

NSS REPORT No. 38



NUTRITIONAL INTAKE IN GOA

**55TH ROUND OF NSS
(JULY 1999-JUNE 2000)**

**DIRECTORATE OF PLANNING, STATISTICS
AND EVALUATION**

PANAJI-GOA

PREFACE

The present report on “**Nutritional Intake in Goa**” which is based on the sample survey conducted under the 55th NSS (1999-2000) Round is first of its kind being brought out by the Directorate of Planning ,Statistics and Evaluation.

The report is divided into four sections and contains statistical annexures. Section One of the report is Introductory. While Section Two deals with Concepts and Definitions. Section Three discusses the Sample Design and Estimation Procedures and Section Four presents the Survey Findings.

It is hoped that the findings of the report will be useful for research institutes, Government Departments and other public and private institutions.

This report has been prepared by Shri. Anil Kumar, Statistical officer under the guidance of Shri. Suresh Shanbhogue, Joint Director. The effort put in by the officials of NSS division in field work, Scrutiny and Computerisation on is note worthy NSSO (FOD), New Delhi.

I am thankful to Shri. S. C. Seddy, Deputy Director General, Shri S. Malick Director and the team of the Data Processing Division , NSSO,Kolkata for technical support.

PANAJI: GOA

(S. K. Tewari)
DIRECTOR

Date:2.8.04

C O N T E N T S

		Page
SECTION-1	INTRODUCTION	1
SECTION-2	CONCEPTS AND DEFINITIONS	2-7
SECTION-3	SAMPLE DESIGN AND ESTIMATION PROCEDURES	8-10
SECTION-4	SURVEY OF FINDINGS	11-13
STATISTICAL ANNEXURES		14-20

SECTION -ONE

INTRODUCTION

Beginning from the 1st Round (1950-51)of the National Sample Survey (NSS), data on household consumer expenditure were collected in every round up to the 28th Round of NSS (1973-74). After the 26th round of the survey, the Governing Council of NSSO decided to conduct the survey on consumer expenditure and employment- unemployment once in every five years. Accordingly, "quinquennial" surveys on consumer expenditure and employment-unemployment were undertaken during the 27th, 32nd, 38th, 43rd, 50th and 55th rounds of NSS. This report pertains to 55th round of NSS conducted during the period July 1999 - June 2000 which provides position on nutritional intake levels in Goa to carry on with all life processes we need food. Food provides energy, helps in repairing damaged parts of cells and tissues and also makes new material necessary for growth and reproduction of living beings. The major components of food are: carbohydrates, proteins, fats, vitamins and minerals. These are called nutrients. It is needless to emphasize the importance of data on intake levels of nutrients of the persons of the State for understanding their general health status also indicate the availability of adequate food to the people. Estimates are prescribed at the level of State for Rural and Urban sectors for three nutrients –vi, calorie, proteins and fat. The report gives an idea about intake of these nutrients in different monthly per capita expenditure classes from different items of food: The nutrimental intake of a sample household has been measured by converting the quantities of the items of food consumed by the household into equivalent amounts of energy, proteins and fat . This report also presents information on whether meals were taken at home or not, and if not , whether the meals were taken from school, balwadi, employer or consumed by purchases during absence from home.

The report contains four sections including this introductory section. Section two explains the main concepts and definitions. Section three elucidates the Sample Design and Estimation Procedure of the survey. Section four discusses the Findings of the Survey .

Section-two

Concepts and Definitions

The concepts and definitions followed in the sixth quinquennial survey (55th round of NSS) of household consumer expenditure are more or less same as the earlier rounds. The concepts and definitions of the terms used are given below.

Household : A group of persons normally living together and taking food from a common kitchen constitutes a household. The word 'normally' means that temporary visitors are excluded but temporary stay-aways are included. Thus, a son or daughter residing in a hostel for studies is excluded from the household of his/her parents, but a resident employee or resident domestic servant or paying guest (but not just a tenant in the house) is included in the employer/ host's household. 'Living together' is usually given more importance than 'sharing food from common kitchen' in drawing the boundaries of a household in case the two criteria are in conflict; however, in the special case of a person taking food with his family but sleeping elsewhere (say, in a shop or a different house) due to space shortage, the household formed by such a person's family members is taken to include the person also. Each inmate of a mess, hotel, boarding and lodging house, hostel, etc., is considered a single-member household except that a family living in a hotel (say) is considered to be one household only; and the same applies to residential staff of such establishments..

Household size: The size of a household is the total number of persons in the household.

Consumer unit: Consumer unit is the rate of equivalence of a normal person determined on the basis of age-sex composition of a person. It is usual to assess the calorie needs of men, women and children in terms of those of the average man applying various coefficients to the different age and sex groups. Consumer unit of a normal male person doing sedentary work and belonging to the age group 20-39 years is taken as one unit and the other coefficients are worked out on the basis of calorie requirements. To facilitate comparisons between calorie requirements of persons of different ages and sexes the conversion table shown below has been used.

Number of Consumer units assigned to a person

Age (years)	Male	female
<1	0.43	0.43
1-3	0.54	0.54
4-6	0.72	0.72
7-9	0.87	0.87
10-12	1.03	0.93
13-15	0.97	0.80
16-19	1.02	0.75
20-39	1.00	1.71
40-49	0.95	0.68
50-59	0.90	0.64
60-69	0.80	0.51
70+	0.70	0.50

Household consumer expenditure: The expenditure incurred by a household on domestic consumption during the reference period is the household's consumer expenditure. The household consumer expenditure is the total of the monetary values of consumption of various groups of items, namely, (i) food, pan (betel leaves), tobacco, intoxicants and fuel & light, (ii) clothing and footwear and (iii) miscellaneous goods and services and durable articles.

For groups (i) and (ii), the total value of consumption is derived by aggregating the monetary value of goods actually consumed during the reference period. An item of clothing and footwear is considered to be consumed, if it is brought into maiden or first use during the reference period. The consumption may be out of (a) purchases made during the reference period or earlier; (b) home grown stock; (c) receipts in exchange of goods and services; (d) any other receipt through gift, charity, borrowing; and (e) free collection. Home produce is evaluated at the ex farm or ex factory prices. For evaluating the consumption of the items of group (iii) i.e., items categorized as miscellaneous goods and services and durable goods, a different approach is followed. In this case, the expenditure made during the reference period for the purchase of goods and services is considered to be consumption.

It is pertinent to mention here that the consumer expenditure of a household on food items relates to the actual consumption by the normal resident members of the household and also by the guest, whether during ceremonies or otherwise. To avoid double counting, transfer payments like charity, loan, advance, etc., made by the household are not considered consumption for items of groups (i) and (ii), since transfer receipts of these items have been taken into account. However, the item 'cooked meals' is an exception to the rule. Meals prepared in the household kitchen and provided to the employees and/or others would automatically get included in domestic consumption of employer (payer) household. There is practical difficulty in estimating the quantities and values of individual items used for preparing the meals served to employees or to others. Thus, to avoid double counting, cooked meals received, as perquisites from employer household or as gift or charity are not recorded in the recipient household. As a general principle, cooked meals purchased from the market for consumption of the normal resident members and of guests and employees are recorded in the purchaser household.

This procedure of recording cooked meals served to others in the expenditure of the serving households only leads to bias free estimates of average per capita consumption as well as total consumer expenditure. However, as the proportions of donors and recipients of free cooked meals are likely to vary in opposite directions over the expenditure classes, the nutritional intake derived from the consumer expenditure survey data may present a somewhat distorted picture. These derived nutrition intakes may get inflated for the rich (net donors) and somewhat understated for the poor (net recipients). This point has to be kept in mind while using the NSS consumer expenditure data for any studies relating to the nutritional status of households.

Reference period: Reference period means the period of time for which data on consumption was collected. The reference period used for the survey was a "moving" one, varying from household to household, although it was a fixed length of period. During the 55th round of NSS, information on

consumption of food, pan, tobacco & intoxicants was collected independently for two different reference period of last 30 days and last 7 days from the same households. For items of clothing, footwear, durable goods, education and medical (institutional) expenses, data were collected for the reference period of "last 365 days" preceding the date of survey. For remaining items, a reference period of "last 30 days" preceding the date of survey was used. However, the monthly estimates presented in this report are based on data collected for the "last 365 days" for clothing, footwear, durable goods, education and medical (institutional) expenses and for the "last 30 days" for the rest of the items.

Sector: The word "sector" is used for the rural-urban demarcation: rural and urban are the only two sectors as far as this report is concerned.

Monthly per capita consumer expenditure (MPCE): For a household, this is its total consumer expenditure derived for 30 days divided by its size. A person's MPCE is understood as that of the household to which he or she belongs.

MPCE class: The MPCE classes are normally revised during quinquennial surveys of Consumer Expenditure. Usually, 12 MPCE classes are formed from a table giving estimated cumulative percentage frequency distribution of persons by MPCE for each sector separately and also combinedly. The upper limits of these classes correspond broadly to cumulative percentages 5%, 10%, 20%, 30%, 40%, 50%, 60%, 70%, 80%, 90%, 95%, and 100%-pf population. The class limits obtained in this manner are given below :

Sr.no.	Rural	Urban
1	<225	<300
2	225-255	300-350
3	255-300	350-425
4	300-340	425-500
5	340-380	500-575
6	380-420	575-665
7	420-470	665-775
8	470-525	775-915
9	525-615	915-1120
10	615-775	1120-1500
11	775-950	1500-1925
12	950+	1925+

Nutrients: A wide range of nutrients is necessary to a person for the performance of various bodily functions and also to lead a healthy life. The nutrients include proteins, fat, carbohydrate, vitamins and minerals. These nutrients are chemical ingredients, which are present in the food substances. The food containing these nutrients, which we consume, daily are classified as cereals, pulses, nuts &

oilseeds, vegetables, fruits, milk & milk products and also as foods, fleshy in nature (fish, meat & poultry).

Proteins, fat and carbohydrate : get oxidized in the body to yield energy, which the body needs. Although proteins provide energy, their primary function is to provide amino acids for building body proteins. Fats, particularly the vegetable oils, besides being a concentrated source of energy, provide essential fatty acids which perform functions akin to vitamins in the body. Vitamins and minerals do not supply energy but they play an important role in the regulation of the metabolic activity in the body and help in the utilization of the proximate principles.

Proteins: Proteins are the source materials needed to build and repair our body. Proteins, like carbohydrates and fats, are compounds of carbon, hydrogen and oxygen but they also contain other elements such as nitrogen and sulphur, which play an important role in many life processes. All foods except refined sugar, oil and fats contain protein to varying degrees. Some food contains high amount of protein and can be classified as protein rich food. Example of such food is animal food like meat, fish and egg and plant food like pulses, oil seeds and nuts. Milk also can be classified under this category if due allowance is made for the large amount of water in it. It contains over 20% protein. Soya bean is a very rich source of protein containing over 40% of protein. Cereals are moderate sources of protein as they contain about 10% protein. Rice contains less protein (7%) than wheat (approx.10%) and other cereals. Leafy vegetable, fruits, roots, tubers are generally poor sources of protein as they contain less than 2% protein. The protein values were calculated from the nitrogen contents and the factor used was 6.25 for the entire foodstuff.

Fats: Fat is an important component of diet and serves a number of functions in the body. Fats are generally insoluble in water, but soluble in organic solvents. They are members of a heterogeneous group of chemicals called Lipids. Fat is a concentrated source of energy and per unit weight it supplies more than twice the energy furnished by either protein or carbohydrate. It also imparts palatability to a diet and retards the pace of emptying the stomach. Presence of fat in the diet is important for the absorption of fat soluble vitamins like vitamin A and carotene present in the diet. Apart from these functions, some fats, particularly those derived from vegetable sources provide what is known as "essential fatty acids" (EFA) which have vitamin-like functions in body. Fats in the diet can be of two kinds, visible and invisible fat.

The visible fats are those derived from animal fats like butter and ghee which are solid fats and those derived from vegetable fats like groundnut, mustard, coconut, sunflower, til which are liquid fats. The invisible fats are present in other food items like cereals, pulses, oilseeds, milk, egg, meat etc. These invisible fats are believed to contribute significantly to the total fat and essential fatty acid contents of diet depending upon the nature and quantity of foodstuff present in the diet. The values of fat relate to the total other extractives and are measured in gm.

Carbohydrates: Carbohydrates are a class of energy yielding substances which include starch, glucose, cane sugar, milk etc. Grain foods and roots and tubers are largely composed of starch, a complex carbohydrate. Food ingredients like simple sugar, namely, cane sugar and glucose are pure

carbohydrates. Glucose derived from starch and other sugar present in the diet is the main source of energy in the body. Carbohydrates derived from cereals from the chief source of energy in Indian diets.

Energy: Protein, fat and carbohydrates are mainly the energy yielding components of a diet. Proteins normally supply 10 – 12% of energy in most diets; energy that carbohydrate and fat contribute may vary from diet to diet. It is desirable that the energy from fat should not exceed 30% and the rest may be derived from carbohydrate (60%). Quantitative food requirements are usually estimated in terms of energy. The unit of measuring energy is calorie which is the amount of heat necessary to raise the temperature of one kg of water by 1°C from 14.5°C to 15.5°C. The calorie unit of measurement of food items is 1000 times the conventional calorie unit of energy. Hence in some studies the unit of energy nutrient notations like "kcal" (i.e. Kilo calories or 1000 calories) or simple "call " are used. Throughout this report, however, only calories have been used to represent the unit of energy for nutrition, which is one thousand times the conventional calorie unit.

Food Items by Major Groups: A classification of food commodities into 10 major food groups as in the table below has been framed. Energy intake is presented as a break-up over those 10 groups, which usually contribute towards generation of energy in the body when consumed.

Classification of item groups

Food group no.	Name of the food group	Food group no.	Name of food group
I	Cereal and Cereal substitutes	VI	Meat, eggs & fish
II	Roots and tubers	VII	Milk & milk Products
III	sugar and honey	VIII	Oils & fats
IV	pulses and nuts and oilseeds	IX	Misc.food, Food & beverages
V	vegetables and fruits	X	Alcoholic beverages

Meal: One or more readily eatable (Generally cooked) items of food with cereal as its usual major constituent, for the purpose of consumption of a person, is termed as a meal. Energy and other nutrients for normal living and pursuit of normal vocations are provided by the meals when consumed daily once or more by a human being.

Meals taken away from home – free: The meals taken while away from home are those which are provided free by (i) Employer (s) to him , (ii) schools / balwadis as mid-day meal and (iii) other households during ceremonial or other occasions, etc. to the person as guest/visitor or otherwise.

Meals taken away from home: -on payment: The meals taken while away from home on payment are those which are obtained from hotels/restaurants, eating houses etc., or from office/factory canteens on payment or on credit or purchase at subsidized rate.

Milk and milk products: This group includes ghee, butter, curd, ice cream, etc. Milk-based sweetmeats (pera, rosogolla, etc.) come under 'beverages, refreshments and processed food' unless they are prepared from milk, sugar, etc., within the household. In the later case, consumption of milk, sugar, etc., is accounted separately instead of as a single item under 'milk products'.

Cereal substitutes: Normally, cereals are a major constituent of a person's staple diet. But at times by choice or due to reasons of scarcity, some people may not opt for much of cereals or any cereal at all. Then the cereal requirement may be made up by such consumption as of tapioca, mahu and jackfruit seeds etc..., which are cereal substitutes. However, potato or sweet potato consumed as substitute of cereals are considered as root-vegetables and not as cereal substitutes.

"Norm" Level of Calorie Intake: The requirement of calorie of a person in terms of age and sex used in this report ignores the variation due to the factors like body weight, nature of work, state of health, etc. although the requirement is not fixed amount in reality but a variable depending upon all these factors. Nutritionists, attempting to assess calorie requirements per consumer unit, differ in their approaches to the problem – some specifying calorie requirement as function of body weight while others assign requirements depending on nature of work (sedentary/ moderate/heavy). From 26th round, the NSS has been using a level of 2700 kcal per consumer unit per diem as a standard measure of actual intake. This level is referred to and reported as the "norm" level of calorie intake for both rural and urban areas in this report. Estimates of calorie intake per consumer unit per day expressed as percentages of this "norm" level for different categories of persons are presented side by side for showing the existing situation at different levels. The eight PCU calorie intake levels created for presenting the estimates in this report are:

1. <70
2. 70-80
3. 80-90
4. 90-100
5. 100-110
6. 110-120
7. 120-150
8. 150+

SECTION –THREE

SURVEY DESIGN AND ESTIMATION PROCEDURE

A stratified sampling design was adopted for selection of the sample First – stage units (FSU's). The FSU's were villages for rural areas and Urban Frame Survey (UFS) blocks for urban areas. The households for sch.1.0/10 which were selected by the method of circular systematic sampling with equal probability from the corresponding frame in the FSU. Large FSU's were subdivided into hamlet-groups and sub-blocks that were grouped in to two segments, and USU's were selected independently from each of these segments. For the purpose of systematic sampling, households in the frame of second stage stratum 2 were arranged by means of livelihood and land possessed classes for rural and by means of livelihood and MPCE classes for urban samples.

Sampling frame for first stage units: List of villages as per 1991 Census and latest lists of UFS blocks were respectively used for selection of rural and urban sample FSU's.

Stratification :

Rural : Two special strata were formed

Stratum 1 : all FSUs with population between 1-100 and

Stratum 2: FSUs with population more than 15,000.

Urban: Strata were formed as given below:

Stratum number	Composition of strata by considering population of the towns as per 1991 Census
1	Hospital area, industrial area, bazaar area
2	Other area

Selection of first –stage units: For each sub-round, sample FSU's from each stratum are selected in the form of 2 independent sub-samples by following circular systematic sampling with (a) probability proportional to population for all rural strata other than Stratum 1, and (b) equal probability for rural stratum 1 as well as all urban strata.

Formulation of hamlet-groups in large villages and number of hamlet-groups selected for survey:

Depending upon the values of approximate present population (P) and approximate total number of non-agricultural enterprises (E), decision was taken to divide the FSU in to a fixed number of hamlet – groups / sub-blocks

Value of P	no. of hg's/sb's formed in the FSU as per population criteria	Value of E	no. of hg's/sb's formed in the FSU as per population criteria
<1200	1	<100	1
1200-1999	5	100-249	5
2000-2399	6	250-299	6
2400-2799	7	300-349	7
2800-3199	8	350-399	8
and so on		and so on	

The number D of hamlet-groups / sub-blocks formed in the FSU was the higher of the two values as per population and enterprises criteria. If the value of P <1200 as well as the value of E was < 100 for an FSU, hg/sb formation was not resorted to and the whole FSU was considered for listing. In case hgs / sbs were formed in the sample FSU, the same was done by more or less equalizing population.

Formation of segments within FSU: The hg/sb having maximum concentration of non-agricultural enterprises was selected with certainty for listing of households / enterprises. This hg/sb was referred it as segment 1. From the remaining (D-1) hg's/sb's of the FSU, 2 more hg's/sb's were selected circular systematically and these 2 selected hg's / sb's together were referred to as segment 2 for doing a combined listing of households / enterprises. Thus, the listing of households/ enterprises was done only in segment 1 and 2 of the FSU. The FSU not requiring hg/sb was to be treated as Segment 1.

Sampling frame of households: Having determined the area considered for listing, all the households (including temporarily locked) formed the sample frame .

Stratification of households: All the households listed in a segment (both rural and urban) were stratified into two second stage strata, viz "affluent households" and the rest (forming second stage stratum 2)

In the rural sector, a maximum of ten households which were relatively affluent compared to others and possessed at least certain items like motor car, TV, telephones etc. or owned land, livestock in excess of certain limits were included in second stage stratum 1.

In urban sector, the households having MPCE greater than certain limit for a given town/city were treated as "affluent" households for the present survey and were included in the frame of second stage stratum 1, and the rest of the urban households were included in the frame of second stage stratum 2.

Number of households selected for survey :

Segment	Number of households allotted for consumer expenditure schedule		
	1	2	all
FSU with hg/sb formation			
1	1	3	4
2	1	7	8
FSU with no hg/sb formation			
1	2	10	12

Estimation Procedure :

- s = Subscript for s-th stratum ;
t = " " t-th sub-stratum;
i = " " i-th sample village / block (fsu) ;
j = " " k-th household ;
D = number of hamlet –groups / sub-blocks formed in a sample village / block ;
C = Number of census villages in surveyed ;
Z = Total size of a sub-stratum within a stratum;
Z = Village/ Block size used for selection ;
n = Number of sample villages/blocks surveyed including un-inhabited and zero cases,
Ho = Total number of households listed in selected hg/sb designated as hg/sb no.'0',
Ho = Number of households surveyed in hg/sb designated as hg/sb no.'0'
H1&h1 = These relate to hg/sb designated as hg/sb no.'1' in case of hg/sb formation,
yo = Vale of any character under estimation in a sample village / block / household taken from hg/sb no. '0',
y1 = Vale of any character under estimation in a sample village / block / household taken from hg / sb no. '1',
^
Y = Estimate of population total of the character y

The estimation procedure adopted in the 55th Round of NSS is based on weighted sum of the sample values. The unbiased estimate of Y is denoted by ^Y and is given by

38.
$$\left| \begin{array}{l} \text{Rural: } \hat{Y}_t = \sum_m \sum_{z=1}^Z \frac{1}{Z} \sum_{j=1}^D B_{fnc} \sum_{i=1}^{h_{fnc}} y_{fnci} \text{ where } B_{fnc} = \frac{H_{fnc}}{h_{fnc}} \text{ for seg 1} \\ \text{Urban: } \hat{Y}_s = \sum_m \sum_{z=1}^Z \sum_{j=1}^D B_{fnc} \sum_{i=1}^{h_{fnc}} y_{fnci} \text{ where } B_{fnc} = \frac{D-1}{2} \frac{H_{fnc}}{h_{fnc}} \text{ for seg 2} \end{array} \right.$$

SECTION –FOUR

Finding of Survey

Data on household consumer expenditure help in the generation of different kinds of indicators that are helpful in assessing the living standards of different sections, groups or classes of the population and the population in Goa State. One such indicator is the level of nutritional intake. In this section, an attempt is made to study the level and pattern of the intake of three nutrients, viz., protein, fat and calorie. The estimates are presented separately for rural and urban areas of the State.

Distribution of households and persons by calorie intake levels separately by MPCE class at State level and the number of meals consumed at home or consumed outside with or without payment are presented in this report.

a) Number of meals consumed per household at home, away from home – free / on payment

It is observed that the average number of meals consumed per household at home during the reference period of the 'last 30 days' preceding the date of survey was 256 and 260 in rural and urban areas respectively, is given in Table no.1. It means that the average number of meals consumed per day per person was 4.33 in rural areas and 4.39 in urban areas. Thus, the number of meals consumed on an average per person per day was marginally in urban areas compared to rural area. The number of meals taken away from home free i.e. without any payment, by Goan households was nil in both rural and urban areas. It is only evident that in rural and urban sectors, as MPCE increases, the average number of meals consumed per household shows a declining trend.

b) Nutritional intakes: variation over MPCE classes

Statement 3 gives per capita and per consumer unit intake of calorie, protein and fat per diem by MPCE class, along with percentage of total expenditure, spent on food and average monthly per capita expenditure for rural and urban areas respectively. The overall averages of intake of calorie, protein and fat per consumer unit per diem were found to be 2812 kcal, 86.4 gm and 63.0 gm, respectively, in the rural sector whereas it was 2682 kcal, 82.0 gm, and 67.2 in the urban sector of the State. It is pertinent to note that the overall nutritional standard in the State is quite satisfactory as the per consumer unit per diem intake of calorie is in conformity with the "norm" level of 2700 kcal.

Although the percentage of total expenditure spent on food is a decreasing function of MPCE, actual food expenditure per capita rises over the MPCE classes and the per capita or per consumer unit per diem intake of each of the three nutrients under study – calorie, protein and fat – is an increasing function of MPCE. All the intake levels were very low for persons belonging to the lower MPCE classes and quite high for the persons belonging to the higher MPCE classes.

Theoretically, one may argue that intake per consumer unit is a more suitable basis for comparison than per capita intake of nutrients per diem. But, the measure 'per consumer unit intake of nutrients per diet gives the same picture as the measure 'per capita intake of nutrients per diem'. The per

capita per diem intake of calorie, protein and fat were 2308 kcal, 70.9 gm and 51.7 gm in the rural area; whereas these averages were 2154 kcal, 65.9 gm and 54.0 gm, respectively, in the urban area.

c) Nutritional Intakes: Inter-state variation: Statement 3 give comparison of per capita and per consumer unit intake of calorie, protein and fat per diem separately for the rural and urban population in the neighboring States and All-India. It is observed that, the status of nutritional intake in Goa is much better than Kerela, Karnataka, All-India both in rural and urban sectors.

Statement 3: Per capita and per consumer unit intake of calorie, protein and fat per diem

RURAL

State	Per capita per diem intake of			Per consumer unit per diem intake of		
	Calorie (kcal)	Protein (gm)	Fat (gm)	Calorie (kcal)	Protein (gm)	Fat (gm)
Karnataka	2028	54.2	36.6	2508	67.1	45.3
Kerala	1982	52.4	38.8	2489	65.8	48.7
Goa	2388	70.9	51.7	2812	86.4	63.0
All India	2149	59.1	36.1	2668	73.4	44.9

Per capita and per consumer unit intake of calorie, protein and fat per diem

URBAN

State	Per capita per diem intake of			Per consumer unit per diem intake of		
	Calorie (kcal)	Protein (gm)	Fat (gm)	Calorie (kcal)	Protein (gm)	Fat (gm)
Karnataka	2046	53.5	45.1	2494	65.2	54.9
Kerala	1995	55.2	42.9	2498	69.1	53.7
Goa	2154	65.9	54.8	2682	82.0	67.2
All India	2156	58.5	49.6	2637	71.5	60.7

d) Variation in Intake of calorie and protein over MPCE classes

Statement 4 shows the percentage intake of calorie and protein from different groups of food items by MPCE class in rural and urban areas respectively. It is observed that the major part of calorie or protein was derived from cereals. On the whole, considering all the MPCE classes together, out of the total calorie intake, 52% in rural areas and 51% in the urban areas were derived from cereals alone.

The percentage contribution of cereals to the average intake of protein in the State was 44% in rural and urban sector. These proportions show declining trend with the rise of monthly per capita expenditure level, both in rural and urban areas. However, the percentage of total intake of protein derived from other types of food groups, especially milk & milk products showed an opposite trend i.e., the proportions increased with the rise of per capita expenditure for both the rural and urban sectors.

Protein as a nutrient was derived mostly from cereals. Pulses as a source of protein came next to the cereals, followed by milk & milk products and egg, fish and meat in both rural and urban Goa.

e) Distribution of total calorie intake over different food groups

Statements 5 show the distribution of total calorie intake over nine different food groups in rural and urban areas respectively.

So far as calorie intake is concerned, the major source of energy in State in both the sectors was cereals. Groups coming next in percentage terms to cereals were oils & fats (food group VIII) followed by milk & milk products (food group VII), pulses, nuts and oilseeds (food group IV) and sugar and honey (Food group III) in both the rural and urban sectors of the State.

In rural areas, only around 48% of total calorie intake was accounted by items other than cereals. Out of this (food group VIII –7%), milk & milk products (food group VI – 5%), pulses, nuts & oilseeds (food group IV –10%), and sugar and honey (food group III – 7%) contributed significant proportions to the total intake of calorie.

In urban areas also, the picture is the same; only the proportions of calorie intake from non-cereals was relatively high 49% and the contributions to total calorie intake from the four groups mentioned were also somewhat same.

STATISTICAL ANNEXURES

Table 1 : Average no. of meals consumed by members per household at home, away from home (i) free from school, balwadi etc. from employer as perquisite or part of wage and others and (ii) on payment, during a period of 30 days for each MPCE

RURAL

MPCE Class (Rs.)	Household size (0.00)	Average no. of meals consumed per household						No. of persons reporting "0" meals per 1000 persons	Estd(00)		Sample	
		At home	Free						Hhs.	persons	Hhs.	persons
			From school	From employer	others	all	On payment					
000-225	0.00	0	0	0	0	0	0	0	0	0	0	0
225-255	0.00	0	0	0	0	0	0	0	0	0	0	0
255-300	0.00	0	0	0	0	0	0	0	0	0	0	0
300-340	0.00	0	0	0	0	0	0	0	0	0	0	0
340-380	0.00	0	0	0	0	0	0	0	0	0	0	0
380-420	5.00	300	0	0	0	0	2055	0	2	10	1	0
420-470	4.69	281	0	0	0	0	2138	0	14	68	4	5
470-525	6.90	414	0	0	0	0	3452	0	22	150	4	23
525-615	5.32	319	0	0	0	0	3083	0	112	593	20	26
615-775	5.36	317	0	1	0	1	3797	1	277	1483	43	110
775-950	4.25	254	0	0	1	0	3708	4	453	1924	59	258
950+	3.80	223	0	0	0	0	5126	0	777	2950	155	600
All classes	4.33	256	0	0	0	0	4237	1	1656	7178	286	1248

URBAN

MPCE Class (Rs.)	Household size (0.00)	Average no. of meals consumed per household						No. of persons reporting "0" meals per Hhs.	Estd (00)		Sample	
		At home	free						Hhs.	persons	Hhs.	Persons
			From school	From employer	others	all	On payment					
000-300	0.00	0	0	0	0	0	0	0	0	0	0	0
300-350	6.00	360	0	0	0	0	2034	0	5	31	1	6
350-425	7.97	451	0	0	0	0	2981	0	15	116	4	32
425-500	8.60	516	0	0	0	0	4059	0	9	78	4	33
500-575	5.71	342	0	0	0	0	3091	8	52	297	14	90
575-665	6.07	364	0	0	0	0	3788	0	79	481	15	88
665-775	4.98	297	0	0	0	0	3495	0	175	870	26	122
775-915	4.11	246	0	0	0	0	3545	0	94	387	28	117
915-1120	4.52	271	0	0	0	0	4538	5	175	789	40	188
1120-1500	3.90	228	1	5	0	6	5049	3	181	707	56	229
1500-1925	3.74	220	0	2	0	2	6300	0	144	539	40	149
1925+	3.35	193	0	0	0	1	9722	0	212	710	55	183
All classes	4.39	260	0	1	0	1	5409	2	1141	5006	283	1229

Table No.2: Average no. of meals consumed per person at home and obtained elsewhere On payment or free from specific sources during a period of 30 days by age and Sex

RURAL

Age group	Average no. of meals consumed per household														All	Estd no. of persons (00)		No. of sample persons		
	At home		away from home																	
			free								On payment		all							
			From school		From employer		others		all											
M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	
0-4	60	60	0	0	0	0	0	0	0	0	0	0	0	0	60	60	339	339	62	52
5-9	56	60	0	0	0	0	0	0	0	0	0	0	0	0	56	60	386	339	66	59
10-14	60	59	0	0	0	0	0	0	0	0	0	0	0	0	60	59	299	328	55	65
15-29	59	60	0	0	0	0	0	0	0	0	1	0	1	0	60	60	1233	918	191	173
30-44	58	60	0	0	0	0	0	0	0	0	0	0	0	0	58	60	855	926	146	143
45-59	56	60	0	0	0	0	0	0	0	0	2	0	2	0	60	60	492	328	82	77
60+	60	60	0	0	0	0	0	0	0	0	0	0	0	0	60	60	118	249	31	45
All ages	59	60	0	0	0	0	0	0	0	0	1	0	1	0	59	60	3722	3427	633	614
Estd no. (00)	3676	3450	8	0	10	0	7	0	26	0	102	13	128	13	3676	3458	X	X	X	X
Sample no.	631	614	1	0	3	0	3	0	7	0	14	2	21	2	631	614	x	x	x	X

URBAN

Age group	Average no. of meals consumed per household														All		Estd no. of persons (00)		No. of sample persons	
	At home		away from home																	
			free								On payment		all							
			From school		From employer		others		all											
M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	
0-4	60	60	0	0	0	0	0	0	0	0	0	0	0	0	60	60	227	235	47	36
5-9	60	59	0	1	0	0	0	0	0	1	0	0	0	1	60	59	221	175	48	48
10-14	59	60	1	0	0	0	0	0	1	0	0	0	1	0	60	68	215	219	61	56
15-29	58	59	0	0	2	0	0	0	2	0	0	0	2	0	59	59	609	709	160	194
30-44	59	60	0	0	0	0	0	0	0	0	0	0	0	0	60	60	612	636	145	137
45-59	58	58	0	0	1	0	0	0	1	0	0	0	1	0	59	58	436	335	108	92
60+	60	60	0	0	0	0	0	0	0	0	0	0	0	0	60	60	125	247	39	57
All ages	59	59	0	0	1	0	0	0	1	0	0	0	1	0	60	60	2444	2556	608	620
Estd no. (00)	2444	2553	6	6	49	15	3	3	55	20	15	1	70	21	2458	2553	X	X	X	X
Sample no.	605	617	1	1	10	3	1	1	11	4	14	1	25	5	606	617	X	X	X	X

Table No. 3: Per capita and Per Consumer Unit intake calorie , protein and Fat Per Diem by MPCE Class

RUARL

MPCE Class	Percentage expenditure on food	Per capita per Diem Intake of			Per Consumer unit per Diem Intake of			No. of sample households
		Calorie (kcal)	Protein (0.0gm)	Fat (0.0gm)	Calorie (kcal)	Protein (0.0gm)	Fat (0.0gm)	
1	2	3	4	5	6	7	8	9
000-225	0	0	0.0	0.0	0	0.0	0.0	0
225-255	0	0	0.0	0.0	0	0.0	0.0	0
255-300	0	0	0.0	0.0	0	0.0	0.0	0
300-340	0	0	0.0	0.0	0	0.0	0.0	0
340-380	0	0	0.0	0.0	0	0.0	0.0	0
380-420	64	919	26.1	16.2	1265	35.9	22.4	1
420-470	59	1298	40.1	27.3	1534	47.4	32.3	4
470-525	66	1579	45.9	28.7	1983	57.6	36.0	4
525-615	64	1721	47.1	33.7	2125	58.2	41.6	20
615-775	62	2340	66.3	43.0	2804	79.5	51.6	43
775-950	61	2287	71.8	55.1	2785	86.5	67.1	59
950-more	50	2488	80.2	59.3	3045	98.1	72.6	155
all classes	55	2308	70.9	51.7	2812	86.4	63.0	286

URBAN

MPCE Class	Percentage expenditure on food	Per capita per Diem Intake of			Per Consumer unit per Diem Intake of			No. of sample households
		Calorie (kcal)	Protein (0.0gm)	Fat (0.0gm)	Calorie (kcal)	Protein (0.0gm)	Fat (0.0gm)	
1	2	3	4	5	6	7	8	9
000-300	0	0	0.0	0.0	0	0.0	0.0	0
300-350	71	1294	34.7	23.8	1560	41.8	28.7	1
350-425	73	1694	41.9	26.0	2040	50.4	31.3	4
425-500	69	1336	42.2	20.6	1725	54.5	26.6	4
500-575	65	1483	47.0	33.7	1859	59.0	42.2	14
575-665	62	1573	48.7	37.9	2007	62.1	48.4	15
665-775	56	1536	47.5	38.2	1912	59.1	47.5	26
775-915	59	2197	64.4	48.6	2721	79.8	60.2	28
915-1120	58	2329	73.2	55.5	2847	89.4	67.6	40
1120-1500	55	2560	78.3	64.8	3181	97.0	80.6	56
1500-1925	49	2730	77.5	70.4	3384	96.1	87.2	40
1925+	35	2732	87.4	80.5	3440	110.1	101.3	55
all classes	49	2154	65.9	54.0	2682	82.0	67.2	283

Table No.4: Percentage (0.00) of total intake of calorie and protein from different groups of food items by MPCE Class

RURAL

MPCE Class	% of total intake of calorie from		% of total intake of protein from				No. of sample households
	Cereals	Cereal substitute	Cereals	Pulses*	Milk and milk products	Egg, Fish & meat	
1	2	3	4	5	6	7	8
000-225	0.00	0.00	0.00	0.00	0.00	0.00	0
225-255	0.00	0.00	0.00	0.00	0.00	0.00	0
255-300	0.00	0.00	0.00	0.00	0.00	0.00	0
300-340	0.00	0.00	0.00	0.00	0.00	0.00	0
340-380	0.00	0.00	0.00	0.00	0.00	0.00	0
380-420	61.35	0.00	52.26	7.98	13.19	10.74	1
420-470	55.71	0.00	48.27	25.41	0.86	13.93	4
470-525	63.53	0.00	56.04	13.29	8.09	14.71	4
525-615	56.93	0.00	52.11	9.51	7.63	21.03	20
615-775	53.11	0.00	47.57	9.41	6.43	23.39	43
775-950	51.68	0.00	44.02	13.71	8.83	24.15	59
950-more	50.59	0.00	40.94	11.73	11.95	26.60	155
all classes	51.99	0.00	43.91	11.78	9.70	24.82	286

URBAN

MPCE Class	% of total intake of calorie from		% of total intake of protein from				No. of sample households
	Cereals	Cereal substitute	Cereals	Pulses*	Milk and milk products	Egg, Fish & meat	
1	2	3	4	5	6	7	8
000-300	0.00	0.00	0.00	0.00	0.00	0.00	0
300-350	63.87	0.00	59.90	9.88	3.20	21.02	1
350-425	74.04	0.00	74.42	3.31	10.00	5.73	4
425-500	65.69	0.00	52.38	8.79	9.74	23.74	4
500-575	52.89	0.00	42.60	14.39	9.63	25.39	14
575-665	54.13	0.00	45.70	11.75	12.56	23.36	15
665-775	52.42	0.00	44.42	10.39	11.01	26.22	26
775-915	56.29	0.00	49.72	11.78	10.84	19.45	28
915-1000	53.35	0.00	44.60	11.33	8.38	26.55	40
1000-1100	51.60	0.00	44.42	11.11	10.51	25.01	56
1100-1200	47.90	0.00	44.44	11.09	13.87	18.66	40
1200-1300	43.93	0.00	36.47	9.78	13.95	29.74	55
all classes	51.30	0.00	43.94	10.90	11.37	24.69	283

* Pulses is inclusive of gram and gram products.

Table No.5: Percentage distribution of calorie intake per consumer unit per diem over different food groups, average intake of calorie, protein and fat per consumer unit per diem by per diem calorie intake class

RURAL

Calorie Intake Level*	No. of consumer units per hhs.	Percentage of calorie from food group										Average intake per consumer unit per diem			No. of sample hhs
		I	II	III	IV	V	VI	VII	VIII	IX	all	Calorie (kcal)	Protein (0.0gm)	Fat (0.0gm)	
1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
<70	4.59	55.97	2.56	5.56	12.16	3.06	5.18	5.58	7.21	2.71	100	1597	51.20	32.30	19
70-80	4.12	54.5	1.90	6.37	11.80	2.74	6.58	5.43	7.08	3.61	100	2000	63.90	44.30	27
80-90	4.18	54.83	1.88	6.86	10.46	3.38	5.83	5.58	7.56	3.61	100	2241	70.1	48.9	29
90-100	4.01	50.31	1.57	7.53	11.89	3.55	5.62	8.26	7.50	3.77	100	2535	81.5	58.8	39
100-110	3.79	53.43	1.32	7.06	11.43	2.88	4.56	7.52	8.19	3.60	100	2798	83.3	66.1	54
110-120	3.23	54.65	1.65	6.89	9.82	3.13	4.26	8.46	8.06	3.08	100	3031	90.6	69.0	41
120-150	3.12	55.31	1.64	7.75	9.61	2.73	4.87	6.46	6.84	4.80	100	3597	107.5	71.7	54
>=150	1.85	32.95	1.62	4.20	6.57	2.64	7.92	4.00	11.76	28.33	100	5776	186.8	140.2	23
All classes	3.56	51.99	1.64	6.82	10.40	3.02	5.27	6.91	8.01	5.94	100	2812	86.4	63.0	286

URBAN

Calorie Intake Level*	No. of consumer units per hhs.	Percentage of calorie from food group										Average intake per consumer unit per diem			No. of sample hhs
		I	II	III	IV	V	VI	VII	VIII	IX	all	Calorie (kcal)	Protein (0.0gm)	Fat (0.0gm)	
1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
<70	4.66	47.61	1.85	7.71	9.92	2.64	6.82	11.16	10.02	2.27	100	1482	47.9	41.9	23
70-80	4.84	55.52	1.40	7.25	9.83	2.15	5.06	8.80	7.61	2.38	100	2015	61.5	46.1	22
80-90	3.89	52.24	1.55	6.24	10.30	2.57	5.84	6.99	9.75	4.51	100	2283	71.5	57.9	30
90-100	3.36	51.12	1.72	6.34	10.62	2.88	6.08	7.46	89.75	4.02	100	2542	77.6	65.2	26
100-110	3.42	52.30	2.03	7.42	10.42	2.62	5.57	7.69	8.76	3.20	100	2766	85.4	66.2	40
110-120	3.05	50.80	1.86	6.83	12.10	2.83	5.82	6.48	8.57	4.70	100	3064	92.2	76.3	30
120-150	3.28	50.06	2.03	6.92	11.29	4.08	4.85	8.31	8.95	3.51	100	3462	103.9	87.4	65
>=150	1.91	52.28	2.25	6.25	8.53	4.48	5.09	8.48	9.99	2.64	100	5192	154.8	127	47
All classes	3.52	51.30	1.89	6.88	10.45	3.24	5.49	8.20	9.16	3.39	100	2682*	82.0	67.2	283

PRINTED AT THE GOVERNMENT PRINTING PRESS, PANAJI-GOA - 2005