be improved in the first instance.

3.9. To summarise, the gaps in availability of different items of information required in estimation of demand for different agricultural commodities are listed below.

| Item | Level/requirement | Agricultural commodities for which information is required |
|--|---|--|
| 1. Population . . . | Rural & Urban sectors separately for future period. | .. |
| 2. Savings . . . | Rural and Urban | .. |
| 3. National Income . . . | Do. | .. |
| 4. Household income . . . | Do. | .. |
| 5. State Income . . . | Rural & Urban for different States | .. |
| 6. Expenditure elasticity . . . | All-India (Combined): Regions/States | All individual commodities for which demand estimates are to be made. |
| 7. Quantity elasticity . . . | All-India : Regions/States | Rice, wheat and cereals (All-India and Regional only) For other cereals like jowar, bajra, pulses both rural & urban; Estimates are required in addition to all India and Region. All other commodities including those given in Annexure B. |
| 8. Price elasticity . . . | All-India/Regional | Substitute goods. |
| 9. Private stocks . . . | All-India/Regional | All commodities |
| 10. Inter-state movement of commodities . . . | | Major commodities (all modes of transport) |
| 11. Consumption . . . | Rural/Urban and all-India | Rice, wheat, other cereals, pulses, vegetable oils etc. |
| 12. Production . . . | All-India; Regional/States | Fruits and vegetables; meat fish and eggs, milk and milk products. |
| 13. Conversion ratios (seed, feed, wastage) etc. | | Foodgrains, oilseeds, sugarcane, cotton. |

ANNEXURE A-1

Availability of Elasticities for different Agricultural Commodities at All-India Level for Rural and Urban Areas Separately.

| No. | Item | 3rd | | 4th | | 5th | | 6th | | 7th | | 8th | | 9th | | 10th | | 13th | |
|-----|---------------------------------------|-----|-----|-----|-----|-----|-----|-----|------|------|------|------|------|------|------|------|------|------|------|
| | | R | U | R | U | R | U | R | U | R | U | R | U | R | U | R | U | R | U |
| (1) | (2) | (3) | (4) | (5) | (6) | (7) | (8) | (9) | (10) | (11) | (12) | (13) | (14) | (15) | (16) | (17) | (18) | (19) | (20) |
| 1. | Rice . . . | | | | | | | | | | | | | | | X | X | | |
| 2. | Wheat . . . | | | | | | | | | | | | | | | X | X | | |
| 3. | Other cereals . . . | | | | | | | | | | | | | | | X | X | | |
| 4. | Cereals substitutes . . . | | | | | | | | | | | | | | | X | X | | |
| 5. | Total cereals . . . | X | X | X | X | X | X | X | X | X | X | X | X | X | X | X | X | X | X |
| 6. | Pulses . . . | | | X | X | | | | | | | | | | | X | X | | |
| 7. | Foodgrains . . . | | | X | X | | | X | X | | | | | | | X | X | | |
| 8. | Cow milk . . . | | | | | | | X | X | X | X | | | | | | | | |
| 9. | Buffalo milk . . . | | | | | | | X | X | X | X | | | | | | | | |
| 10. | Goat milk . . . | | | | | | | X | X | X | X | | | | | | | | |
| 11. | Milk . . . | | | X | X | | | | | X | X | | | | | | | X | |
| 12. | Cow ghee . . . | | | | | | | X | X | X | X | | | | | | | | |
| 13. | Buffalo ghee . . . | | | | | | | X | X | X | X | | | | | | | | |
| 14. | Butter . . . | | | | | | | X | X | X | X | | | | | | | | |
| 15. | Dahi . . . | | | | | | | X | X | X | X | | | | | | | | |
| 16. | Khoa chhana . . . | | | | | | | X | X | X | X | | | | | | | | |
| 17. | Other milk products . . . | | | | | | | X | X | X | X | | | | | | | | |
| 18. | Milk and milk products . . . | | | X | X | X | X | X | X | X | X | | | | X | X | X | | |
| 19. | Vanaspati . . . | | | | | | | | | | | | | | | X | X | | |
| 20. | Other oil oilseeds and products . . . | | | | | | | | | | | | | | | X | X | | |

ANNEXURE A-1--contd.

| (1) | (2) | (3) | (4) | (5) | (6) | (7) | (8) | (9) | (10) | (11) | (12) | (13) | (14) | (15) | (16) | (17) | (18) | (19) | (20) |
|-----|------------------------------------|-----|-----|-----|-----|-----|-----|-----|------|------|------|------|------|------|------|------|------|------|------|
| 21. | Edible oil . . . | | | X | X | X | X | | | X | X | | | X | X | X | X | | |
| 22. | Vegetables . . . | | | X | X | | | | | | | | | | | X | X | | |
| 23. | Fruits | | | X | X | | | | | | | | | | | | | | |
| 24. | Fruits & nuts . . . | | | | | | | | | | | | | | | X | X | | |
| 25. | Spices | | | X | X | | | | | | | | | | | X | X | | |
| 26. | Gur | | | | | | | | | | | | | | | X | X | | |
| 27. | Other sugar and gur | | | | | | | | | | | | | | | X | X | | |
| 28. | Sugar | | | X | X | X | X | | | X | X | | | X | X | X | X | | |
| 29. | Meat, egg, fish . . . | | | X | X | X | X | | | X | X | | | X | X | X | X | | |
| 30. | Salt | | | X | X | X | X | | | X | X | | | X | X | X | X | | |
| 31. | Total food | X | X | X | X | X | X | X | X | X | X | | | X | X | X | X | | |
| 32. | Cotton handloom . . . | | | | | | | | | | | | | | | X | X | | |
| 33. | Cotton millmade . . . | | | | | | | | | | | | | | | X | X | | |
| 34. | Cotton khadi | | | | | | | | | | | | | | | X | X | | |
| 35. | Other cotton clothings | | | | | | | | | | | | | | | X | X | | |
| 36. | Clothing cotton shirting | | | | | | | | | | | | | | | X | X | | |
| 37. | Silk clothing | | | | | | | | | | | | | | | X | X | | |
| 38. | Woollen clothing . . . | | | | | | | | | | | | | | | X | X | | |
| 39. | Clothing | | | X | X | X | X | | | X | X | | | X | X | X | X | | |
| 40. | Tobacco | | | X | X | | | | | | | | | | | X | X | | |
| 41. | Tea | | | | | | | | | | | | | | | X | X | | |
| 42. | Coffee (Powder) | | | | | | | | | | | | | | | X | X | | |

X—Indicates availability.

R—Rural.

U—Urban.

N.B.—The periods of the different Rounds are given in Annexure A-2

ANNEXURE A-2

Periods of Different Rounds of National Sample Survey

| Round | Period |
|--------------------------|----------------------------|
| 1. First | Oct. 1950—March, 1951 |
| 2. Second | April—June, 1951 |
| 3. Third | August—November, 1951 |
| 4. Fourth | April—September, 1952 |
| 5. Fifth | December 1952—March 1953 |
| 6. Sixth | May—September, 1953 |
| 7. Seventh | Oct., 1953—March, 1954 |
| 8. Eighth | July, 1954—April, 1955 |
| 9. Ninth | May—November, 1955 |
| 10. Tenth | December, 1955—May, 1956 |
| 11. Eleventh | August, 1956—January, 1957 |
| 12. Twelfth | March—August, 1957 |
| 13. Thirteenth | Sept., 1957—May, 1958 |
| 14. Fourteenth | July, 1958—June, 1959 |
| 15. Fifteenth | July, 1959—June, 1960 |
| 16. Sixteenth | July, 1960—June, 1961 |

ANNEXURE B

Statement showing the Items and Rounds for which Basic Information for Working out Quantity Elasticity is Available but not yet Worked out by I.S.I.

| Items | Units | Sector | Rounds for which estimates are available |
|-----------------------------------|-------|------------------------|--|
| 1. Rice | Sr. | Rural & Urban | 10, 14, 15 |
| 2. Wheat | Sr. | Rural & Urban | 10, 14, 15 |
| 3. Cereals | Sr. | (a) Rural (b) Urban | 2 to 15 3 to 15 |
| 4. Milk | Sr. | (a) Rural (b) Urban | 2 to 7, 9, 11, 12 3 to 7, 11, 12 |
| 5. Sugar | Sr. | (a) Rural (b) Urban | 2 to 11, 12, 13 3 to 11, 12, 13 |
| 6. Salt | Sr. | (a) Rural (b) Urban | 2 to 8, 11, 12, 13 3 to 8, 11, 12, 13, 14 |
| 7. Cotton cloth (mill made) . . . | Yds. | (a) Rural (b) Urban | 2 to 7, 10 3 to 7, 10 |
| 8. Cotton cloth (Khadi) | Yds. | (a) Rural (b) Urban | 2 to 7, 10 3 to 7, 10 |

ANNEXURE C

Statement showing the Availability of Expenditure Elasticity for different Items for different Rounds of N.S.S. at Regional Levels

| Zones | (Rural) | | | | | | | | |
|------------------------------|---------|-----|------|-------|-----|------|---------------|-----|------|
| | Rice | | | Wheat | | | Total Cereals | | |
| | 7th | 9th | 10th | 7th | 9th | 10th | 7th | 9th | 10th |
| 1. North Zone | X | X | X | X | X | X | X | X | X |
| 2. East Zone | X | X | X | X | X | X | X | X | X |
| 3. South Zone | X | X | X | — | — | — | X | X | X |
| 4. West Zone | X | X | X | X | X | X | X | X | X |
| 5. Central Zone | X | X | X | X | X | X | X | X | X |
| 6. North West Zone | X | X | X | X | X | X | X | X | X |
| 7. All-India | X | X | X | X | X | X | X | X | X |

X—Indicates Availability.

CHAPTER IV

CONCLUSIONS AND RECOMMENDATIONS

The following recommendations are made for future work on demand projections.

4.1. In the present context of planning, the need for comprehensive and reliable estimates of demand for different agricultural commodities needs no emphasis. The estimates of demand are at present worked out for periods corresponding to the Five-Year Plans in the country. At the same time, it is necessary that the demand estimates should be worked out for individual years. As the data about future population and income are likely to undergo changes it is also necessary that demand projections work should be on a continuous basis. Further the estimates of demand need to be reviewed from time to time in the light of more statistical information that might be available. The Working Group, therefore, feels that demand projections of agricultural commodities should be carried out on a continuous basis.

4.2. For certain commodities like fruits and vegetables, meat, fish and eggs, milk and milk products, the basic statistics relating to production are not reliable. Therefore, steps have to be taken to improve statistics of production of these commodities. Some measures have already been initiated in this regard. These need to be expanded.

4.3. In estimating the aggregate demand for foodgrains, the requirements for seed, feed and wastage have also to be taken into account in addition to the demand for human consumption. At present, the requirements for seed, feed and wastage are worked out on conventional basis only. Specific studies need to be undertaken in these fields to place these estimates on a more sound basis. The requirements of feed should be studied taking into account the growth of animal population etc. It may, however, be pointed out in this connection that the Directorate of N.S.S. have collected some data on disposal of cereals by producer households in rural areas in their 15th Round.

4.4. In respect of commodities like oilseeds the conversion of consumption requirements in terms of oil to requirements in terms of seed and the requirements of seed for sowing, etc. are worked out on the basis of conventional ratios. Steps have to be taken for arriving at reliable estimates relating to these conversion ratios. Similarly, in respect of sugarcane, the derived demand or the requirements for chewing and seed purposes, etc. are worked out on the basis of conventional ratios. As such, in this field also steps have to be taken for collecting necessary statistics that will enable one to put these ratios on a more sound basis. In respect of cotton also, the conversion ratios from bales to yardage and *vice versa* are based on the present pattern of production by staple lengths. These have to be properly revised on the basis of proportion of total

production targetted for different staple lengths. Further, specific studies need to be undertaken for estimating the requirements of extra factory consumption of cotton such as in bedding, carpeting and stuffing.

4.5. The co-efficients of elasticities are available for a number of rounds for a number of agricultural commodities for rural and urban areas separately at the all-India level. Further, these co-efficients are in terms of expenditures or values. For certain commodities, information for working out quantity elasticities is already available but the quantity elasticities have not been tabulated. If demand is to be projected with the object of assessing the production targets in terms of physical quantities, the methodology should be on the basis of quantity elasticity and not of expenditure elasticity. The Convenor of the Working Group had discussed the question of obtaining information on quantity elasticities and also elasticities at the all-India level with the concerned officers of the Indian Statistical Institute who are responsible for tabulation of consumer expenditure data collected by the Directorate of National Sample Survey. It is understood that some expenditure by way of tabulation is involved in working out all-India elasticities and also quantity elasticities. The Working Group, therefore, recommends to the Planning Commission that they may take necessary action for arranging these data tabulated by I.S.I.

4.6. The elasticities available for certain commodities over a number of rounds are found to be varying from round to round. It is, therefore, suggested that specific studies may be undertaken to test the variation in the co-efficients of elasticities from round to round.

4.7. The data on consumption or availability at present in use relate to official estimates of production adjusted for imports, changes in stocks, seed, feed, etc. It is desirable to check these estimates with actual consumption data that might be collected through scientific surveys involving representative samples and physical measurement. The food consumption surveys at present being carried out on a pilot scale need to be expanded on a large-scale so as to get quantitative estimates of consumption.

4.8. In a country like ours, where there are found variations in the consumption habits in different regions/States, it is necessary that demand estimates should be worked out for these regions separately. The necessary statistics required for these calculations should be collected.

4.9. Specific studies may be undertaken to examine the extent of discrepancy between the estimates of actual consumption built through N.S.S. Consumption Surveys and the estimates of consumption derived from official statistics of production, stocks and imports.

4.10. Estimates of demand may be worked out through alternative approaches, for instance, the elasticity approach and the approach based on input-output analysis or inter-sectoral analysis.

Estimates from these different approaches may be compared to test the consistency of different estimates.

4.11. The estimates of demand for major agricultural commodities worked out by the Group are summarised in Table 1 below :

TABLE 1—*Estimates of aggregate demand for selected agricultural commodities in 1970-71 and 1975-76*

| Commodity | Unit | 1960-61 | 1970-71 | 1975-76 |
|-----------------------------|----------------|---------|---------|---------|
| (1) | (2) | (3) | (4) | (5) |
| 1. Foodgrains . . . | Million tonnes | 80.9* | 122.8 | 152.0 |
| 2. Milk and milk products . | Do. | 18.6 | 34.5 | 48.2 |
| 3. Cotton . . . | Lakh bales | 53.9** | 89.5 | 111.5 |
| 4. Jute and mesta . . . | Lakh bales | 51.1** | 100.0 | 125.0 |
| 5. Oilseeds . . . | Lakh tonnes | 66.3** | 125.5 | 159.7 |
| 6. Sugarcane (Gur) . . . | Lakh Tonnes | 106.1** | 135.0 | 160.0 |
| 7. Tobacco . . . | Million kgs. | 311.9** | 431.5 | 525.3 |
| 8. Fruits & nuts . . . | Index | 100.0 | 137.5 | 163.9 |
| 9. Vegetables . . . | Index | 100.0 | 124.8 | 140.6 |
| 10. Meat, fish, egg . . . | Index | 100.0 | 126.8 | 144.2 |

*Three years average ending 1961-62.

**Relates to Production.

4.12. A comparative statement showing the estimates of demand for selected agricultural commodities in 1970-71 and 1975-76 as worked out by different organisations is shown in Table 2.

TABLE 2—Aggregate demand estimates for selected agricultural commodities worked out by different organisations in 1970-71 and 1975-76

| Commodity | Units | 1970-71 | | | | 1975-76 | | | |
|-------------------------------------|-------------|---------------|--|--------|-------------------------------|---------------|-------------------|-------|-------------------------------|
| | | Working Group | P.P.* Division of Planning Commis- sion | NCAER@ | Nutri- tional standards | Working Group | P.P.* Division | NCAER | Nutri- tional standards |
| (1) | (2) | (3) | (4) | (5) | (6) | (7) | (8) | (9) | (10) |
| 1. Foodgrains | M. tonnes | 122.8 | 122-127 | 115.0 | 117.4 | 152.0 | 151.167 | 135.6 | 132.2 |
| 2. Milk and milk products | M. tonnes | 34.5 | 42.6— 47.5 | — | 40.7 | 48.2 | 59.8-76.2 | — | 45.9 |
| 3. Cotton | Lakh bales | 89.5 | 98—106— | 81.0 | — | 111.5 | 135—161 | 100.0 | — |
| 4. Jute & mesta | Lakh bales | 100.0 | — | — | — | 125.0 | — | — | — |
| 5. Oilseeds | Lakh tonnes | 125.5 | 33.0** 35.2 | 100.7 | — | 159.7 | 45.5** 51.2— | 131.0 | — |
| 6. Sugarcane (Gur) | M. tonnes | 13.5 | 13.2— 14.3 | — | — | 16.0 | 17.8— 21.1 | — | — |
| 7. Tobacco | M. Kgs. | 431.5 | 484—527 | 412.0 | — | 525.3 | 612-675 | 501.0 | — |

*—P.P. Division—Development of Agriculture India—1960-61 to 1975-76, January 1964.

**—In terms of oil equivalent.

@—National Council of Applied Economic Research (NCAER).

APPENDIX

DETAILS OF ESTIMATION OF DEMAND FOR COTTON, JUTE, OILSEEDS, SUGARCANE AND TOBACCO

A. Cotton

In making demand projections for cotton, the following factors need consideration :

- (i) Population,
- (ii) Per capita consumption of cloth,
- (iii) Exports of cloth,
- (iv) Imports of cloth,
- (v) Imports of cotton,
- (vi) Exports of cotton,
- (vii) Extra factory consumption,
- (viii) Consumption of cotton by mills.

The nature and content of data used in respect of these factors are described below :

(i) Population

Population figures as estimated by the Planning Commission at about 555 and 625 million at the end of Fourth and Fifth Plans respectively have been taken into account.

(ii) Per capita consumption of cloth

The per capita consumption of cloth estimated by the Planning Commission is 18-20 and 22-23 yards during the Fourth and Fifth Plans as against 20.09 and 22.63 yards respectively by the NCAER. The projections have been made on the basis of the expected increase in per capita income, income elasticity of demand and changes in income elasticity, assuming that all other factors will remain constant. It is generally agreed that in developing countries, the income elasticity was in the neighbourhood of unity and that income elasticity of mill made cloth in India could be safely placed at 0.9. For hand-loom cloth, the present consumption of which was about 36 per cent of the total, the income elasticity would be much lower and in this case the natural laws were also somewhat disturbed by the rebate and other concessions offered. Having regard to these factors, the per capita consumption of cotton cloth may be placed at 19.5 and 22 yards during the Fourth and Fifth Plans respectively. This does not include the consumption of cloth from synthetic fibres.

(iii) Exports of cloth

The Planning Commission had laid down 850 million yards as the export target to be achieved at the end of the Third Five Year Plan. However, in recent years, the exports of cotton textiles from India have declined significantly due to severe competition offered by Japan, Pakistan, Hong Kong, etc. Besides, many underdeveloped countries are attempting to develop their own textile industry. In view of this, the export target could be fixed at the same level of 850 million yards during the next two Plan periods.

(iv) Imports of cloth

The present imports of cotton cloth are negligible compared to the internal consumption and this position is not likely to change during the next two Plan periods.

(v) Imports of cotton

Unless the season is particularly adverse, and the crop is very short, imports of cotton stapling below 1-1/16" are not resorted to. However, having regard to the role played by the weather conditions in the production of cotton and the need for maintaining trade relations with the supplying countries, a drastic reduction in the imports cannot be visualised. Therefore, imports of cotton may be placed at three lakh bales during each of the Fourth and Fifth Plans.

(vi) Exports of Cotton

Normally, short staple cotton of 11/16" and below alone are allowed for export and at present the exports of such cotton are around three lakh bales. These cottons are being substituted in the absorbing markets by rayons and other synthetic substitutes. It is, therefore, unlikely that the exports could be increased to any substantial extent. Exports of cotton during the Fourth and Fifth Plans may, therefore, be estimated at four and five lakh bales respectively.

(vii) Extra-factory consumption

The extra-factory consumption is estimated at 3 lakh bales during the Third Plan and there may not be any significant change during the next two Plan periods as the expected urban replacement by synthetics will be more or less off-set by the increased rural consumption. Therefore, present level of 0.231 lb. of lint per unit head is likely to be continued during the next two Plan periods and on this basis, the total extra-factory consumption may be estimated at 3.37 and 3.80 lakh bales during the Fourth and Fifth Plans respectively.

(viii) Mill consumption of cotton

The average mill consumption of foreign and Indian cotton was 45.76 lakh bales during the quinquennium 1951—56 and 51.56 lakh bales during the next quinquennium 1956—61. The rise in consumption has been chiefly in respect of long staple cotton. This trend is likely to continue during the next two Plan periods also.

On the basis of the foregoing, projections of demand for cotton during the Fourth and Fifth Plans are as under :

| Component | Fourth Plan (1970-71) | Fifth Plan (1975-76) |
|---|-----------------------------|----------------------------|
| Population (million) | 555 | 625 |
| Per capita consumption of cotton-cloth (yards) | 19.5 | 22 |
| Requirements of cloth for internal consumption (million yards) | 10,823 | 13,750 |
| Exports of cloth (million yards) | 850 | 850 |
| Total requirement of cloth (million yards) | 11,673 | 14,600 |
| Total cotton required to produce the above quantity of cloth at 3.626 yards per lb. of cotton* (lakh bales) | 82.12 | 102.72 |
| Exports of cotton (lakh bales) | 4.00 | 5.00 |
| Extra-factory consumption (lakh bales) | 3.37 | 3.80 |
| <i>Total requirements of all cotton</i> (lakh bales) | 89.49 | 111.52 |
| Imports of cotton (lakh bales) | 3.00 | 3.00 |
| <i>Total requirements of Indian cotton</i> (lakh bales) | 86.49 | 108.52 |

*Based on figures of consumption of cotton and production of cloth for the last ten years.

The break up of the above projections according to staple length group is as under :
(In lakh bales)

| Component | Fourth Plan (1970-71) | Fifth Plan (1975-76) |
|--|--------------------------|-------------------------|
| <i>Requirements of all Cotton</i> | | |
| (a) For Textile mills long staple (7/8" and above) | 58.85 | 80.07 |
| Medium staple (above 11/16" and below 7/8") | 22.00 | 22.00 |
| Short staple (11/16" and below) | 1.26 | 0.65 |
| TOTAL | 82.12 | 102.72 |
| (b) Export of cotton* | 4.00 | 5.00 |
| (c) Extra factory consumption* | 3.37 | 3.80 |
| GRAND TOTAL | 89.49 | 111.52 |
| Imports of cotton (mainly of 1-3/16" and above) | 3.00 | 3.00 |
| <i>Requirements of Indian Cotton</i> | | |
| Long staple (7/8" and above) | 55.86 | 77.07 |
| Medium staple (above 11/16" and below 7/8") | 22.00 | 22.00 |
| Short staple (11/16" and below) | 8.63 | 9.45 |
| TOTAL | 86.49 | 108.52 |

*Mainly short staple cotton.

B. Jute

Third Five Year Plan

(i) Demand Estimate

Internal consumption of jute during Third Five Year Plan period is estimated to be 4 lakh tons in 1965-66. The level of exports of jute goods is expected to exceed 9 lakh tons by that year. Village consumption of raw jute has roughly been estimated at 2.50 lakh bales. Actual consumption of raw jute and mesta in 1960-61 and estimated consumption in 1965-66 is shown below :

| Component | (Lakh bales) | |
|--|-------------------------------|---|
| | Actual consumption 1960-61 | Estimated consumption re- quirement 1965-66 |
| (i) Export of Jute goods (in terms of raw jute & mesta) | 43.92 | 55.00 |
| (ii) Internal consumption (in terms of raw jute & mesta) | 16.38 | 23.04 |
| (iii) Village consumption | 1.50 | 2.50 |
| TOTAL | 61.80 | 80.54 |

(ii) Production Estimate

As against the requirement of about 80 lakh bales, the target production at the end of the Third Five Year Plan has been set at 75 lakh bales of jute & mesta (comprising 62 lakh bales of jute and 13 lakh bales of mesta).

*Trend in World Demand for Jute Manufacturers—F.A.O., 1960.

Consumption requirements of Jute for the Fourth Five Year Plan

(iii) Exports.

It is difficult to make any reliable forecast about the export demand for jute goods during Fourth Plan period particularly because of the unpredictability of the various factors which influence world demand for jute goods.

According to a recent study on the trends of world demand of jute manufactures by the FAO*, while the over all demand for jute packaging materials may remain or even decline in the next decade, there may be a moderate increase in the demand for jute floor covering. The decline in the use of jute packaging material has been attributed to its displacement by bulk handling method and increased use of substitute materials, specially paper bag. The instability of jute prices has also to some extent, weakened the competitive position of packaging material. However, the assessment made by the FAO has not been fully accepted by the Srivastava Committee. According to it, the statistics of consumption of jute goods in the U.S.A. and the U.K. does not support the conclusions drawn about the estimated rate of technological displacement of jute by substitutes and bulk handling.

The demand for non-standard jute goods including carpet backing cloth from India has shown a rapid increase. This upward trend may be maintained in the coming years also.

Considering the potentialities of world consumption of jute goods and the various measures taken in India to step up exports, it is estimated that the export of jute goods from India may be around 11 lakh tons by the end of Fourth Five Year Plan.

(iv) Internal consumption.

As regards internal consumption, the Srivastava Committee considers that in the period 1966—71, an average annual increase in internal consumption of jute goods should be planned at 40,000 tons raising the consumption level to 6 lakh tons in 1970-71. Thus the total demand for jute goods for export and internal consumption would be of the order of 17 lakh tons or about 98 lakh bales.

The estimate of consumption requirements framed by the Srivastava Committee appears to be quite realistic and may even turn out to be on the conservative side. To this should be added the requirements for village consumption which may be placed around 3 lakh bales. The total consumption requirement for raw jute and mesta at the end of the Fourth Five Year Plan thus works out at just over 100 lakh bales.

Requirement for the Fifth Five Year Plan

(v) Demand Estimate.

During the Fifth Plan also, demand for jute goods is expected to show a rising trend. Roughly it has been estimated that exports may increase from 11 to 12.5 lakh tons and internal consumption from 6 to 8.5 lakh tons. On the whole, there may be 5% annual increase in the consumption. In terms of jute and mesta, the total requirement at the end of the Fifth Plan period may come to about 125 lakh bales.

(vi) Production Estimate at the end of Fourth Plan.

To achieve the physical target of 80 lakh bales of jute and 20 lakh bales of mesta by the end of the Fourth Five Year Plan period, the production of jute will have to be increased by 18 lakh bales and mesta by 2 lakh bales over the estimated production of 62 lakh bales of jute and 18 lakh bales of mesta at the end of Third Plan period. The official estimate of actual production in 1962-63 was 53.67 and 15.22 lakh bales for jute and mesta respectively. Thus an increase in the production of jute by 49% and of mesta by 32% will have to be achieved by 1970-71 over the level reached in 1962-63.

C. Oilseeds

(i) Liquid Edible Oils

The requirements of liquid edible oils by the end of Fourth and Fifth Five Year Plans are estimated to be 16.74 lakh tonnes and 21.16 lakh tonnes respectively as per the paper by the Perspective Planning Division.

In order to apportion the estimated requirement of 16.74 lakh tonnes among the various kinds of edible oils, it is assumed that the domestic consumption in the Northern and Eastern States would mostly be of rapeseed and mustard oil while in the remaining States it may be of sesamum oil groundnut oil and safflower oils.

The consumption in hotels, etc., of liquid oil throughout the country is, however, expected to be mostly of groundnut oil, cottonseed oil and niger oil. Coconut oil is used for edible purposes mostly in Kerala and in some Southern States. On these assumptions, the total quantity of edible oil estimated to be required by the end of the Fourth Plan has been apportioned oil-wise in the proportion of Groundnut—40%, Rapeseed-Mustard—35%, Sesamum—15%, Safflower—5%, Niger—1%, Cottonseed Oil—3% and Coconut Oil—1%.

Hence the likely requirements of edible liquid oils by the end of the Fourth Plan is estimated to be as follows :

| | | (Lakh tonnes) | |
|------------------------|-----|---------------|--|
| Groundnut oil | 40% | 6.70 | |
| Rapeseed & Mustard oil | 35% | 5.86 | |
| Sesamum oil | 15% | 2.51 | |
| Safflower oil | 5% | 0.83 | |
| Cottonseed oil | 3% | 0.50 | |
| Niger oil | 1% | 0.17 | |
| Coconut oil | 1% | 0.17 | |
| TOTAL | | 16.74 | |

(ii) Vanaspati

The Perspective Planning Division of the Planning Commission have estimated the oil requirements for the vanaspati manufacture by the end of IV Plan as 6.95 lakh tonnes and that by the end of V Plan as 10.59 lakh tonnes.

As per the statistics furnished by the Directorate of Sugar and Vanaspati in the Union Ministry of Food and Agriculture, the quantities of different kinds of oils used in the manufacture of Vanaspati, expressed as percentages of the total oils consumed during the years 1961-62 and 1962-63 were as follows :

| Oils | Percentage of all oils used | |
|----------------|-----------------------------|---------|
| | 1961-62 | 1962-63 |
| Groundnut oil | 85.9 | 87.9 |
| Cottonseed oil | 7.8 | 6.5 |
| Sesamum oil | 5.5 | 5.5 |
| Coconut oil | Neg. | 0.1 |
| Soyabean oil | 0.8 | Neg. |
| | 100.0 | 100.00 |

It is assumed that during the next two Plan periods, the usage of groundnut oil in the manufacture of Vanaspati would be reduced and that correspondingly certain quantity of cottonseed oil will be increased.

On these assumptions, the proportions and quantities of different kinds of oils to be used in the vanaspati manufacture by the end of the IV Plan are indicated below :

| Oils | Qty. in | |
|----------------|------------|-------------|
| | Percentage | Lakh tonnes |
| Groundnut oil | 81 | 5.63 |
| Cottonseed oil | 10 | 0.70 |
| Sesamum oil | 7 | 0.48 |
| Safflower oil | 1 | 0.07 |
| Soyabean oil | 1 | 0.07 |
| | 100 | 6.95 |

(iii) Soap

According to the estimates of the Perspective Planning Division of the Planning Commission, the quantities of vegetable oils required in the soap manufacture by the end of the IV and V Plans are 3.20 lakh tonnes and 4.60 lakh tonnes, respectively.

According to the information given in "Programmes of Industrial Development—1961-62", the proportion of the various types of raw materials used by the organised sector for the production of soap was as follows :

| Oils | Percentage |
|-------------------------------|------------|
| Coconut oil | 31.8 |
| Palm oil | 29.5 |
| Tallow | 4.5 |
| Groundnut oil | 6.8 |
| Hydrogenated oil | 6.1 |
| Mahua oil | 6.1 |
| Others (including rosin etc.) | 15.2 |
| | 100.0 |

In working out the present estimates of the different kinds of oils and fats required in the soap manufacture by the end of the IV Plan, the proportions of coconut oil and palm oil both of which are in short supply, have been slightly reduced with a view to making corresponding increases, in the use of cottonseed oil either in the form of oil as such or after hydrogenation. Here, too, some sort of incentives may be necessary to induce the soap manufactures to use cottonseed oil.

The proportions and the quantities of different kinds of oils and fats proposed to be used in the soap manufacture by the end of the IV Plan are indicated below :

| Oils/Fat | Percentage | Quantity in lakh tonnes |
|---|------------|-------------------------|
| 1. Coconut oil | 25.0 | 0.80 |
| 2. Palm oil | 25.0 | 0.80 |
| 3. Cottonseed oil (including hydrogenated form) | 13.4 | 0.43 |
| 4. Groundnut oil | 4.7 | 0.15 |
| 5. Mahua oil | 8.1 | 0.26 |
| 6. Rice Bran oil | 3.1 | 0.10 |
| 7. Tallow | 4.1 | 0.13 |
| 8. Others | 16.6 | 0.53 |
| TOTAL | 100.0 | 3.20 |

(iv) Paints and Varnishes

The requirements of vegetable oils in the manufacture of Paints and Varnishes, by the end of the IV and V Five Year Plans, as estimated by the Perspective Planning Division of the Planning Commission, are 1.30 lakh tonnes and 1.70 lakh tonnes, respectively.

In March, 1959, the development wing of the Union Ministry of Commerce and Industry had estimated that by the end of III Plan, the oil requirements of Paints and Varnishes industry would be as follows :

| Oils | Percentage | Quantity in tons |
|------------------|------------|------------------|
| Linseed oil | 90.9 | 60,000 |
| Castor oil | 4.5 | 3,000 |
| Tung oil | 1.6 | 1,000 |
| Tobacco seed oil | 3.0 | 2,000 |
| Coconut oil | | |
| Safflower oil | | |
| TOTAL | 100 | 66,000 |

The present estimates of oil requirements for the manufacture of paints and varnishes by the end of IV Plan have been apportioned among the different oils and they are shown below :

| Oils | Percentage | Quantity in lakh tonnes |
|------------------|--------------|-------------------------|
| Linseed oil | 90.0 | 1.17 |
| Castor oil | 5.0 | 0.06 |
| Tung oil | 2.0 | 0.03 |
| Tobacco seed oil | 1.5 | 0.02 |
| Safflower oil | 1.5 | 0.02 |
| TOTAL | 100.0 | 1.30 |

(v) Toilets, Lubrication and Miscellaneous uses

The total estimated requirements of the vegetable oils for these purposes by the end of IV and V Plans, as worked out by the Perspective Planning Division are 3.80 lakh tonnes and 5.40 lakh tonnes respectively.

The estimate of 3.80 lakh tonnes has been apportioned between the toilet purposes and lubrication and miscellaneous uses in the ratio of 90 : 10 which works out to 3.42 lakh tonnes and .38 lakh tonnes respectively. Again the oils required for toilet purposes have been apportioned between Hair oils and Massaging oils in the ratio of 70 : 30 which works out to 2.38 lakh tonnes and 1.04 lakh tonnes respectively.

The oils required for hair oil uses have been split up as mustard oil 40%, coconut oil 30%, castor oil 20% and sesamum oil 10%, while the oils required for massaging purposes have been split up into mustard oil and sesamum oil on a 50 : 50 basis. The entire quantity meant for lubrication and miscellaneous purposes has been taken as castor oil. On these assumptions the oils required for different purposes by the end of the IV Plan are as follows :

I. Hair oils

| | Lakh tonnes |
|-------------------|-------------|
| (a) Mustard oil | 0.95 |
| (b) Coconut oil | 0.71 |
| (c) Castor oil | 0.48 |
| (d) Sesamum oil | 0.24 |
| TOTAL of I | 2.38 |

II. Massaging Oils

| | |
|--------------------|-------------|
| (a) Mustard oil | 0.52 |
| (b) Sesamum oil | 0.52 |
| TOTAL of II | 1.04 |

III. Lubrication Castor Oil

| | |
|-------------------------------|-------------|
| | 0.38 |
| TOTAL of I, II and III | 3.80 |

(vi) Exports

The demand for oilseeds and oils for exports will depend on several factors, the principal ones being world prices, internal demand, availability and export promotion activities such as incentives. As these factors cannot be predicted precisely, the targets have to be purely tentative.

At the meeting of the Working Group on commercial crops production held at New Delhi on 29th November, 1963, the representative of the Ministry of International Trade informed that they had tentatively fixed the export targets of oils at 2.5 lakh tons or 2.55 lakh tonnes by the end of the IV Plan. A tentative target of oil export as 4.00 lakh tonnes by the end of the V Plan has been assumed by us.

These figures are subject to revision considering the Government's export policy in this regard and in the light of production targets.

The maximum quantity of the five major oils ever exported from India was in the year 1955-56 when a total of 2.50 lakh tons of the five major oils were exported.

Out of the 2.5 lakh tons of five major oils exported from India during 1955-56, groundnut oil constituted 50% while linseed oil and castor oil accounted for 32.4% and 15.6% respectively. The remaining two oils, viz., sesamum oil and mustard oil formed 1.6% and 0.4% respectively. It is now suggested that the exports target of 2.5 lakh tons (2.55 lakh tonnes) of the vegetable oils by the end of the IV Plan may be split up into the proportions shown below :

| | Lakh tonnes |
|--------------------------|-------------|
| Groundnut oil | 1.25 |
| Linseed oil | 0.80 |
| Castor oil | 0.40 |
| Cottonseed oil | 0.02 |
| Safflower oil | 0.02 |
| Niger oil | 0.01 |
| Rice Bran oil | 0.05 |
| | 2.55 |

It is assumed that as the rapeseed & mustard oil and sesamum oil would be needed for consumption within the country, and that they may not be available for export purposes.

Cottonseed oil exports are expected to be mainly of refined cottonseed oil.

(vii) Conversion of oil requirements into seed for the IV Plan

The total estimated requirements of different oils for various purposes by the end of IV Plan (1970-71) as arrived at in the foregoing pages is summarised below. The total of the quantities of the five major oilseeds together with those of safflower and niger crops has only been taken into account for showing against the projected demand. The average rate of oil extraction employed for converting the oil requirements of groundnut, rapeseed & mustard, sesamum, linseed, castor, safflower, niger and all "other oils" taken together into seed, and the quantities of seed required for oil extraction are also shown below :

| Variety of oil | Total quantity of oil (lakh tonnes) | Percentage of oil extraction | Quantity of seed required (lakh tonnes) |
|------------------------------|-------------------------------------|------------------------------|---|
| (A) MAJOR OILS | | | |
| Ground nut | 13.73 | 28.0 of pods | 49.04 |
| Rapeseed & Mustard | 7.33 | 33.33 | 21.99 |
| Sesamum | 3.75 | 40 | 9.38 |
| Linseed | 1.97 | 34 | 5.79 |
| Castor | 1.32 | 40 | 3.30 |
| Safflower | .94 | 30 | 3.13 |
| Niger | .18 | 35 | .51 |
| TOTAL OF MAJOR OILS | 29.22 | | 93.14 |
| (B) OTHER OILS | | | |
| Coconut | 1.68 | — | — |
| Cottonseed | 1.65 | — | — |
| Palm | 0.80 | — | — |
| Mahua | 0.26 | — | — |
| Soyabean | 0.07 | — | — |
| Rice-Bran | 0.15 | — | — |
| Tobacco-seed | 0.02 | — | — |
| Tung | 0.03 | — | — |
| Tallow | 0.13 | — | — |
| Others | 0.53 | — | — |
| TOTAL OF OTHER OILS | 5.32 | 33.33 | 15.96 |

In order to facilitate comparison of the demand projections of oilseeds with the supply position at the end of the IV Plan an average extraction rate of 33.33% by weight of seed has been employed for all the "other oils" taken together.

(viii) Seed for sowing

Taking into consideration the limitations in increasing the acreage under oilseed crops, estimates of seed for sowing are based on the highest acreage recorded during 1962-63 (Final Estimates). Accordingly, the requirements of the five major oilseeds together with those of safflower and niger seeds required for sowing by the end of the Fourth Plan are shown below :

| Crop | Assumed acreage in thousands | Average seed rate in lbs. | Seed required | |
|----------------------------|------------------------------------|---------------------------------|---|--------------------|
| | | | in tons | in tonnes |
| Groundnut | 16,407 | 80 (kernels) | 8,37,091 (Pods) 5,85,964 Kernels | 8,53,833 (Pods) |
| Rapeseed Mustard | 7,729 | 4 | 13,801 | 14,023 |
| Sesamum | 5,989 | 4 | 10,694 | 10,866 |
| Linseed | 4,653 | 12 | 24,925 | 25,325 |
| Castor | 1,097 | 15 | 7,346 | 7,464 |
| Safflower | 1,400 | 16 | 9,999 | 10,159 |
| Niger | 900 | 5 | 2,009 | 2,041 |
| | | | | 9,23,711 |

Thus, the total requirements of seed for sowing the above-mentioned seven crops by the end of the IV Plan would be 9.24 lakh tonnes.

(ix) Seed for direct edible use

It has been estimated by the Directorate of Economics and Statistics in Union Ministry of Food & Agriculture that the percentages of the total production of each of the five major oilseeds in India used for direct edible purposes during the triennium ending 1959-60 were as follows : (*vide* Oilseeds in India—1959-60).

| Crop | Percentage |
|----------------------------|------------|
| Groundnut | 6.3 |
| Rapeseed Mustard | 7.6 |
| Sesamum | 20.0 |
| Linseed | 7.0 |

The requirements of seed for direct edible purposes by the end of the IV Plan have been arrived at by applying the above percentages to the estimated production of the five major oilseed crops. On this basis the requirements of seeds for edible uses by the end of IV Plan will be as follows :

| Crop | Quantity (lakh tonnes) |
|------------------------------|------------------------------|
| Groundnut | 3.91 |
| Rapeseed & Mustard | 1.14 |
| Sesamum | 1.03 |
| Linseed | 0.35 |
| TOTAL | 6.43 |

(x) Seed for export

Ministry of International Trade have laid down an export target of 70 thousand tons (71 thousand tonnes) of oilseeds by the end of IV Plan. The seed-wise break-up of this target is suggested as follows :

| Seed | Export in lakh tonnes |
|-------------------|-----------------------|
| Groundnut | 0.66 |
| Sesamum | 0.01 |
| Kardi (Safflower) | 0.02 |
| Niger | 0.02 |
| TOTAL | 0.71 |

(xi) Total Oilseeds requirements

The total requirements of oilseeds have been arrived at by adding up the quantities of seeds required for oil extraction for sowing, for direct edible uses and for export purposes. Accordingly, the total requirements of the seven oilseeds crops together with those of "other sources" by the end of IV Plan are shown below :

(Lakh tonnes)

| Crop | Seed for oil extraction | Seed for sowing | Seed for direct edible use | Seed for export | Total seed requirements. |
|--------------------|-------------------------|-----------------|----------------------------|-----------------|--------------------------|
| Groundnut (Pods) | 49.04 | 8.54 | 3.91 | 0.66 | 62.15 |
| Rapeseed & Mustard | 21.99 | .14 | 1.14 | — | 23.27 |
| Sesamum | 9.38 | .11 | 1.03 | .01 | 10.53 |
| Linseed | 5.79 | .25 | .35 | — | 6.39 |
| Castor | 3.30 | .08 | — | — | 3.38 |
| Safflower | 3.13 | .10 | — | .02 | 3.25 |
| Niger | .51 | .02 | — | .02 | 0.55 |
| Other sources | 15.96 | — | — | — | 15.96 |
| TOTAL | 109.10 | 9.24 | 6.43 | 0.71 | 125.48 |

Thus the total requirements of the seven oilseeds, viz., Groundnut, Rapeseed & Mustard, Sesamum, Linseed, Castor, Safflower, and Niger together with those required for other oils comes to 125.48 lakh tonnes by the end of the Fourth Plan.

(xii) Fifth Five Year Plan

As the oil-wise break-up of the total requirements of oils for different purposes has not been done, the total oil requirements have been converted into seed by taking an average oil extraction rate of 33.33% of seed as was based earlier.

The requirements of oils for different purposes by the end of the Fifth Plan are summarised below :

| Purpose | Requirement in lakh tonnes |
|--|----------------------------|
| Liquid edible oils | 21.16 |
| For vanaspati manufacture | 10.59 |
| For soap manufacture | 4.60 |
| For paints and varnishes manufacture | 1.70 |
| For toilet, lubrication & miscellaneous purposes | 5.40 |
| For export purposes | 4.00 |
| TOTAL OIL REQUIREMENTS | 47.45 |

Assuming an average oil extraction rate of 33.33% by weight of seed, the total oil requirement of 47.45 lakh tonnes works out to 142.36 lakh tonnes of oilseeds required for oil extraction purposes. In addition to this, it is estimated that 9.50 lakh tonnes of seeds for sowing and 7.00 lakh tonnes of seeds for direct edible purposes are also required. Besides, it is also assumed that about 0.84 lakh tonnes of oilseeds will also be required for export purposes. Thus, in all 159.70 lakh tonnes of oilseeds are estimated to be required by the end of the Fifth Year Plan.

D. Sugarcane

The target for the Fourth Plan has to be related to the following two major considerations :—

1. Requirements of sugar for domestic consumption.
2. Exports.

(i) Domestic requirements

In assessing the domestic consumption due allowance must be made for the increase in population envisaged by 1970-71 and the expected increase over the present rate of consumption due to progressive rise in the living standard of the people as a result of industrial and economic growth of the country, consequent urbanisation and probable shifts from gur and khandsari (the other sweetening agents) to white sugar, etc.

There was a steep fall in production of white sugar in 1962-63 to 21.6 lakh tonnes. Besides, gur prices ruled high and considerable diversion of sugarcane from sugar factories for manufacture of gur and khandsari took place and the percentage utilisation of cane manufacture increased from 56.4 in 1961-62 to 61.4 in 1962-63, while that for sugar declined from 27.6 to 23.0 during the same period. As regards exports the world market prices dropped to nearly £ 20 in January, 1962 and continued to remain at that low level up to September, 1962. Since October, 1962, the world prices had shown a marked and continuous upward trend and reached a record height of £ 102 per ton in May, 1963. Although the price receded to some extent during the months that followed, yet remained at fairly high level ranging from £ 48.5 to £ 100.0 until it again shot up to £ 105 per ton on 31st October, 1963. This is a favourable situation for exports of Indian sugar. India also started manufacturing raw sugar which is mostly in demand by the main importing countries. During 1962-63, it has been possible to export 5.11 lakh tonnes of sugar including 2.5 lakh tonnes of raw sugar. In view of the favourable world price, the losses on export during 1963 had considerably minimised and at the same time the foreign exchange earning is expected to be about Rs. 32 crores.

Due to short-fall in production in 1962-63 and favourable export prospects, there has been a feeling of scarcity as a result of which it became difficult to keep the sugar prices under check despite the mechanism of regulating prices through periodical releases of sugar by Government Control over price and distribution was therefore reimposed on 17th April, 1963 in order to ensure distribution of sugar at reasonable prices to the consumers and for regulating exports to the maximum extent possible under the present fortuitious circumstances. The estimated consumption during 1962-63 partly under free market conditions and partly under control is bound to be restrictive and may not exceed 25.0 lakh tonnes. It would take some time before the equilibrium between supply and demand of white sugar gets restored and the consumption during this period would have to be somewhat held in check during the coming 2 or 3 years. Under these circumstances the consumption of white sugar is estimated to be of the order of 29.0 lakh tonnes in 1965-66 (end of Third Plan) though the consumption might be higher if there were free markets conditions.

(ii) Requirements at the current rate of consumption

The population in 1960-61 was 439 millions. The population in 1965-66 would be 492 millions. The population estimates by 1970-71 and 1975-76 end of 4th and 5th Plans are 555 millions and 625 millions, respectively. In 1965-66, 492 millions would consume 30.0 lakh tonnes of white sugar. Therefore, at this rate of consumption the requirements of 555 millions in 1970-71 would work out to $\frac{30.0 \times 555}{492} = 3.38$ million tonnes.

(iii) Increase due to rise in the living standards

The per capita consumption (per annum) of all the three sweetening material sugar, gur and khandsari—before the First Plan and at the end of I, II and III Plans.

and the estimates at the end of IV & V Plans as also the per adult consumption per day are shown below :

| | Per capita consumption (Kilograms per annum) | | | | Per adult consump tion grams per day |
|----------------------------|---|------|-----------|-------|---|
| | Sugar | Gur | Khandsari | Total | Sugar, Gur and Khand- sari |
| 1950-51 (Before I Plan) | 3.0 | 9.1 | 0.4 | 12.5 | 39.9 |
| 1955-56 (End of I Plan) | 5.0 | 7.5 | 0.4 | 12.9 | 41.2 |
| 1960-61 (End of II Plan) | 4.8 | 13.1 | 0.7 | 18.6 | 59.3 |
| 1965-66 (End of III Plan)* | 6.1 | 12.2 | 0.7 | 19.0 | 60.3 |
| 1970-71 (End of IV Plan)* | 7.3 | 12.2 | 0.7 | 20.2 | 64.1 |
| 1975-76 (End of V Plan)* | 8.0 | 12.5 | 0.8 | 21.3 | 67.9 |

Estimated.

The above data would show that the per capita consumption of all the three sweetening agents—white sugar, gur and khandsari taken together increased only slightly from 12.5 to 12.9 kg. during the first Plan period. The significant fact, however, is that there was a definite shift from gur to sugar as indicated by a sharp rise in per capita consumption of sugar from 3.0 kg. to 5.0 kg. with a corresponding decline in per capita consumption of gur from 9.1 to 7.5 kg. The position in the Second Plan, however, shows a larger per capita consumption of gur and khandsari due partly to short-fall in sugar production in earlier years of the second Plan and diversion of cane to gur and khandsari manufacture. It may be mentioned that a somewhat abrupt increase in per capita consumption of gur from 7.5 kg. in 1955-56 to 13.1 kg. in 1960-61, is largely accounted for by the revision made in 1963 of gur production estimates as from the year 1957-58 by the Directorate of Economics & Statistics. This has been done on the basis of crop-cutting experiments introduced from 1960-61 in U.P. (in 1961-62 in Punjab) and the latest survey (1956-57 to 1960-61) made by Agricultural Marketing Adviser regarding cane utilised for seed, feed and juice making.

By the end of Third Plan, the per capita consumption of white sugar is expected to reach 6.1 kg. *i.e.* a rise of about 1.2 kg. As regards gur & khandsari, the trend of consumption during the past 3 years (1960-61 to 1962-63) remained at about 57 lakh tonnes for gur and 3 lakh tonnes for khandsari. The consumption of gur and khandsari is, therefore, not likely to go up substantially during the remaining 3 years of the 3rd Plan and may not exceed 60 lakh tonnes and 3.8 lakh tonnes respectively by 1965-66, giving a per capita consumption of 12.2 kg. for gur and 0.7 kg. for khandsari. The per capita consumption of all the sweetening agents—sugar, gur and khandsari, together would be around 19.0 kg. by 1965-66.

According to nutritional experts, the desirable minimum standard for consumption of total sugar is 2 ounces, *i.e.* 56.8 grams for every adult per day. Adult consumption per day in India was 39.9 grams before 1st Plan (1951) which rose to 41.2 grams at the end of 1st Plan (1956) and 59.3 grams at the end of 2nd Plan (1961) and is expected to rise to 60.3 grams by 1966. Thus the consumption which was substantially below the minimum nutritional standard up to the end of First Plan reached the minimum in 1961 (end of Second Plan) and is expected to go up gradually by the end of 3rd and subsequent plans.

While there was control over price and distribution of white sugar during a major part of 2nd and 3rd Plan periods, there was practically none over gur and khandsari. The above position, therefore, represents a picture of rather restrictive consumption of white sugar. Had there been free market condition throughout this period, the white sugar consumption would have been considerably higher, and that of gur and khandsari proportionately lower. When the normal equilibrium of supply and demand of all the three sweetening agents white sugar, gur and khandsari, is established, which is expected to be achieved during the next few years *i.e.* by the end of current plan period due to various long term measures being adopted, it is reasonable to expect that the increase in per capita consumption during the 4th Plan will

be at least as much as it happened during the III Plan. Therefore per capita consumption of white sugar is estimated to rise to about 7.3 kgs. by the end of Fourth Plan, *i.e.* an increase of about 1.1 kg. during the period of five years. Improvement in economic conditions of the people and consequent rise in the living standard, is bound to be accompanied by a shift from gur and khandsari to white sugar and, therefore, the increase in per capita consumption of gur and khandsari is not likely to, materially rise during this period. For the present, it may be safe to assume that the per capita consumption of gur and khandsari will more or less remain at the same level. The increase in the consumption of white sugar on this assumption would, therefore, be $555 \times 1.2 = 6.66$ lakh tonnes. The requirement of white sugar, gur and khandsari for meeting the domestic consumption by the end of Fourth Plan 1970-71 will therefore be as follows :

- (1) White sugar . . . (33.8+6.7)=40.5 lakh tonnes (+5 lakh tons buffer stock)
 (2) Gur 67.5 lakh tonnes
 (3) Khandsari 4.8

(iv) Requirements of sugar for exports

There has taken place a significant development in the matter of sugar export. The export of sugar has steadily been increasing since 1960-61 and has exceeded the 5 lakh tons target during 1962-63. The foreign exchange earning went up from about Rs. 80,800 in 1960 to Rs. 14.81 crores in 1962 and is expected to be about 32 crores in 1963. Through persistent efforts it has been possible for India to secure a regular foothold in the International Sugar Market. Another significant step taken is the production of raw sugar in India for purpose of export. In 1962-63 about 2.5 lakh tons of raw sugar was produced for export to Japan, U.K., U.S.A and a number of other countries.

The following table indicates the statistical position of world sugar :

(in million tonnes—raw value)

| | September—August | | | |
|---------------------------|------------------|--------------|--------------|--------------|
| | 1959-60 | 1960-61 | 1961-62 | 1962-63 |
| <i>Opening Stocks</i> | | | | |
| <i>Production</i> | 13.77 | 14.63 | 17.21 | 14.39 |
| Cane Sugar | 29.77 | 31.10 | 29.62 | 29.49 |
| Beet Sugar | 20.31 | 24.28 | 22.35 | 21.82 |
| TOTAL | 50.08 | 55.38 | 51.97 | 51.31 |
| <i>Total Supply</i> | 63.85 | 70.01 | 69.18 | 65.70 |
| <i>Consumption</i> | 49.22 | 52.80 | 54.79 | 56.80* |
| <i>Closing of Stock @</i> | 14.63 | 17.21 | 14.39 | 8.90 |

*Rough estimates only

@As on 31st August.

Since 1960-61, there has been a decline in world sugar production both from cane and beet. Drop in cane sugar production is largely due to precipitous fall in Cuban production. Due to widening gap between world production and consumption, the closing stocks at the end of 1962-63 campaign has shrunk to 8.9 million tonnes as against 17.21 million tonnes in 1960-61.

From the study of the world situation, it would seem that although the upward trend of sugar prices may not continue for ever the possibility of the prices receding to the low levels is also remote at least for several years to come. There is, therefore, a considerable scope for India to increase sugar exports. Even at a conservative estimates, it will be possible to continue export at the present level of 5 lakh tonnes annually through out the Fourth Plan period. It is envisaged that a major part of this will have to be in the form of Raw Sugar depending upon the demand

and prices that may prevail. The requirement of white sugar by the end of Fourth Plan is estimated at :

| | |
|--|-----------------------|
| (i) For domestic consumption | 40 lakh tonnes |
| (ii) For exports | 5 lakh tonnes |
| TOTAL | 45 lakh tonnes |

Allowing for seed, chewing etc. at 11.5% total sugarcane requirement for the production of 45 lakh tonnes of Sugar, 67.5 lakh tonnes of Gur and 4 lakh tonnes of Khandsari by 1970-71, would work out to about 135 million tonnes.

(v) Requirement of sugar in 1971—76 (Fifth Plan)

On the basis of 1961 Census population in India in 1976 is estimated to be 625 millions. While it is not possible to prognosticate in any precise manner, the situation and circumstances that may obtain 10-12 years hence and their possible impact on sugar consumption, export etc., it may at any rate be possible to arrive at a rough estimate of the requirements of sugar, gur and khandsari by 1976 *i.e.* the end of Fifth Plan period. Assuming that the present trends in the rate of increase of per capita consumption and quantum of exports will continue at least over the next 10-12 years, the requirements of sugar, gur and khandsari by 1976 can at present be assessed as under :—

| Component | metric tons Lakh | | |
|--------------------------|------------------|---------|-------|
| | Domestic | Exports | Total |
| 1. White sugar | 50.0 | 5.0 | 55.0 |
| 2. Gur | 78.0 | — | 78.0 |
| 3. Khandsari | 5.0 | — | 5.0 |

Allowing for seed, chewing etc. at 11.5%, total sugarcane requirement is estimated at about 160 million tonnes annually by 1976.

E. Tobacco

The tobacco produced in the country is consumed as cigarettes, bidis, snuff, cigars, cheroots, hookah, chewing etc. It is also exported to the foreign countries largely in the form of unmanufactured tobacco and to a certain extent in the form of manufactured products. Therefore, the demand projections for 4th and 5th Five Year Plans have to be based on the consumption and export projections worked out taking into consideration the trends in past, the anticipated increases in population and per capita income and expenditure elasticity.

(i) Consumption

Demand projections on the consumption of tobacco by the end of the Fourth and Fifth Plan periods have been attempted by various organisations such as Indian Central Tobacco Committee (I.C.T.C.), National Council of Applied Economic Research (N.C.A.E.R.) Perspective Planning Division of the Planning Commission (P. P. Division) and the Directorate of Economics and Statistics (Dte. of E & S) taking into consideration the projected increase in population, per capita income and expenditure elasticity. The estimates of the various organisations are :

Estimates of per Capita Consumption of Tobacco in Grams per Annum

| Organisation | 1960-61 | 1965-66 | 1970-71 | 1975-76 |
|--|-----------------|----------------|----------------|----------------|
| 1. I.C.T.C. | 558 (19.67)* | 637 (22.47) | 640 (22.56) | 616 (21.72) |
| 2. N.C.A.E.R. | 647 (22.83) | 697 (24.57) | 755 (26.53) | 831 (29.30) |
| 3. P.P. Divn. | 606 (21.37) | .. | 763 (26.90) | 864 (30.49) |
| 4. Dte. of E & S | 558 (19.67) | 603 (21.26) | 693 (24.45) | 778 (27.46) |
| Recommended by the Working Group on commercial crops | — | 590 (21.0) | 650 (23.0) | 710 (25.0) |

*Figures in brackets are the per capita consumption estimated in ozs.

The sub-group at its meeting held at Bombay on 22nd October 1963 considered these projections and recommended the per capita consumption at 620 gms. (22.0 ozs.), 710 gms. (25.0 ozs.) and 770 gms. (27.0 ozs.) for 1965-66, 1970-71 and 1975-76 respectively. These were further considered at the 3rd meeting of the Working Group on commercial crops at Delhi on 29th November, 1963, when the Convenor pointed out that the period from 1950-51 to 1962-63 had made no impact on the per capita consumption of tobacco in India, which was 579, 590, 558 and 575 gms. in 1950-51, 1955-56, 1960-61, 1962-63 respectively. After some discussion on the matter as to the pros and cons of undue increased tobacco production in the country, the working group recommended the per capita consumption projections at 590 grams (21 ozs.), 650 grams (23 ozs.) and 710 grams (25 ozs.) for 1965-66, 1970-71 and 1975-76 respectively. Based on these per capita consumption projections and the population projections by the P. P. Division, the total tobacco consumption projection works out to about 291, 361 and 445 million kg. for 1965-66, 1970-71 and 1975-76.

As tobacco is consumed in various forms like cigarettes, bidi, chewing, hookah, snuff, cigar and cheroots, etc. it is imperative to analyse the composition of the per capita consumption in past and estimate the composition for the Fourth and Fifth Plans for effective planning of type-wise production of tobacco in the country. The type-wise composition of the per capita consumption for some of the years in past along with the estimates for the Third, Fourth and Fifth Plans are given in Table E 1.

Taking into consideration the past trends and the likely shifts in the smoking habits, the consumption of F.C.V. has been estimated to increase from about 52 grams in 1962-63 to 61, 80 and 100 gms. in 1965-66, 1970-71, and 1975-76 respectively. Similarly the consumption of tobacco other than F.C.V. which are largely used in cheap cigarettes, is estimated to increase from 48.5 gms. in 1962-63 to 56, 80 and 106 gms. in 1965-66, 1970-71 and 1975-76. Small increases in other tobacco, except hookah are also expected with increase in the per capita consumption from 575 gms. in 1962-63 to 590, 650 and 710 gms. in 1965-66, 1970-71 and 1975-76 respectively. In view of the continuously declining trend in hookah tobacco, its consumption is projected at 85, 80 and 75 gms. at the end of III, IV and V Plan periods. Estimated total quantity of each tobacco, taking into consideration the population projections of the P. P. Division are also given in Table E-1.

No estimates of stalks are given because it is a by-product coming from the leaf crop and no special efforts would be required to produce the same.

(ii) Exports

For the purpose of projecting the export demand, a review of the quantities exported as unmanufactured and manufactured tobacco from 1947-48 to 1960-61 is essential. The average exports for these years are given below :

| Average for the period | Quantity in million kg. | | Total |
|------------------------|-------------------------|-------------------|-------|
| | Unmanu- factured | Manufac- tured | |
| 1. 1947-48 to 1950-51 | 31.3 | 2.0 | 33.3 |
| 2. 1951-52 to 1955-56 | 38.2 | 2.0 | 40.2 |
| 3. 1956-57 to 1960-61. | 43.3 | 1.8 | 45.1 |

It will be seen from the above figures that about 95% of the total tobacco exports comprise of unmanufactured tobacco. During the decade ending 1960-61, the exports of tobacco have increased by 11.8 million kg. from 33.3 to 45.1 million kg. Thus on an average there was an annual increase of about 1.2 million kg., in our tobacco exports consisting entirely of unmanufactured tobacco. On the other hand there was a slight decline in our exports of manufactured tobacco.

into consideration the past as well as very present demand trends. These are given below :

| | (in million kg.) | | |
|--|--|---------|---------|
| | Export projection of unmanufactured tobacco. | | |
| | 1965-66 | 1970-71 | 1975-76 |
| Original targets | 50.0 | — | — |
| I.C.T.C. | 61.0 | 70.0 | 80.00 |
| Dte. of Int. Trade | 61.0 | 68.0 | 75.00 |
| Recommended by the Sub-Group | 61.0 | 70.0 | 80.00 |

The original export targets for 1965-66 were 50 million kg. This has been more than realised in 1962-63 when there was a sudden increase of about 33% over the exports in 1961-62. This increase was due to the larger purchase made by the East European countries on account of the failure of the domestic crop due to 'Blue Mould' infestation, besides other reasons, such as increase in world consumption of tobacco. Exports during this year also consisted of carry over of previous year. Although our present production may not be adequate to cope up with the increased exports, we can safely anticipate exports of unmanufactured tobacco to go up to 62 million kg. by the year 1965-66 looking to the supply and demand position in the world markets. The Sub-group considered the export projections by both the organisations and recommended those of the Indian Central Tobacco Committee in view of the brighter prospects of increasing the exports and the need of the country to increase the foreign exchange earnings for its industrial development.

As the variety-wise export statistics prior to 1957-58 are not available the variety wise export demand projection have been worked out keeping in view the percentage composition of exports during the triennium ending 1961-62. The export projections for the year 1965-66 along with the projection for the Fourth and Fifth Plan targets are given in Table E-2.

The demand projections to meet the demand at home and abroad at the end of the Fourth and Fifth Plan are given in Table E-3.

The production of about 380 million kg. in 1960-61 has gone to 387 million kg. in 1961-62 and it is believed to have reached 400 million kg. in 1962-63. The production at the end of the Third Plan can, therefore, safely be taken at 400 million kg. assuming that the present production will be continued. This would be in surplus by about 10 million kg. The total additional production of tobacco in the country to meet the demand at home and abroad will, therefore, have to be about 75 million kg. and 180 million kg. at the end of the Fourth and Fifth Plan respectively, increasing the total production from 400 million kg. in 1965-66 to 475 million kg. and 800 million kg. in 1970-71 and 1975-76 respectively.

TABLE E-1

Type-wise composition of annual per capita consumption of tobacco and the production projection for Third, Fourth and Fifth Plans

| Variety | Estimate | | | | Projections | | | | | |
|--------------------------------------|--------------|--------------|--------------|--------------|-----------------|-------------------|-----------------|-------------------|-----------------|-------------------|
| | 1950-51 | 1955-56 | 1960-61 | 1962-63 | 1965-66 | | 1970-71 | | 1975-76 | |
| | Gms. | Gms. | Gms. | Gms. | Per capita Gms. | Total million Kg. | Per capita Gms. | Total million Kg. | Per capita Gms. | Total million Kg. |
| F.C.V. | 35.4 | 38.0 | 52.7 | 52.2 | 61 | 30.1 | 80 | 44.5 | 100 | 62.7 |
| Other than F.C.V. used in cigarettes | 25.5 | 36.0 | 43.4 | 48.5 | 56 | 27.6 | 80 | 44.5 | 106 | 66.5 |
| Bidis | 132.1 | 175.5 | 166.4 | 189.4 | 190 | 93.7 | 198 | 110.1 | 206 | 129.2 |
| Snuff | 7.1 | 11.1 | 12.2 | 13.3 | 14 | 6.9 | 16 | 8.9 | 18 | 11.3 |
| Cigar and Cherrot | 65.5 | 53.1 | 45.9 | 41.4 | 42 | 20.7 | 46 | 25.6 | 50 | 31.4 |
| Hookah | 151.4 | 139.8 | 98.1 | 89.6 | 85 | 41.9 | 80 | 44.5 | 75 | 47.0 |
| Chewing | 162.2 | 136.7 | 138.9 | 140.6 | 142 | 70.0 | 150 | 83.4 | 155 | 97.2 |
| TOTAL | 579.2 | 590.2 | 557.6 | 575.0 | 590 | 290.9 | 650 | 361.5 | 710 | 445.3 |
| Stalks | 30.6 | 33.5 | 44.8 | 38.0 | .. | .. | .. | .. | .. | .. |
| TOTAL | 609.8 | 623.7 | 602.4 | 613.0 | 590 | 290.9 | 650 | 361.5 | 710 | 445.3 |

TABLE E-2

Variety-wise export projections of unmanufactured tobacco

(Million kgs.)

| Variety | Triennium ending 1961-62 Average million kg. | % of total | Anticipated proportion during IV and V Plans | Proposed targets | | |
|---|---|---------------|---|------------------|-------------|-------------|
| | | | | 1965-66 | 1970-71 | 1975-76 |
| F.C.V. | 31.6 | 73.3 | 80.0 | 48.8 | 56.0 | 64.0 |
| S.C.V. | 1.4 | 3.2 | 5.0 | 3.1 | 3.5 | 4.0 |
| Natu Desi S.C. | 1.0 | 2.3 | 2.3 | 1.4 | 1.6 | 1.8 |
| Chewing | 3.7 | 8.5 | 5.0 | 3.1 | 3.5 | 4.0 |
| Bidi, Cigar and Cheroot, Hookah and Stalks | 0.2 | 0.4 | 1.0 | 0.6 | 0.7 | 0.8 |
| Others | 5.4 | 12.3 | 6.7 | 4.1 | 4.7 | 5.4 |
| TOTAL | 43.3 | 100.0 | 100.0 | 61.1 | 70.0 | 80.0 |

TABLE E-3
Variety-wise demand projections at the end of III, IV and V Plans

(Quantities in Million kg)

| Variety | End of Third Plan | | | End of Fourth Plan | | | End of Fifth Plan | | |
|---|-------------------|-------------|--------------|--------------------|-------------|--------------|-------------------|-------------|--------------|
| | (1965-66) | | | (1970-71) | | | (1975-76) | | |
| | Domestic | Exports | Total | Domestic | Exports | Total | Domestic | Exports | Total |
| F.C.V. | 30.1 | 48.8 | 78.9 | 44.5 | 56.0 | 100.5 | 62.7 | 64.0 | 126.7 |
| Other than F.C.V. for cigarettes | 27.6 | 3.1+ 1.4 | 32.1 | 44.5 | 3.5+ 1.6 | 49.6 | 66.5 | 4.0+ 1.8 | 72.3 |
| Bidi | 93.7 | 0.6 | 94.3 | 110.1 | 0.7 | 110.8 | 129.2 | 0.8 | 130.0 |
| Snuff | 6.9 | .. | 6.9 | 8.9 | ** | 8.9 | 11.3 | ** | 11.3 |
| Hookah | 41.9 | .. | 41.9 | 44.5 | ** | 44.5 | 47.0 | ** | 47.0 |
| Chewing | 70.0 | 3.1 | 73.1 | 83.4 | 3.5 | 86.9 | 97.2 | 4.0 | 101.2 |
| Cigar & Cherrot | 20.7 | .. | 20.7 | 25.6 | ** | 25.6 | 31.4 | ** | 31.4 |
| Others | .. | 4.1 | 4.1 | .. | 4.7 | 4.7 | .. | 5.4 | 5.4 |
| TOTAL | 290.9 | 61.1 | 352.0 | 361.5 | 70.0 | 431.5 | 445.3 | 80.0 | 525.3 |
| Production Projections to match the demand projection allowing dryage, storage losses etc. at 10% | | | 400.0 | | | 475.0 | | | 580.0 |

**The exports of cigar and cheroot, hookah and stalks have been included in the exports under *bidi*.

| <u>Page</u> <u>No.</u> | <u>Para</u> <u>Number</u> |
|---------------------------|------------------------------|
| 4. | 1.9 |
| 24. | Table |
| 26. | (viii) |
| 32. | (vi) |
| 35. | (i) |
| 35 | (i) |
| 36 | |
| 37 | (iv) |
| 40. | |
| 40 | (ii) |
| 41 | Statistical table |
| 41 | Statistical Table |
| 43 | Statistical Table |

CORRIGENDA

| <u>Page No.</u> | <u>Para No.</u> | <u>Line No.</u> | <u>As printed</u> | <u>As required</u> |
|-----------------|-------------------|---------------------|---|--------------------|
| 4. | 1.9 | 22 | 14-77 | 14.77 |
| 24. | Table 2 | Col. 8 | 151.167 | 151.167 |
| | | Line 3 col. 4 | 98-106 - | 98.106 |
| | | Line 5 col. 4 | 33.0** 35.2 | 33.0** - 35.2 |
| | | Line 5 col. 8 | 45.5** 51.2 - | 45.5** - 51.2 |
| 26. | (viii) | Line 8 in the table | 3.626 | 3,626 |
| 32. | (vi) | Line 16 | as | delete |
| 35. | (i) | 30 | fortuitious | fortuitous |
| 35 | (i) | 37 | markets | market |
| 36 | | Below the table | Estimated | *Estimated |
| 37 | (iv) | Line 8 | produced | procured |
| 40. | - | 1 | The following line may be added at the beginning of the page - "Export projections have been attempted by the Indian Central Tobacco Committee (ICTC) and the Directorate of International trade taking" | |
| 40. | (ii) | Last line | 800 | 580 |
| 41 | Statistical table | 6th row | & Cigar and Cherrot | Cigar and Cheroot |
| 41 | Statistical Table | 8th row | Chewing | Chewing |
| 43 | Statistical Table | 7th row | Cigart Cherrot | Cigar & Cheroot. |

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