CHAPTER 6 - RICE CONSUMPTION SURVEY

CHAPTER 6. RICE CONSUMPTION SURVEYS

6.1 Rice consumption surveys.

A total of five Provinces were selected as part of the survey on rice consumption by selected rural and urban households in PNG. The survey included the Central Province, Morobe, Madang, East Sepik and the East New Britain Provinces. Thus what is presented in the discussion which follows in this Chapter is data analysis of this exercise.

6.1.1 Objective of study

The objective of the rice consumption survey in was to assess the nature of rice consumptions patterns of randomly selected households in both rural and urban areas of the five selected Provinces of the country. At present country's import bill on rice is substantial. In order to reduce this, it is important first to assess the consumption preferences on rice of rural and urban Papua New Guineans. This study would then give us an insight into the potential of rice production and a need for its expansion in the country during 2002 and beyond. National Governments advocacy for National Food Security would also be fulfilled on a long term basis.

6.1.2 Relevance of study

Results which are derived from this urban and rural household surveys on rice consumption in the five selected Provinces of the country will help the National Government in consultation with relevant National Government Departments to develop and expand domestic rice industry in the country. Initial move is to involve model farmers to produce rice on a smallholder basis in the five case study Provinces. This would then be expanded to include many more rural villagers in rice production in the future with a view that farmers should be able to sell surplus rice in the domestic markets. This will eventually meet National Governments policy objective of self-sufficiency in food production in which case rice is no exception. While a need for national food self-sufficiency is to be promoted, the other is also to improve the nutritional value of the country's rural people in particular.

6.1.3 Sources of information

Field surveys in the case study Provinces were conducted during different time periods between April and June, 2002. The main source of information was a series of surveys which were carried out in the case study towns and rural villages. These surveys provide basic information of selected urban and rural households on their demographic profile, dietary habits, cooking methods used and rice purchasing practices. Data generated from field surveys are a useful guide to understanding the consumer behaviour of rural and urban households in the five selected case study Provinces.

Apart from raw data collected during the field survey, consultation of secondary data currently available with the Bank of Papua New Guinea and the National Statistical Office (NSO), for example, was also found useful. Prices of rice in the main urban areas of the country, Consumer Price Indices (CPI) and other relevant data were obtained from these organizations or Departments. Relevant literature on the study itself were also consulted.

6.1.4 Organization of the discussion

This Chapter on rice consumption is divided into five parts. Each part discusses rice consumption by selected households in the urban and rural areas of Central, Morobe, Madang, East Sepik and East New Britain Provinces.

6.1.5 Selection of field sites

With the urban household survey on rice consumption, respondents were selected randomly. In each town and rural villages a total of 40 households each were interviewed. Thus in whole a total of 200 households had to be interviewed as part of the rice consumption survey in the five Provinces of PNG.

The objective of random selection of the respondents was to generate data which was not biased but representative of the population living in the case study villages and towns. While the sample of 200 households to be included in the overall survey was small, nevertheless it was useful in the sense that data generated from this study would give a wider understanding of the socio-economic arrangements of the households. This was particularly true in the context of their food consumption patterns on rice and other food items.

6.1.6 Methodologies

6.1.6.1 Research instruments

Questionnaires were used to collect information on the demographic profiles of the households. These questionnaires focused mainly on respondents dietary habits, method of cooking rice and the amount of rice bought and how much was spent on it. The results derived from these survey questionnaires would assist in a wider understanding of the socio-economic profiles of the respondents.

6.1.6.2 Comments on the questionnaires

These questionnaires were not pilot tested before their actual use in the field. This is because there were number of questions which were ambiguous and respondents did not comprehend the question well. The main problematic one was on rice variety which households selected. Some of the respondents did not know what a parboiled rice was for example. Due to this difficultly in comprehending the different types or varieties of rice, some of the questions were left unanswered.

6.2 Port Moresby and Central Province

6.2.1 Port Moresby Rice Consumption Survey Results

6.2.2 Methodology of the survey

A sample survey was used to determine pattern and the frequency of rice consumption of 20 households in Port Moresby. These households were selected at random. It was important an outset to identify locations or sites which would represent a cross-section of people where dietary habits would differ. To meet this requirement, three main broad areas in terms of settlement types were selected. They included squatter settlements, peri-urban villages and city suburbs. This selection was necessary since it would avoid some element of bias in the data collection, analysis and representation, particularly as it relates to rice consumption as a favourite food item of the different households under consideration.

Sampling sites and numbers of households interviewed in each area is shown in Table 6.1 below.

Table 6.1: Sites selected for consumer survey in Port Moresby Area

1.	Squatter Settlements	(Total of 7 households)
	Kilakila/Kaugere Morata Gorobe	3 households 2 households 2 households
2.	Peri-Urban Villages	(Total of 7 households)
	Baruni Hanuabada Pari	3 households 2 households 2 households
3.	City Suburbs	(Total of 6 households)
	Gerehu Waigani Boroko area	2 households 2 households 2 households
	Total:	20 households

A sampling problem inherent in this survey was that the number of households selected randomly at each site was also small. This immediately raised the questions of the validity of data representation and this has to be borne in mind when analysing the information presented in this report.

The number of households selected in the sample was small in relation to the Port Moresby's urban population (see Table 6.2 below). This sample would be regarded as statistically insignificant because random sampling is based on probability theory so that the higher the sampling fraction, the more likely the sample is to be representative.

Table 6.2 below shows population concentrations in each of the Census Divisions within the National Capital District. The total population in 1990 was 195,382, although this figure is expected to be higher in the year 2002. In this case any conclusions drawn from the data analysed on rice consumption patterns in Port Moresby have to be interpreted with caution because statistically this sample is not very representative at all.

Table 6.2: Population of National Capital District (NCD) Census Divisions, 1990 (Preliminary Count Figures)

Census Division	Male	Female	Total	%
Gerehu	12 446	10 254	22 700	11.6
Waigani/University	9 488	6 874	16 362	8.4
Hohola/Tokarara	17 913	14 319	32 232	16.5
Gordons/Saraga	17 881	13 519	31 400	16.1
Korobesia/Boroko	14 480	12 326	26 806	13.7
Koki/Kaugere	15 848	13 012	28 860	14.8
Hanuabada/Town	14 330	11 635	25 965	13.3
Napanapa/Laloki	1 601	1 412	3 013	1.5
Bomana	4 791	3 253	8 044	4.1
Total:	108 778	86 604	195 382	100.0

Source: National Statistical Office, Port Moresby.

6.2.3 Results of the survey

6.2.3.1 Frequency of rice purchased by households

It is clear from the data analysed on the dietary habits of the 20 households included in the sample survey, that rice was a favourite food item. All the members of 20 households (100 percent) included in the sample survey consumed rice. This meant that both the old and the young indicated it as their favourite food. Rice was normally served with other traditional food items and on some occasions it was the main diet, meaning that rice was not served in combination to other traditional food items. The frequency of rice purchased by the 20 households was variable but about 11 households (55 percent) bought the item daily while the balance of 9 households varied in terms of their frequency of purchase.

Table 6.3: Frequency of rice purchased by 20 households

Frequency	No. of households	Percentage
Everyday	11	55
Once a week	7	35
Once per 4 days	1	5
Fortnightly	1	5
Total:	20	100

Source: Field-survey data April, 2002

Table 6.3 indicates that the frequency of rice purchased by the sample households varied. However, 55 percent of the households indicated buying rice every day. This observation confirms the view that majority of Papua New Guineans buy rice daily. This is particularly true in the case of urban households and to a lesser degree to the rural villagers where it is difficult to purchase the item due to problems of supply.

Table 6.4 below shows monthly income earned by members of the 20 households. Income earned by this working population can be defined as that portion of disposable income which was used to purchase food and other related items for the household of which rice is one.

Table 6.4:Monthly income earned by members of the 20 households

Monthly Income (Kina)	Total number of wage earners	Percentage
Below 250	24	54.55
251 – 500	14	31.82
501 – 999	5	11.36
Over 1,000	1	2.27
Total:	44	100.00

Source: Field survey-data, April 2002

The above table also shows that 50 percent of the members of the households interviewed earned less than K250 per month, while only 31 percent earned between K251-500 per month. Only 11 percent earned K501-K999 monthly and 1 percent with K1,000 or more respectively. This means that about 50 percent of the sample population interviewed were low wage earners.

A total of 203 people were enumerated for all the 20 households included in the sample survey. Out of this total only 44 people (21%) were wage or salary earners. This was relatively a very small number with respect to the overall total. Furthermore, majority of the people who were included in this survey were young people with ages below 12 years. There is a highly dependent population, mainly of young age, and should not be bypassed in any explanation regarding rice consumption patterns in the 20 households interviewed. Experience with majority of Papua New Guinean families indicates that young and the old people often like to eat rice as their favorite food item and that it can serve many members of the household than any other food item such as yam or potatoes.

Table 6.5: Numbers of people in the different age groups of the 20 households

Age group	No. of people	Percentage
Below 12 years	61	30.05
13 – 20	37	18.23
21 – 35	67	33.0
36 – 50	28	13.79
Over 51	10	4.93
Total:	203	100.00

Source: Field-survey data April, 2002

The age composition of the 20 households is represented in Table 6.5. It shows that one third of the members of the household (30 percent) interviewed were under the age of 12 years. The other third (33 percent) fell within the 21-35 years age group. This is to say that this young population was supported by the wage or salary earners identified in the 20 different households interviewed in the three different geographical areas of Port Moresby (squatter settlements, peri-urban villages and city suburbs).

Table 6.6: Amount spent by households.

Amount (kina)	No. of households	Percentage
Below 50	3	15
51-100	12	60
101-199	4	20
Over 200	1	5
Total:	20	100

Source: Field-survey data April, 2002

Table 6.6 indicates the amount of money spent by the 20 households on the purchase of rice included in the survey. Majority of the households (60 percent) spent between K51-100 on the purchase of rice per month, although one household indicated that he spent around K400, which was a very big range in comparison to the other 19 households. However, when this figure was excluded the mean income spent on the purchase of rice by the 20 households in a month was K84, although this value was inflated to K106 when K400 was included in the computation.

6.2.4 Consumer preference on imported and locally grown rice

The 25 respondents covered in the market survey were interviewed on their preferences in terms of locally grown to imported rice and the reasons for their preferences. Some of the criteria listed as the reasons for the respondents' preferences included; the size of length, form of rice, color, length of cooking time, scent, taste, texture and price. Table 6.7 shows the responses in terms of consumption preference for imported against the locally grown rice.

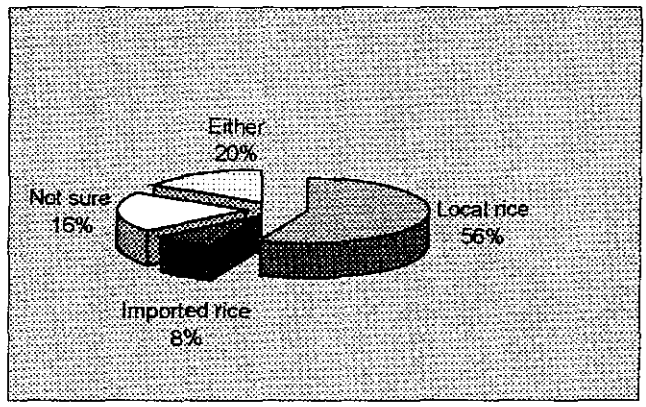
Table 6.7. Consumption preference of import against local rice

Preference	No .of Respondents	Percentage
Local rice	14	56
Imported rice	2	8
Either	5	20
Not sure	4	16
Total:	25	100

Source: Field-survey data April, 2002

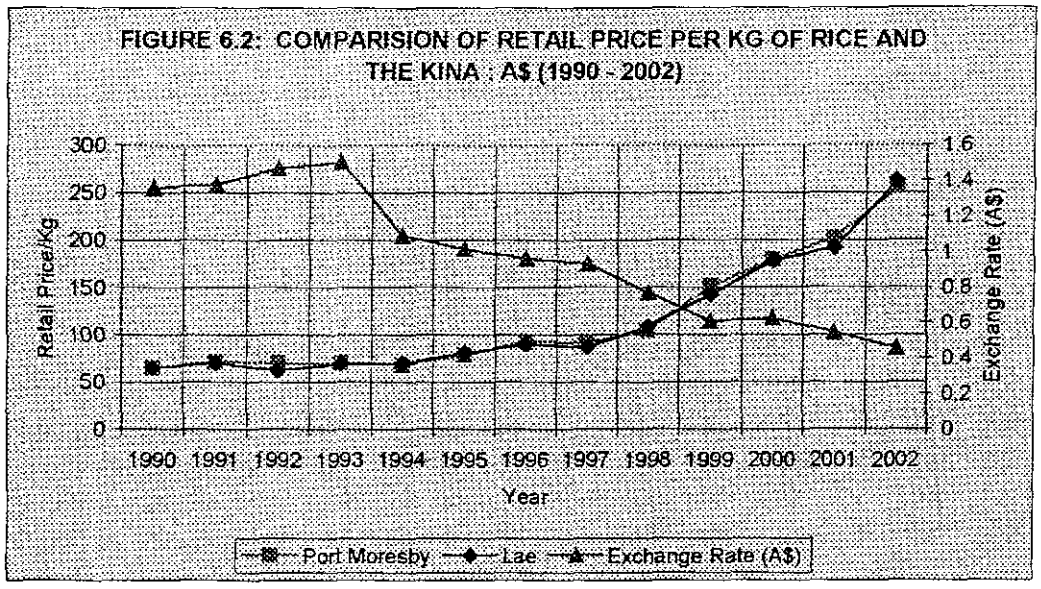
Over fifty percent (56%) of the respondents covered in the survey in the Central Province indicated preference for locally grown to imported rice. The reasons for this choice vary such as taste, scent and price. Figure 6.1 is a graphic presentation of responses of preferences for local rice compared to imported rice. Eight percent (8%) of the targeted farmers preferred import to locally grown rice. Again, reasons varied from that of convenience and availability to reasons of popularity of imported rice to local rice.

Figure 6.1. Percentages of responses for imported against locally produced rice



Only one respondent out of those who indicated preference to imported rice indicated reason of not having had tasted local rice before, while twenty percent (20%) preferred both (either). Sixteen percent (16%) or 4 out of 25 respondents were not sure.

Figure 6.2 illustrates the relationship between retail price over a period of 12 years with the exchange rate against the Australian Dollar for the same period. As is noted the value of Kina has been declining over this period, while the price of short grain per kilogram increased from K.0.65 toea per kilogram in 1990 to K2.55 in 2002 as recorded in the CPI Quarterly Bulletin of 2002. This increase was observed for Port Moresby and there is not much deviation in the price differentials between the major urban centers of Lae and Rabaul. The data for the latter center was available only up to 1995



Source: NSO (2002): CPI Quarterly Bulletin, Port Moresby

Table 6.7: Variety of rice preferred by households

Variety	No. of households	Percentage
Local rice	16	80
Imported rice	2	10
Either	2	10
Total:	20	100

Source: Field-survey data April, 2002

It is apparent from Table 6.7 that local rice was mostly preferred by the 20 households included in the survey. The reason being that it was cheap to purchase, while only 10 percent purchased imported rice. In this case the current development study which focuses on the promotion of local rice production will certainly meet this demand if production is expanded in the near future.

6.2.5 Methods of cooking rice by 20 households

Table 6.8: Methods of cooking rice

Method	No. of households	Percentage
Soft texture	14	70
Normal texture	6	30
Total:	20	100

Source: Field-survey data April, 2002

The main method of cooking rice by most respondents is for soft texture. The other methods specified in the questionnaire, such as parboiled and sticky rice for example, were not very common or that the households were not familiar with.

Table 6.9: Reasons for selection of rice

Reasons	No. of households
Size of length	5
Form of rice	4
Length of cooking	6
Taste	10
Hard texture after cooking	1
Soft texture after cooking	4
Low price	16

Source: Field-survey data April, 2002

Taste was another reason for rice selection. Table 6.9 shows that rice consumers selected rice on the basis of their price and as well as the taste. The former was the most influential factor in selecting rice by the 20 households included in the survey. Other factors were equally important but not very significant in the choice of selecting rice. It should be noted that the total number of households does not add up to 20 because respondents gave more than one answer.

6.3 Central Province: A Case Study of Abau and Bereina Districts

6.3.1 Frequency of rice purchased by households

In order to understand the frequency and the quantity of imported rice bought by the surveyed households, the respondents were asked to specify the quantity of rice bought and how often this was done. Table 6.10 is a presentation of the frequency of rice purchased by the surveyed households.

Table 6.10. Frequency of rice purchased by households.

Frequency	No. of households	Percentage
Every week	1	4
Once a week	3	12
1 time per 4 days	1	4
Once a month	0	0
Non periodical	20	80
Total:	25	100

Source: Field-survey data April, 2002

Table 6.11. Monthly income earned by members of the 20 households

Monthly Income (Kina)	No. of wage Earners	Percentage
Below 250	42	89
251 – 500	0	0
501 – 999	0	0
Over 1000	5	11
Total:	47	100

Source: Field survey data March, 2002

Table 6.11 above indicates that more than 80 percent of the members of household respondents interviewed earned income less than K250 per month, while 11 percent earned over K1,000. This trend for a majority of households to earn less than K250 implies that majority of the household family members are gardeners who earn small cash in hand from the sale of their produce at the market either at the district local markets or at urban markets in Port Moresby.

Table 6.12: Number of people in different age groups of 20 households

Age Group	No. of People	Percentage
Below 12	156	51.49
13-20	58	19.14
21 – 35	31	10.23
36 – 50	44	14.52
Over 51	14	4.62
Total:	303	100

Source: Field survey data March, 2002

Table 6.12 shows that the composition of different categories of age groups of the total 303 members of 20 households interviewed. Of the total 303 family members more than 50 percent were under the age of 12 years, whereas 19 percent fell between 13 to 20 years of age. These two age groups are regarded as young population and were supported by the family members in the 21 to 50 years age group.

Table 6.13. Variety of rice preferred by households

Variety	No. of households	Percentage
Imported rice	13	65
Local rice	7	35
Total:	20	100

Source: Field survey data March, 2002.

Table 6.13 shows the results of the survey on the variety of rice preferred by the responding households. Most of the respondents (65%) preferred imported rice to local rice, even if they themselves produced rice. The other 35% preferred local rice.

Table 6.14: Amount spent by 20 households.

Amount (Kina)	No. of households	Percentage
Below 150	19	95
51 – 100	1	5
101 – 199	0	0
Over 200	0	0
Total:	20	100

Source: Field survey data March, 2002.

In the above Table twenty households were interviewed to determine amount they spent on rice purchased. About 95% of the total respondents indicated spending less than K50 on rice occasionally. One household spent about K80 per month on rice constituting 5% of the total targeted households. (Complimentary food items are included, but negligible).

Table 6.15. Method of cooking rice by households

Method	No. of households	Percentage
Soft texture	17	85
Normal texture	3	15
Total:	20	100

Source: Field survey data March, 2002.

Table 6.15 indicates about 85% of households preferred rice boiled in water for its soft or normal texture. Most respondents did not know any other cooking methods. Others respondents claimed that different rice grades and varieties might possess features that would require more sophisticated cooking method. For example, nutritious and mildly processed rice (brown / red rice) requires more water volume and longer time to cook than white rice and has distinct flavor. White rice is normally quite blend, with notable difference in firmness, flavor and scent between different varieties of rice grains.

Table 6.16: Quantity of rice purchased by households

Quantity (kg)	No. of households	Percentage
Below 5	10	50
6 – 10	9	45
11 – 20	1	5
Total:	20	100

Source: Field survey data March, 2002.

A total of 20 households were interviewed from the four selected villages, that is five households per village. Table 6.16 showed that a total of 10 households purchased one kilogram to five kilograms during any one time. This comprised 50 percent of the total number of households covered. Another 50 percent purchased about six kilograms to twenty kilograms.

Table 6.17: Frequency of rice purchased by households.

Frequency	No. of households	Percentage
Daily	2	10
Weekly	14	70
Fortnightly	4	20
Total:	20	100

Source: Field survey data March, 2002.

Out of the 20 households interviewed, only 2 households bought rice on a daily basis. Another 14 households would have purchased some quantity of rice in a week and 4 households in 14 days. The reasons varied between affordability and convenience and respondents' access to harvesting of other traditional food crops from their own gardens.

Data obtained from interviews indicated that rice was almost part of every day household food item.

Table 6.18: Reasons for preference of rice by households

Reasons	No. of households	%
Low price	9	45.0
Good taste	4	20.0
Soft texture	3	15.0
Availability	2	10.0
Aroma	2	10.0
Total	20	100.0

Source: Field survey data March, 2002.

The above Table illustrates households reasons for rice preferences. This Table clearly shows that 45 percent opted preferring rice because of its low price, while good taste was equally a determining factor in their choice. This was about 20 percent.

6.4 Lae City and the Morobe Province

6.4.1 Lae City Rice Consumption Survey Results

Selection of respondents involved in the rice consumption survey in Lae city came from different parts of the suburbs with a view that the sample population chosen should be representative. This is to say that households included in the survey came from different parts of the city as well as those living within the city perimeter, such as settlements.

What is presented below is a profile of 20 respondents included in the survey. This assessment is based on data generated and compiled from the rice consumption survey forms conducted in the selected areas of Lae city. While a sample of 20 households is small to allow for any significant explanation, it nevertheless gives us some idea of the socio-economic situation of the households under consideration.

6.4.2 Profile of respondents

Table 6.19: Number of people in different age groups of the 20 households

Age group	Number of people	Percentage
Below 12 years	37	26.1
13-20	36	25.4
21-35	39	27.5
36-50	29	20.4
Over 51	1	.0.7
Total:	142	100.1

Source: Field-survey data May, 2002

Table 6.19 above shows age groups of the members of the 20 households interviewed. Total population enumerated was 142. It is clear from this table that almost 50 percent of the population was less than 20 years old, while 50 percent was above the ages of 21 to 50 years old.

The age distribution observed in Table 6.19 is normal for many Third World countries where population is highly concentrated at the base of the age-sex pyramid. In this case it also reflects a high dependency burden, where young children are supported by the economically active population living within a geographically defined area.

Table 6.20: Occupation of spouses and head of households

Occupation	Head of households	Percentage	Spouses	Percentage
Employed	16	80.0	6	30.0
Self-employed	2	10.0	5	25.0
No job	2	10.0	9	45.0
Total:	20	100.0	20	100.0

Source: Field-survey data May, 2002

About 80 percent of the heads of household were employed while it was only 30 percent for their spouses. Only about 2 percent of the heads of the household were self-employed and had no formal jobs respectively. As with regard to spouses only 25 percent were self-employed and 45 percent had no jobs. Many spouses of most Papua New Guineans who are employed and live in the urban areas do not work in the formal or private sectors. Those who indicated that they were self-employed meant that street vending was their

daily activity. Activities such as sale of betel nuts or other consumer items including tobacco and cigarettes were sold daily.

ACS staff discussing schedule of interviews of farm households with Land owners at Poahum – Lae.

Sale of second hand clothing in the market centers can not also be bypassed in understanding the daily activities of spouses included in the survey. Income earned from these informal activities can be sufficient to support the household during hard times. This observation is certainly valid in many urban centers of Papua New Guinea. It is not strictly confined to Lae city alone. Street vending is certainly a very lucrative business for many urban dwellers and can generate sufficient income to supplement cash earned from wages or salaries by heads of the household.

Table 6.21: Monthly income earned by the members of the 20 households

Monthly income (Kina)	Total number of wage earners	Percentage
Below 250	17	56.7
251-500	6	20.0
501- 999	5	16.7
Over 1000	2	6.7
Total:	30	100.1

Source: Field-survey data May, 2002

A total of 68 people fell in the age group 21-50 years (computed from Table 6.20 above). This segment of the population is normally regarded as an economically active population. On the other hand only 30 people were actually salary or wage earners. This is about 21 percent (i.e 61 out of a total population of 142). Furthermore, about 56 percent of this wage earners earned less than K250 per month. This would be about K125 per fortnight. This income level is low when compared to the prices of goods and services which households have to pay for in the urban areas such as the Lae city. On the other hand only 6.7 percent earned more than K1000 per month.

6.4.3 Dietary habits of respondents

It was also important to assess the dietary habits of households, particularly to find out staple food consumed by the members of the household. Responses to these questions indicated that almost all members of the household included in the sample survey consumed rice as a staple food item, although some other traditional food items such as taro, sweet potato and bananas were also important food items in the family food basket.

Table 6.22: Staple food consumed by household

Staple food	Number of households	Percentage
Rice	20	100.0
Total:	20	100.0

Source: Field-survey data May, 2002

Table 6.22 above illustrates that 100 percent (20 households) of the sampled population interviewed in Lae city consumed rice as their staple diet. As was the case with the Port Moresby's urban survey, rice was normally served in combination with other traditional food items. In some instances it was consumed daily. This response is depicted in Table 6.23 below and shows that 95 percent (19 households) in Lae city consumed rice on a daily basis.

Table 6.23: Frequency of cooking rice by households

Frequency of cooking	Number of households	Percentage
Everyday	19	95.0
5 times per one week	1	5.0
Total:	20	100.0

Source: Field-survey data May, 2002

6.4.4 Methods of cooking rice

Other important aspect of rice consumption survey was to find out from the respondents, the methods of cooking rice. This included a selection of rice variety by the households, their preferences and the methods of cooking. Responses to these questions are represented in Tables 6.24, 6.25 and 6.26 respectively.

Table 6.24 shows that a large majority of households selected normal white rice, while only a small proportion opted for steamed rice. Most urban families in Papua New Guinea do select normal white rice because they are more familiar with this variety. The other varieties listed in the questionnaires were not too familiar to the respondents.

Table 6.25: Rice variety selected by the households

Variety	Number of households	Percentage
Normal white rice	13	86.7
Steamed rice	2	13.3
Total:	15	100.0

Source: Field-survey data May, 2002

Table 6.26: Variety of rice preferred by households

Variety	Number of households	Percentage
Local rice	8	42.1
Imported	9	47.4
Either	2	10.5
Total:	19	100.0

Source: Field-survey data May, 2002

There was not much difference in terms of the numbers of households who preferred locally grown rice as against the imported one. As shown in Table 6.26 above 42 percent and 47 percent opted to purchase locally grown rice and imported rice respectively. Roots rice and the Trukai rice brands were the main brands preferred by the households.

Table 6.27 shows different methods of cooking used by the households surveyed. A majority of them preferred to cook rice for normal texture. This is about 73 percent, while only a small proportion indicated cooking rice for soft or hard textures. Again from the respondents point of view it was difficult to determine how this could be differentiated. Most people interviewed commented that as long as rice was cooked it was ready to be consumed.

Table 6.27: Methods of cooking rice

Method	Number of household	Percentage
Soft texture	3	15.8
Normal texture	14	73.7
Hard texture	2	10.5
Total:	19	100.0

Source: Field-survey data May, 2002

6.4.5 Rice purchased by respondents

This section of the questionnaires looked at how household income was disposed off. In this section the nature of the frequency of rice purchased, quantity purchased, amount spent, reason for consumption preferences and reason for selecting the food item are analysed.

Table 6.28 indicates the frequency of rice purchased by different households. About 95 percent bought the food item daily. Thus rice was a dominant food item on the table of the respondents. This was not only true of the households interviewed in Lae, but is also a common food item among many urban families in the country. Urban families depend on rice as their main food and this is served in addition to other traditional food items and vegetables, bought in the local markets.

Table 6.28: Frequency of rice purchased by households

Frequency of cooking	Number of households	Percentage
Everyday	19	95.0
5 times per week	1	5.0
Total:	20	100.0

Source: Field-survey data May, 2002

Quantity of rice bought varied among the households interviewed. A majority of respondents indicated buying less than 10 kilograms. Much of this was bought during the fortnight week, although Table 6.28 above indicates that 95 percent of the households bought it daily. Amount purchased is normally one kilogram. A 10 kilogram bag rice to be consumed by an urban family of 5 dependents would certainly be an adequate food supply to last for at least two weeks.

Table 6.29 :Quantity of rice purchased by households

Quantity (kgs.)	Number of households	Percentage
Below 5	9	47.4
6-10	6	31.6
Over 11	4	21.1
Total:	19	100.1

Source: Field-survey data May, 2002

Amount spent by the 20 households included in the sample survey also varied. This is to say that on average about 42 percent spent less than K50 at any one time on purchasing rice. This figure is realistic because in 2002 a 10 kilogram Roots rice, price was about K20 and the quantity purchased would depend on the number of mouths to be fed.

Table 6.30: Amount spent by 20 households

Amount spent (kina)	Number of households	Percentage
Below 50	8	42.1
51-100	6	31.6
101-199	4	21.1
Over 200	1	5.3
Total:	19	100.1

Source: Field-survey data May, 2002

A main reason for consumption preference for rice is the low price. As was seen in, Table 6.21 almost 58 percent of the households interviewed in Lae city earned K250 per month. This when calculated on the basis of household expenditure, it amounts to only K10 per day. This would be the total disposal income committed by a household on a daily basis. Logically therefore price factor played a significant role in the choice for rice brand, the amount and frequency of purchase by the households.

Table 6.31 below gives reasons for consumption preferences by the households. Again, price factor overrides other choices as well. A large majority preferred it because of low price for rice. Main rice preferred for consumption by the household was the Roots rice. It is now evident elsewhere in the main urban centers of Papua New Guinea that Roots rice had become the main rice brand of the day, despite the availability of other types of rice such as the Kings rice, Trukai rice and Sun Long rice to name but a few of the examples.

Table 6.31: Reason for consumption preferences

Reason	Number of households	Percentage
Low price	17	94.4
Taste	1	5.6
Total:	18	100.0

Source: Field-survey data May, 2002

Table 6.32 outlines main reasons for the selection of rice. About 40 percent of the households indicated taste as the main factor in selecting rice. Again here respondents indicated the rice brand they preferred most. In this case it was Roots rice and reasons such as its quality, scent, length of cooking time were equally important considerations in the choice households made in selecting rice. It is important to note that reasons given by the households for consumption preferences and for selection of rice overlapped in many cases. Respondents gave more than one possible answer.

Table 6.32: Reasons for selection of rice

Reasons	Number of households	Percentage
Taste	8	40.0
Time length of cooking	1	5.0
Low price	11	55.0
Total:	20	100.0

Source: Field-survey data May, 2002

6.5 Morobe Province: A Case Study of Lae and Finschaffen Districts

The next section of the chapter assesses rice consumption patterns of households in the Morobe Province with four case study villages coming from Lae and Finschaffen Districts. Five respondents each were selected from Salodi and Wareo of the Finschaffen District and Poahum and Five Mile settlement in the Lae District.

6.5.1 Profile of respondents

Table 6.33: Number of people in different age groups of the household

Age groups	Villages							
	Salodi		Wareo		Poahum		Five Mile	
	No. of people	%	No. of people	%	No. of people	%	No. of people	%
Below 12 yrs	7	28	4	13.3	14	40.0	14	36.8
13.20	4	16	8	26.7	8	22.9	11	28.9
21-35	13	52	8	26.7	9	25.7	9	23.7
36-50	-	-	9	30.0	2	5.7	4	10.5
Over 51	1	4	1	3.3	2	5.7	-	-
Total:	25	100	30	100	35	100	38	99.9

Source: Field survey data May, 2002

Table 6.33 above shows the nature of age distribution within the different age groups of the four villages studied. Since the sample interviewed was small the figures may not really reflect the demographic profile of the households in the four different villages. However, it was pertinent to note that much of the population was concentrated at a young age. For example, Five Mile and Poahum villages had 36.8 percent and 40 percent of their populations fell within the age group less than 12 years respectively, while in Salodi village 52 percent of people were in the 21-35 age group. This means that the demographic make-up of these villages are not homogeneous.

Table 6.34: Monthly income earned by members of the household

Monthly income (Kina)	Villages							
	Salodi		Wareo		Poahum		Five Mile	
	No. of people	%	No. of people	%	No. of people	%	No. of people	%
Below 250	13	100	19	95	5	100	4	80
251-500	-	-	-	-	-	-	1	20
501-999	-	-	1	5	-	-	-	-
Over 1000	-	-	-	-	-	-	-	-
Total:	-	100	20	100	5	100	-	100

Source: Field survey data May, 2002

Majority of the members of the households included in these four case study villages earned low income on a monthly basis. If the households earned any income, much of these would be generated from the sale of garden food crops. Many of these rural villages are normally isolated from the main market centers. Thus the potential to earn cash income was very limited. Even the different classes of income shown in the Table can be misleading because some households earned less the actual amount indicated. This amount is therefore inflated.

6.5.2 Dietary habits of respondents

Table 6.35 below shows that the staple diet in Salodi village was rice and 100 percent of the households consumed rice. The other three case study sites, such as Wareo, Poahum and Five Mile Settlement mainly consumed traditional food items, despite the fact that these areas were also growing rice on a small holder basis. Sweet potato was the main food item consumed by the respondents in Wareo village and in Five Mile as well. In other study sites, such as Poahum village, taro was the main food item. However, it should be made clear that it was possible that these respondents also consumed rice but was not regarded as a staple diet. For example, in Poahum village, respondents grew and harvested rice and certainly to say that they did not eat rice as their main meal occasionally would be an understatement.

Table 6.35: Staple food consumed by households

Staple food	Villages							
	Salodi		Wareo		Poahum		Five Mile	
	No. of households	%	No. of households	%	No. of households	%	No. of households	%
Rice	5	100	-	-	-	-	-	-
Sweet potato	-	-	2	40	1	20	4	80
Cassava	-	-	-	-	-	-	1	20
Taro	-	-	3	60	4	80	-	-
Total:	5	100	5	100	5	100	5	100

Source: Field survey data May, 2002

It was useful to find out during the field survey how often respondents in the case study sites cooked rice. This would give an indication of whether the food item cooked was the staple diet or not. To define the term staple diet in the context of the survey meant that households cooked this particular food item regularly, that is two to three times a day. Thus the problem of perception and definition of the term emerges and thus had to be considered when an attempt is made to analyze and interpret this field data.

Since 100 percent of the households in Salodi village indicated that rice was their staple diet is further confirmed by the fact that households in these village cooked rice on a daily basis. For other respondents from other villages, cooking rice on a daily basis was not quite evident. Consumption of rice was irregular.

Table 6.36: Frequency of cooking rice by households

Frequency of cooking	Villages							
	Salodi		Wareo		Poahum		Five Mile	
	No. of households	%	No. of households	%	No. of households	%	No. of households	%
Everyday	5	100	-	-	-	-	-	-
4 x per 1 week	-	-	-	20	2	40	-	-
3 x per 1 week	-	-	2	40	2	40	2	40
2 x per one week	-	-	2	40	-	-	3	60
Once a week	-	-	-	-	1	20	-	-
Total:	5	100	5	100	5	100	5	100

Source: Field survey data May, 2002

6.5.3 Methods of cooking rice

Table 6.37: Rice variety selected for cooking by households

Rice variety	Villages							
	Salodi		Wareo		Poahum		Five Mile	
	No. of people	%	No. of people	%	No. of people	%	No. of people	%
Normal white rice	5	100	5	100	4	100	5	100
Total:	5	100	5	100	4	100	5	100

Source: Field survey data May, 2002

Most of the respondents selected normal white rice. This choice was made because most people were familiar with this variety and would buy the product from the small stores in the rural areas or from the main district or urban centers. In Table 6.37, 100 percent of the respondents in Salodi and Five Mile settlement selected this variety.

Table 6.37 below summarizes households responses to the different methods they chose to cook rice. There was no clear evidence among all the households in the three case study villages as to what was the most common method of cooking rice, although cooking rice for soft and normal textures was the response from Wareo village and Five Mile settlement.

Table 6.38: Methods of cooking rice by households

Method of cooking	Villages							
	Salodi		Wareo		Poahum		Five Mile	
	No. of households	%	No. of households	%	No. of households	%	No. of households	%
Cooking for soft texture	1	20	-	-	2	50	5	100
Cooking for normal texture	4	80	5	100	2	50	-	-
Total:	5	100	5	100	4	100	5	100

Source: Field survey data May, 2002

6.5.4 Rice purchased by respondents

Frequency of rice purchased by the households included in the case study was also a useful measure to determine if rice was the main food item of a household. The frequency of rice purchased would indicate that a household consumed rice daily as a main food item apart from other garden food crops. Responses to this question is given below. The results from the four surveyed locations indicated that rice was occasionally consumed given the fact that it was not purchased very often.

Table 6.39: Frequency of rice purchased by members of the household

Frequency of purchase	Villages							
	Salodi		Wareo		Poahum		Five Mile	
	No. of people	%	No. of people	%	No. of people	%	No. of people	%
Once a week	3	60	2	40	-	-	2	40
Once a month	1	20	1	20	-	-	1	20
1 x per 4 days	1	20	1	20	1	20	-	-
Non-periodical	-	-	1	20	4	80	2	40
Total:	5		5	100	5	100	5	100

Source: Field survey data May, 2002

Table 6.40 below shows that respondents bought rice in small quantities. This is because this amount of rice purchased was more convenient from the point of view of households disposable income levels. As noted earlier in the discussion monthly income for a great majority of these households was less than K250. One would certainly expect the price of rice to be expensive in the rural areas because of high freight and other transport related costs. Store operators than pass on this high transport cost to the consumers.

Table 6.40: Quantity of rice purchased by members of the household

Quantity (kgs.)	Villages							
	Salodi		Wareo		Poahum		Five Mile	
	No, of people	%	No. of people	%	No. of people	%	No. of people	%
Below 5	3	60	4	80	3	25	2	40
6-10	2	40	1	20	1	25	3	60
Total:	5	100	5	100	4	100	5	100

Source: Field survey data May, 2002

Survey results presented in Table 6.41 clearly indicates that all the respondents from Salodi, Wareo and Poahum villages and Five Mile settlement spent less than K50 on purchasing rice on a monthly basis. This amount is minimal given high prices of store food items in the rural villages. This observation is not only confined to the case study villages in the Morobe Province, but is certainly an experience in other remote parts of the country as well.

Table 6.41: Amount spent by the household

Amount spent (Kina)	Villages							
	Salodi		Wareo		Poahum		Five Mile	
	No. of people	%	No. of people	%	No. of people	%	No. of people	%
<50	5	100	5	100	5	100	5	100
Total:	5	100	5	100	5	100	5	10

Source: Field survey data May, 2002

Since the case study villages are involved in the production of rice on a small holder basis, there is some reason to believe that local people bought rice from other local producers in the village. In other words rice currently produced in the case study villages is in an attempt to substitute imported rice. Respondents grew their own rice which cost them nothing. All the

100 percent of the respondents in Salodi and Wareo villages and to a lesser extent Five Mile settlement indicated their preference for a locally produced rice. In the case of Poahum, 80 percent opted for imported rice despite the fact that this village was also growing rice locally as well. This data is illustrated in Table 6.42 below.

Table 6.42: Variety of rice preferred by members of the household

Variety of rice preferred	Villages							
	Salodi		Wareo		Poahum		Five Mile	
	No. of people	%	No. of people	%	No. of people	%	No. of people	%
Local rice	5	100	5	100	1	20	3	60
Imported rice	-	-	-	-	4	80	2	40
Total:	5		5	100	5	100	5	100

Source: Field survey data May, 2002

Table 6.43 outlines reasons for households preference for rice. Like most of the results which were analysed from other case study sites, and particularly in the case of the urban areas, taste and low price were nominated as the main influential factors in selecting rice brands.

Table 6.43: Reasons for selection of rice by members of the household

Reason for selection	Villages							
	Salodi		Wareo		Poahum		Five Mile	
	No. of people	%	No. of people	%	No. of people	%	No. of people	%
Taste	5	100	2	40	3	60	1	20
Low price	-	-	2	40	1	20	3	60
Fragrance	-	-	1	20	1	20	-	-
Soft texture	-	-	-	-	-	-	1	20
Total:	5	100	5	100	5	100	5	100

Source: Field survey data May, 2002

6.6 Madang Town and the Madang Province

6.6.1 Madang Town Rice Consumption Survey Results

6.6.2 Profile of respondents

Table 6.44 below shows that one third (33 percent) of the total population surveyed were below the age of 12 years old. A high proportion of young children identified here for Madang did not deviate much from what was observed of the households in Lae city (26 percent). About 58 percent of people had ages below 20 years. When this was compared with Lae city, the proportion calculated there was 51 percent. Thus there was a minimal age differential of the people between these two urban centers. Given this situation a majority of the members of the households surveyed were young children. This means that households interviewed in Lae city and Madang town currently have a very high dependency burden.

Table 6.44: Number of people in different age groups of the 20 households

Age group	Number of people	Percentage
Below 12 years	55	33.1
13-20	41	24.7
21-35	31	18.7
36-50	33	19.9
51+	6	3.6
Total:	166	100.0

Source: Field survey data May, 2002

Percentage distribution in terms of occupation of spouses and heads of household varied. Around 45 percent of the heads of household were employed and it was only 25 percent in the case of their spouses. Again, it is noticeable that only 5 percent of the heads of household had no formal employment, while almost half of the spouses included in the survey in Madang town had no job at all.. This observation was no different to that of the employment status of spouses in Lae city,. The proportion was 45 percent.

Table 6.45: Occupation of spouses and heads of households

Occupation	Head of households	Percentage	Spouses	Percentage
Employed	9	45.0	5	25.0
Self-employed	6	30.0	4	20.0
No job	5	25.0	11	55.0
Total:	20	100.0	20	100.0

Source: Field survey data May, 2002

Table .6.46 below shows a monthly income earned by the members of the 20 households interviewed in Madang town. Out of a total of 30 people who were recorded as wage earners, 37 percent fell within the K251-500 monthly income group. This was expected because a majority of the respondents were regular wage earners within the Public service. An aggregated total value of 46 percent earned more than K500 per month.

Table 6.46: Monthly income earned by the members of the 20 households

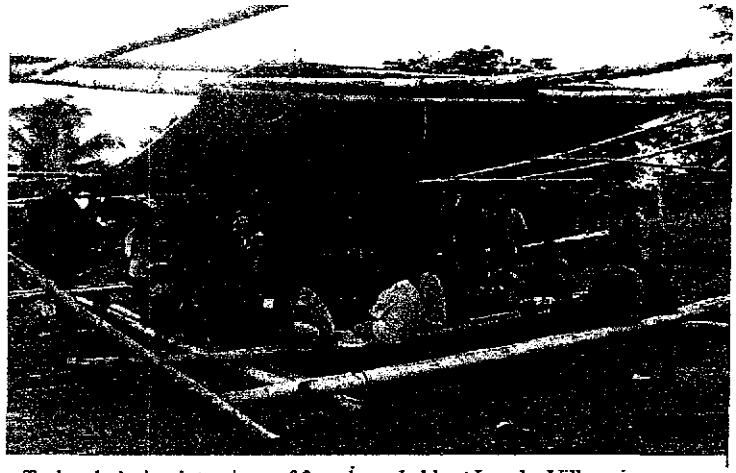
Monthly income (Kina)	Total number of wage earners	Percentage
Below 250	5	16.7
251-500	11	36.7
501-999	8	26.7
Over 1000	6	20.0
Total:	30	100.1

Source: Field survey data May, 2002

6.6.3 Dietary habits of respondents

Table 6.45 clearly reveals that a large majority of the respondent's staple diet was rice. A total of 17 households (85 percent) indicated rice as their staple food item. Staple diet here meant that people ate rice daily, notwithstanding the fact that the family members of the household also consumed other traditional food items.

Rural hinterland in Madang Province produce staple foods such as taro and yam, but was surprised to learn that a large number of households indicated rice to be their staple diet and not taro or yam. Some did show a preference for local food items but gave it low priority in terms of ranking from the most important food item to the least. That is to say that while rice was seen as a staple diet of the urban households in Madang town, taro and yams were also consumed regularly, which were served in combination with rice.



Teabreak during interviews of farm households at Lagaha Village in Madang District.

Table 6.47: Staple food consumed by households

Staple food	Number of households	Percentage
Rice	17	85.0
Sago	1	5.0
Taro	1	5.0
Other	1	5.0
Total:	20	100.0

Source: Field survey data May, 2002

A large proportion of households cooked rice daily. This is shown in Table 6.47. It is no wonder that households indicated it as a staple diet in Madang town and this observation can not be understated. Taro which is equally an important local food item in the town market, however, received a low priority in terms of it being regarded as a staple food item. Only one (1) household indicated it as its staple diet. A logical explanation for a figure of 85 percent was that household consumption patterns and their expenditure revolved around consuming and purchasing rice as their main food item.

Table 6.48: Frequency of cooking rice by the households

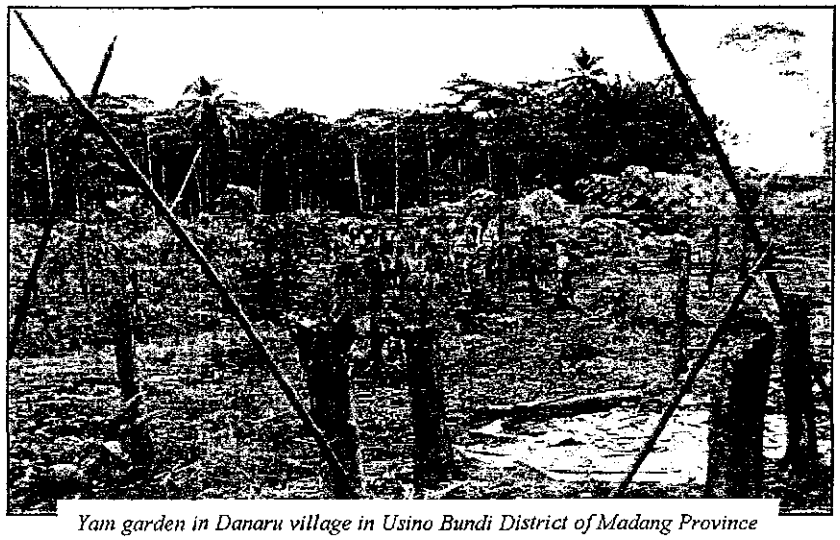
Frequency of cooking	Number of households	Percentage
Everyday	12	60.0
6 times per week	1	5.0
4 times per week	1	5.0
3 times per week	3	15.0
Once a week	2	10.0
Only at special occasion	1	5.0
Total:	20	100.0

Source: Field survey data May, 2002

Table 6.48 above shows the frequency of cooking rice by the surveyed households. Frequency was defined as how often households cooked rice. In this case two thirds (60 percent) of the households cooked rice daily. This high proportion certainly indicated that rice was a staple food item consumed by the family members of the household surveyed. In whole it would be unrealistic to state that some households consumed rice only at special occasions nor is cooked once a week. Rice at present has certainly become the main food item for many urban families in Papua New Guinea.

6.6.4 Methods of cooking rice by respondents

Table 6.47 clearly indicates that 67 percent of the households preferred to purchase imported rice while only a small proportion indicated their preference for local rice. Like responses from Lae case study Trukai rice and Roots rice were the main rice brands preferred, basically because these are the only two brands which are available in small quantities of up to 10 kilogram bags. Furthermore, this amount is affordable by most low wage earning households.



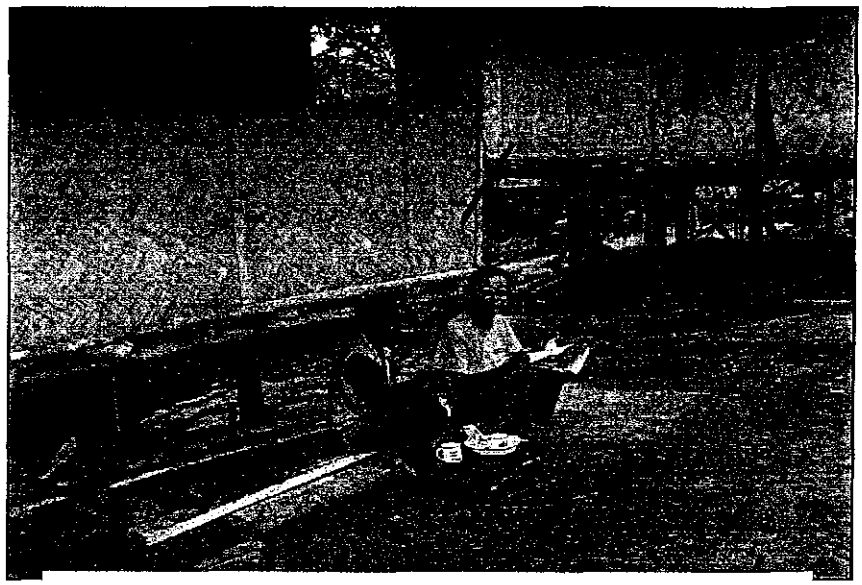
Yam garden in Danaru village in Usino Bundi District of Madang Province

Table 6.49: Variety of rice preferred by households

Variety	Number of households	Percentage
Local rice	4	26.7
Imported	10	66.7
Either	1	6.7
Total:	15	100.1

Source: Field survey data May, 2002

Table 6.49 relates to methods of cooking rice by the households. When respondents were asked about the methods of cooking rice, 60 percent indicated that they cooked rice for normal texture, while only a small proportion cooked it for soft texture. Having to define the idea of cooking rice to attain soft, normal and hard textures to the respondents was difficult. In this case a normal response they gave was that as long as rice was cooked, it was ready to be consumed by the family members and to differentiate it on the basis of its soft, normal and hard textures was difficult to comprehend.



JOVC Atsushi Nakamura completing a farm survey questionnaire with the head of a farm household in Lagaha village

Table 6.50: Methods of cooking rice

Method	Number of household	Percentage
Soft texture	7	35.0
Normal texture	12	60.0
Hard texture	1	5.0
Total:	20	100.0

Source: Field survey data May, 2002

6.6.5 Rice purchased by respondents

Table 6.51 summarizes households responses to frequency of rice purchases. Responses of households were as follows whereby 35 percent purchased it 5 times a week, while 30 percent bought rice on a fortnightly basis. On the other hand only 25 percent bought rice daily.

Table 6.51: Frequency of rice purchase by households

Frequency of purchase	Number of households	Percentage
Everyday	5	25.0
5 times per week	7	35.0
Once a month	1	5.0
Non-periodical	1	5.0
Fortnightly	6	30.0
Total:	20	100.0

Source: Field survey data May, 2002

Household responses in relation to the quantity of rice purchased is shown in Table 6.52 It is quite evident that almost 65 percent purchased rice with an amount ranging from 6-10 kilograms. This amount of rice purchased by urban families is consistent throughout the country basically because this amount is adequate for an average family size of 5 or more people. Any amount more than this implies that there is a big family to take care of.

Table 6.52: Quantity of rice purchased by households

Quantity (kgs.)	Number of households	Percentage
Below	5	25.0
6-10	13	65.0
Over 11	2	10.0
Total:	20	100.0

Source: Field survey data May, 2002

Table 6.51 shows the amount of money spent on rice purchased. About 45 percent of the households committed less than K50 on buying rice, while another 40 percent spent K51-100 alone. It is possible to identify the actual amount spent by the households on rice. This information is given in the questionnaires which were filled for each respondent. However, with the use of class intervals, it can pose some difficulty in interpretation since it would inflate the average amount spent on the purchase of rice by some households.

Table 6.53: Amount spent by 20 households

Amount spent (kina)	Number of households	Percentage
Below 50	9	45.0
51-100	8	40.0
101-199	-	-
Over 200	3	15
Total:	20	100.0

Source: Field survey data May, 2002

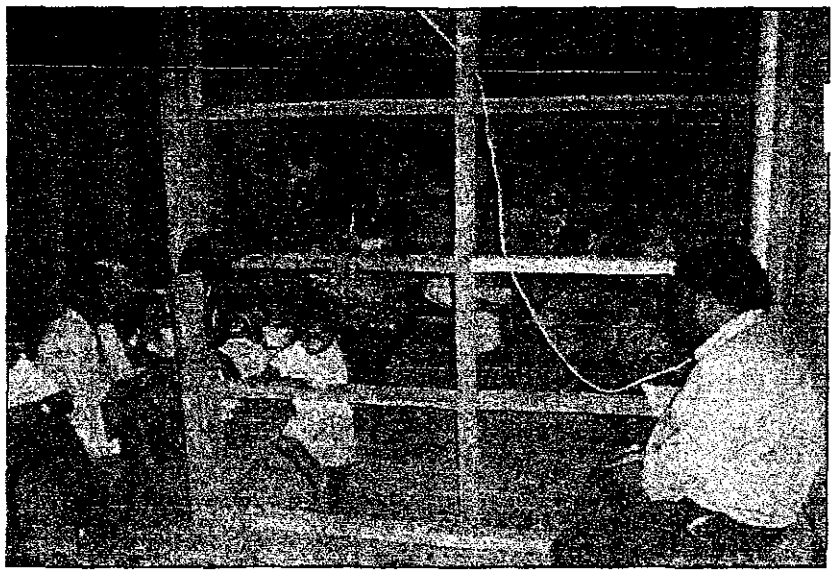
Table 6.54 gives an overall summary of the reasons for consumption preferences. A dominant reason such as for Lae respondents was the low price and second most important reason was taste. These two reasons are most common reasons for consumption preferences among urban households both in Lae and Madang. Only 19 households responded while one did not respond at all because the interviewer did not ask this question during the study.

Table 6.54: Reason for consumption preferences

Reason	Number of households	Percentage
Low price	11	57.9
Taste	5	26.3
Availability	1	5.3
Quality	2	10.5
Total:	19	100.0

Source: Field survey data May, 2002

Table 6.55 gives reasons for selection of rice by urban households interviewed in Madang town. In this Table the price factor for selection of rice is given, while taste was the second most important reason. Since prices of goods and services are high in the main urban areas, which includes Madang town, consumers of rice will always opt to purchase rice with low price. Thus Roots rice was therefore the most common rice brand chosen by the households interviewed.



Interview of farm households at night time at Umum village in

Table 6.55 : Reasons for selection of rice

Reasons	Number of households	Percentage
Taste	4	20.0
Time length of cooking	1	5.0
Low price	14	70.0
Less broken rice	1	5.0
Total:	20	100.0

Source: Field survey data May, 2002

6.7 Madang Province: A Case Study of Madang and Usino-Bundi Districts

Table 6.56: Age groups of the members of the household

Age groups	Villages							
	Danaru		Lagaha		Umun		Sausi/Yakumbu	
	No. of people	%	No. of people	%	No. of peple	%	No. of people	%
Below 12	15	60	4	25	24	39.3	10	27.0
13-20	1	4	5	31.2	16	26.4	9	24.3
21-35	4	16	4	25	10	16.4	1	2.7
36-50	4	16	3	18.8	10	16.4	1	2.7
Over 51	1	4	-	-	1	1.6	2	5.4
Total:	25	100	16	100	61	100.1	37	99.9

Source: Field survey data May, 2002

Table 6.56 above is a given summary of demographic composition of the three villages studied in the Usino-Bundi area of the Madang Province. Villagers in these study areas also grow rice on a small-holders basis. The findings of field interviews with regard to rice consumption are presented below in the discussion, which follows in this section of the Chapter.

Table 6.56 showed that population in these case study villages was predominantly made up of young people. Majority of the people enumerated were less than 20 years of age. In Danaru and Lagaha villages 60 percent and 39 percent of the population was less than 12 years old respectively, while in Umun 39 percent were categorized as less than 12 years old.

Table 6.57: Monthly income earned by members of the household

Monthly income (Kina)	Villages							
	Danaru		Lagaha		Umun		Sausi/Yakumba	
	No. of households	%	No. of HHs.	%	No. of HHs.	%	No. of HHs.	%
Below 250	4	100	7	100	10	83.3	10	55.6
251-999	-	-	-	-	-	-	-	-
Over 1000	-	-	-	-	-	-	1	5.5
Total:	4	100	7	100	12	100	18	100

Source: Field survey data May, 2002

Table 6.57 clearly shows that all 100 percent (a total of 38 people) of the families of the households enumerated in the case study villages earned income less than K250. Villages geographical isolation from the main market centers of Madang and this coupled with irregular transport services with high costs furthermore compounded these difficulties.

6.7.1 Dietary habits of respondents

About 40 percent of households in Danaru village indicated sweet potato to be their staple diet. In Lagaha 75 percent of the households stated that their staple food was taro while Umun respondents indicated yam and Sausi respondents (75 percent) indicated that sweet potato was the main food item consumed by the members of the household. These results clearly show that diet preferences within the case study villages varied and that rice was not the staple food as was the case in other case study villages of the Morobe Province.

Table 6.58: Staple food consumed by household

Staple food	Villages							
	Danaru		Lagaha		Umun		Sausi/Yakumba	
	No. of households	%	No. of households	%	No. of households	%	No. of households	%
Rice	-	-	-	-	2	20	1	25
Sweet potato	2	40	1	25	2	20	3	75
Taro	1	20	4	75	1	10	-	-
Yam	1	20	-	-	3	30	-	-
Banana	1	20	-	-	1	10	-	-
Cassava	-	-	-	-	1	10	-	-
Total:	5	100	5	100	10	100	4	100

Source: Field survey data May, 2002

Table 6.59 below summarizes households responses with regard to the frequency of cooking rice. It is quite clear that the frequency of cooking rice within the households of the four (4) study locations varied, although half of the respondents in Danaru village stated that they cooked rice once a week. Geographical isolation and distance of the villages to the nearest trade store and a ready cash to purchase the item could be a possible explanation for this variation to occur. Sample size of the households from which this data is derived from is also another consideration. Rice was not considered a staple diet for households from Danaru and Lagaha villages.

Table 6.59: Frequency of cooking rice by households

Frequency of cooking	Villages							
	Danaru		Lagaha		Umun		Sausi/Yakumba	
	No. of households	%	No. of households	%	No. of households	%	No. of households	%
Everyday	1	25	1	25	2	22.2	1	25
6 x /week	-	-	-	-	1	11.1	-	-
5 x /week	-	-	1	25	1	11.1	-	-
4 x /week	-	-	1	25	2	22.2	1	25
3 x /week	1	25	1	25	1	11.1	1	25
2 x /week	-	-	-	-	-	-	-	25
Once a week	2	50	-	-	1	11.1	-	-
Occasionally	-	-	-	-	1	11.1	-	-
Total:	4	100	4	100	9	99.9	3	100

Source: Field survey data May, 2002

6.7.2 Methods of cooking rice

The results on rice consumption of households in this case study villages indicate that this food item was not a staple diet nor was cooked frequently. While this observation holds the results with regard to rice variety chosen by the interviewed households was normal white rice. Whether rice was cooked and consumed frequently or not there is one positive point that has to be made. That is all respondents in the case study villages selected normal while rice as their favorite rice brand. Its popularity and its availability in the rural trading outlets was one factor that facilitated this.

Table 6.60: Rice variety selected by the household

Rice variety selected	Villages							
	Danaru		Lagaha		Umun		Sausi/Yakumbu	
	No. of households	%	No. of households	%	No. of households	%	No. of households	%
Normal white rice	4	100	4	100	7	100	3	75
Long grain	-	-	-	-	-	-	1	
Total:	4	100	4	100	7	100	4	100

Source: Field survey data May, 2002

Methods of cooking rice by the households are shown in Table 6.61. Cooking for soft and hard textures is consistent with the responses received from other case study villages included in this discussion. Rural or urban families alike chose cooking method for soft or normal texture as a most common method.

Table 6.61: Methods of cooking rice chosen by households

Methods of cooking rice	Villages							
	Danaru		Lagaha		Umun		Sausi/Yakaumbu	
	No. of households	%	No. of households	%	No. of households	%	No. of households	%
Soft texture	1	25	4	100	3	33.3	-	-
Normal texture	3	75	-	-	3	33.3	4	100
Hard texture	-	-	-	-	3	33.3	-	-
Total:	4	100	4	100	9	99.9	4	100

Source: Field survey data May, 2002

Frequency of rice purchased also varied in terms of their responses. These responses do not clearly indicate as to which was the most common time period when and how often households bought rice. In terms of percentage distribution, frequencies of rice purchased by the households was consistent across all case study sites.

Table 6.62: Frequency of rice purchased by household

Frequency of purchase	Villages							
	Danaru		Lagaha		Umun		Sausi/Yakumbu	
	No. of people	%	No. of people	%	No. of people	%	No. of people	%
Everyday	1	25	1	25	1	10	1	25
Once a week	1	25	-	-	3	30	1	25
1 x / 4 days	1	25	-	-	2	20	-	-
Once a month	1	25	1	25	1	10	2	50
Non-periodical	-	-	2	50	3	30	-	-
Total:	4	100	4	100	10	100	4	100

Source: Field survey data May, 2002

Table 6.63 illustrates quantity of rice purchased by the households. Survey findings reported in this Table is no different to those which have been reported elsewhere in this section of the Chapter. The most commonly bought quantity was 1-5 kilograms and rarely families opted to buy rice in large quantities. The choice to buy small quantities daily or any other period was a function of its price and cash available to purchase it. This is to say that people bought rice when they needed it and to spend little cash households held in hand meant that they hard to forgo purchasing other basic consumer goods such as soap, matches and sugar for example.

Table 6.63: Quantity of rice purchased by the household

Quantity of rice purchased (kgs.)	Villages							
	Danaru		Lagaha		Umun		Sausi/Yakumbu	
	No. of people	%	No. of people	%	No. of people	%	No. of people	%
Below 5	4	100	2	66.7	8	80	3	75
6-10	-	-	-	-	1	10	1	25
Over 11	-	-	1	33.3	1	10	-	-
Total:	4	100	3	100	10	100	4	100

Source: Field survey data May, 2002

The amount of income spent on rice purchased in the four case study villages of Danaru, Lagaha, Umun and Sausi/Yakumbu indicated that in a majority of cases more than 50 percent of the households spent less than K50. Again this amount is inflated because the amount of K50 is the upper limit while it was possible that households in many rural villages spent less than this amount. Thus the amount shown here does not really capture the reality of the situation of a majority of rural households in the case study villages and also the country as a whole.

Table 6.64: Amount spent on purchase of rice by the household

Amount spent (Kina)	Villages							
	Danaru		Lagaha		Umun		Sausi/Yakumbu	
	No. of people	%	No. of people	%	No. of people	%	No. of people	%
Below 50	3	75	3	100	7	87.5	3	75
51-100	1	25	-	-	1	12.5	1	25
Total	4	100	3	100	8	100	4	100

Source: Field survey data May, 2002

Rice variety selected by the households in these case study villages was local rice. This is showns in Table 6.65 below. More than two thirds (over 75 %) preferred local rice. The main reasons for these were because of taste and price factors. Other reason was that some of the respondents were also growing their own rice which was harvested and consumed by households in the village. The respondents indicated that this choice was inherent because the rice which came from their own farms had scent and tasted better than the imported rice. Furthermore, local farmers who grew their own rice did not have to buy rice from the stores and in a way was saving costs.

This preference for local rice as against the imported rice is certainly different to the urban household rice consumer surveys. Rice consumers in the urban areas so far analysed, in a majority of cases, preferred imported rice. A main reason for a difference in these choices is ready availability of the rice variety to the household consumers concerned. This is to say that urban households bought their rice from the stores while in a majority cases local villagers bought it when cash was available or opted to consume their own locally grown rice. The latter explanation was a more realistic to scenario.

Table 6.65: Rice variety preferred by the household

Rice variety	Villages							
	Danaru		Lagaha		Umun		Sausi/Yakaumbu	
	No. of households	%	No. of households	%	No. of households	%	No. of households	%
Local rice	3	75	3	75	8	80	3	75
Imported rice	1	25	1	25	1	10	1	25
Either	-	-	-	-	1	10	4	100
Total:	4	100	4	100	10	100	8	

Source: Field survey data May, 2002

Table 6.66: Reasons for selection by households

Reasons	Villages							
	Danaru		Lagaha		Umun		Sausi/Yakaumbu	
	No. of households	%	No. of households	%	No. of households	%	No. of households	%
Taste	3	75	3	75	5	71.4	4	100
Low price	1	25	-	-	2	28.6	-	-
Size of length	-	-	1	25	-	-	-	-
Total:	4	100	4	100	7	100	4	100

Source: Field survey data May, 2002

6.8 Wewak Town and East Sepik Province

6.8.1 Wewak Town Rice Consumption Survey Results

6.8.2 Profile of respondents

The third town included in the survey was Wewak town. Summaries of questionnaires which focused on profile of respondents, their dietary habits, methods of cooking rice and nature of rice purchased are presented below. These broad categories mentioned above is meant to give an overview of the rice consumption patterns of the households interviewed in Wewak town.

Table 6.67 below summarizes age groups of the members of the 20 households interviewed in Wewak town. The total number of people recorded was 142. Table 6.67 clearly shows that 33 percent of the people enumerated were below the age of 12 years of age. Rest of the people fell within the 13-35 year age group (25 percent) and 18 percent within the 46-50 years. The age distribution of the case study households was quite consistent, although percentage for children below the age of 12 years is much higher than the rest of the other age groups shown in Table 6.67 below.

Table 6.67: Age groups of the members of the 20 households

Age group	Number of people	Percentage
Below 12 years	48	33.8
13-20	35	24.6
21-35	32	22.5
36-50	26	18.3
Over 51	1	0.7
Total:	142	99.9

Source: Field survey data May, 2002

Table 6.68 gives occupational status of both the spouses and the heads of household interviewed. This Table indicates that 75 percent of heads of the household were employed while it was only 33 percent for the spouses. Only a small proportion of the

heads of households interviewed were unemployed and a large majority of 61 percent of spouses also fell in this category.

Table 6.68: Occupation of spouse and head of household

Occupation	Head of household	Percentage	Spouse	Percentage
Employed	15	75.0	6	33.3
Self-employed	-	-	1	5.6
No job	5	25.0	11	61.1
Total:	20	100.0	18	100.0

Source: Field survey data May, 2002

Table 6.69 shows that about 63 percent of the members of the household earned below K250. It was 26 percent for wage earners within the K251-500 range and 10 percent fell within the K501-1000 range. It is evident from this case study that a majority of the people were low wage earners.

Table 6.69: Monthly income earned by the members of the 20 households

Monthly income (Kina)	Total number of wage earners	Percentage
Below 250	25	62.5
251-500	11	27.5
501-999	4	10.0
Over 1000	-	-
Total:	40	100.0

Source: Field survey data May, 2002

6.8.3 Dietary habits of respondents

Staple food consumed by the families of the household was rice and in terms of percentage it was 80. It was also interesting to note that only a small proportion indicated their preference for sago or yam as a staple diet. This means that rice was the main food item in the households food basket of those people who were interviewed. Households indication of rice being the staple food in Wewak is no different to what was observed for Lae and the Madang urban areas.

Traditionally people in the East Sepik Province consume sago and or yam as their staple diet. However, this trend of food consumption was not well captured in this household survey. The main reason could be that households interviewed did not consume sago regularly. It also implied that traditional food consumption patterns were changing in the urban context and was being replaced more or less by imported food items such as rice.

Table 6.70: Staple food consumed by households

Staple food	Number of households	Percentage
Rice	16	80.0
Yam	1	5.0
Sago	3	15.0
Total:	20	100.0

Source: Field survey data May, 2002

Table 6.71 is a summary of the frequency of cooking rice by the surveyed households. A total of 68 percent cooked rice daily. This confirms the figure of 80 percent who indicated rice as their staple food item as shown in Table 6.69 above.

Table 6.71: Frequency of cooking rice by households

Frequency of cooking	Number of households	Percentage
Every day	13	68.4
5 times per one week	1	5.3
4 times per one week	3	15.8
3 times per one week	2	10.5
Total:	20	100.0

Source: Field survey data May, 2002

6.8.4 Methods of cooking rice by respondents

Table 6.72: Rice variety selected

Variety	Number of households	Percentage
Normal white rice	20	100
Total:	20	100

Source: Field survey data May, 2002

Table 6.72 clearly shows that almost all respondents preferred normal white rice, while in Table 6.73 variety of rice preferred by 20 households interviewed in Wewak town is summarized. In this case a total of 17 households or 85 percent preferred imported rice as against only 10 percent who opted purchasing local rice. In this case the demand for local rice is not very significant although this trend will change in the near future as more local producers will begin to grow rice on a small-holder basis and sell surplus in the local markets. Again the sample represented here is small and thus figures represented here and elsewhere in other tables should be interpreted with caution.

Table 6.73: Variety of rice preferred by households

Variety	Number of households	Percentage
Local rice	2	10.0
Imported	17	85.0
Either	1	5.0
Total:	20	100.0

Source: Field survey data May, 2002

Table 6.74 looks at methods of cooking rice. A total of 83 percent cooked rice for normal texture. This preference is also consistent for those households interviewed in Lae city and Madang town who indicated cooking for normal texture as important . On the other hand a small proportion of 17 percent cooked rice for soft texture.

Table 6.74: Methods of cooking rice

Method	Number of household	Percentage
Soft texture	3	16.7
Normal texture	15	83.3
Hard texture	-	-
Total:	18	100.0

Source: Field survey data May, 2002

6.9.5 Rice purchased by the respondents

Table 6.75: Frequency of rice purchase by households

Frequency of cooking	Number of households	Percentage
Everyday	6	30.0
Weekly	12	60.0
Once per 4 days	1	5.0
Once a month	1	5.0
Total:	20	100.0

Source: Field survey data May, 2002

Frequency of rice purchased by respondents in Wewak town is weekly, while only 30 percent bought the item on a daily basis. This is shown in Table 6.75 above while Table 6.76 below summarizes the quantity of rice purchased by different households interviewed. Like Lae city and the Madang town normal quantity purchased was 6-10 kilograms. Only 25 percent of the households bought less than 5 kilograms.

Table 6.76: Quantity of rice purchased by households

Quantity (kgs.)	Number of households	Percentage
Below 5	5	25.0
6-10	14	70.0
Over 11	1	5.0
Total:	20	100.0

Source: Field survey data May, 2002

Table 6.77 below gives a summary of amount spent on rice by different households. About 60 percent spent K51-100 on rice. This amount is justifiable since price of rice in selected urban centers in the country are high when transport or freight cost as one factor is taken into account. Only 35 percent spent less than K50. This observation was also consistent with the results derived from Lae city and the Madang town rice consumption surveys.

Table 6.77: Amount spent by 20 households

Amount spent (kina)	Number of households	Percentage
Below 50	7	35.0
51-100	12	60.0
101-199	-	-
Over 200	1	5.0
Total:	20	100.0

Source: Field survey data May, 2002

Table 6.78 outlines various reasons for consumption preferences. In Wewak town, many respondents indicated taste as a main deciding factor, although price was not indicated as an important deciding factor for consumption preferences. In some instances respondents gave more than one answer. For example, respondents buy different brands of rice because it was tasty but also because the price was low as well.

Table 6.78: Reason for consumption preferences

Reason	Number of households	Percentage
Low price	5	25.0
Availability	3	15.0
Taste	11	55.0
Quality	1	5.0
Total:	20	100.0

Source: Field survey data May, 2002

Table 6.79 below cites reasons for selecting rice. Low price was seen as an important factor and 45 percent of the households indicated this while only 35 percent selected it because of taste. Other reasons were equally important and should not be undermined. This was because, as noted earlier in the discussion of this Chapter, the sample included in the rice consumption survey of the five urban centers was significantly small upon which any definite conclusions can be drawn.

Table 6.79: Reasons for selection of rice

Reasons	Number of households	Percentage
Taste	7	35.0
Time length of cooking	1	5.0
Low price	9	45.0
Size of length	2	10.0
Soft texture after cooking	1	5.0
Total:	20	100.0

6.9.6 Wewak Town and East Sepik Province: A case study of Wewak and the Maprik District

6.9.7 Profile of respondents

Table 6.80: Number of people in different age groups of the members of the household

Age groups	Villages					
	Maprik		Muschu		Nienguanje	
	No. of people	%	No. of people	%	No. of people	%
Below 12 years	35	49.3	18	46.2	16	51.6
13-20	17	23.9	6	15.4	4	12.9
21-35	2	2.8	8	20.5	7	22.6
36-50	2	2.8	8	20.5	7	22.6
Over 51	2	2.8	-	-	1	3.2
Total:	71	99.9	39	100	31	100

Source: Field survey data May, 2002

The age distribution in this Table shows that population of the three case study villages was concentrated at a younger age. This is to say that population below the age of 20 years is much higher than the other age groups. In Maprik total population below 20 years was around 73 percent, in Muschu it was 61 percent and Nianguane had 51.6 percent. This pattern of age distribution is repeated elsewhere in the other case study sites in the country. Furthermore, total number of people above the age of 20 years is much lower and is well below 25 percent at the most.

Table 6.81: Monthly income earned by members of the household

Monthly income (Kina)	Villages					
	Maprik		Muschu		Nienguanje	
	No. of people	%	No. of people	%	No. of people	%
Below 250	14	82.4	11	100	12	100
251-500	3	17.6	-	-	-	-
501-999	-	-	-	-	-	-
Over 1000	-	-	-	-	-	-
Total:	17	100	11	100	12	100

Source: Field survey data May, 2002

Monthly income for the members of the household in this case study areas was well below K250. Almost 100 percent of the respondents in Muschu and Nienguanje indicated that they earned income less than K250, while in Maprik it was 82 percent.

6.9.8 Dietary habits of respondents

A brief comparison on dietary habits of individual village households was also useful. Despite the sample six which was significantly small, it was nevertheless important to see what was the staple diet of the households under consideration. This information is presented below.

Table 6.82 illustrates staple food consumption of the households in Maprik, Muschu and Nienguanje villages. Data generated from the household surveys on rice consumption shows that sago was the staple food in all the three case study villages. There is no indication to show that rice was a major food item of the rural households under consideration.

Results of the other case study villages also show that traditional food items are consumed daily and consumption of rice on a daily basis was not uncommon. However, this trend will change in future as more rural villagers begin to grow rice on a small holder basis.

Table 6.82: Staple food consumed by members of the household

Staple food	Villages					
	Maprik		Muschu		Nienguanje	
	No. of households	%	No. of households	%	No. of households	%
Rice	1	12.5	-	-	1	20
Sago	6	75.0	5	100	3	60
Banana	1	12.5	-	-	1	20
Total:	8	100	5	100	5	100

Source: Field survey data May, 2002

Table 6.83 gives an overview of the frequency of cooking rice by the households. Responses from various households indicate that frequency of cooking varied. Percentage distribution to this effect is well captured in the Table presented below.

Table 6.83 Frequency of cooking rice by the households

Frequency of cooking	Villages					
	Maprik		Muschu		Nienguanje	
	No. of households	%	No. of households	%	No. of households	%
Everyday	1	12.5	-	-	1	20
5 x /week	1	12.5	-	-	-	-
4 x /week	1	12.5	1	20	-	-
3 x /week	3	37.5	1	20	2	40
Twice a week	1	12.5	2	40	1	20
Special occasion	1	12.5	1	20	1	20
Total:	8	100	5	100	5	100

Source: Field survey data May, 2002

6.9.9 Methods of cooking rice

Households interviewed selected normal white rice as their main choice when cooked. The survey results show that 87.7 percent of households in Maprik selected normal white rice, while it was 100 percent in Muschu and Nienguanje villages in both.

Table 6.84: Rice variety selected by the households

Rice variety	Villages					
	Maprik		Muschu		Nienguanje	
	No. of households	%	No. of households	%	No. of households	%
Normal rice	7	87.5	5	100	5	100
Parboiled	1	12.5	-	-	-	-
Total:	8	100	5	100	5	100

Source: Field survey data May, 2002

Table 6.85 highlights methods of cooking rice. Cooking for normal texture was most common method used by the households. For example, it was 75 percent of the total households in the case of Maprik, 80 percent and 60 percent was recorded for Muschu and Nienguanje villages respectively.

Table 6.85: Methods of cooking rice by households

Methods of cooking	Villages					
	Maprik		Muschu		Nienguanje	
	No. of people	%	No. of people	%	No. of people	%
Soft texture	2	25	-	-	1	20
Normal texture	6	75	4	80	3	60
Hard texture	-	-	1	20	1	20
Total:	8	100	5	100	5	100

Source: Field survey data May, 2002

6.9.10 Rice purchased by respondents

Frequency of rice purchased in the three case study sites show that more than 50 percent of the households purchased rice once a week. This is shown in Table 6.86 below. It is suspected that most rural villagers included in the case study were consuming other traditional food items most of the time. It was rice as shown in Table 6.86 in this section of the report. In the East Sepik Province sago is rural villagers staple food. The other possibility as to why there is no frequent purchase of rice by the households is that the farmers were also growing their own rice as well.

Table 6.86: Frequency of rice purchased by households

Frequency of purchase	Villages					
	Maprik		Muschu		Nienguanje	
	No. of households	%	No. of households	%	No. of households	%
Once a week	4	50	3	60	3	60
1 x /4 days	1	12.5	1	20	1	20
Once a month	3	37.5	-		-	-
Non-periodical	-	-	1	20	1	20
Total:	8	100	5	100	5	100

Source: Field survey data May, 2002

Table with regard to quantity of rice purchased on a monthly basis in the three case study areas is shown below. Quantity purchased by the households surveyed varied but generally five of the households interviewed in each of the three villages indicated having bought less than 5 kilograms on a monthly basis. Thus in terms of percentage distribution, it was 87.5 percent for Maprik, 80 percent in the case of Muschu village and 60 percent was tallied for Nienguanje village.

Table 6.87: Quantity of rice purchased by the households

Quantity of rice purchased (kgs.)	Villages					
	Maprik		Muschu		Nienguanje	
	No. of households	%	No. of households	%	No. of households	%
Below 5	7	87.5	2	40	3	60
6-10	1	12.5	2	40	2	40
Over 11	0	-	1	20	-	-
Total:	8	100	5	100	5	100

Source: Field survey data May, 2002

Quantity bought was a function of how much was actually spent by the households included in the survey. It appears that more than 50 percent spent less than K50 and to relate this to the amount of rice purchased by the households included in the survey is obvious. That is to say only small amounts of rice were purchased by them. This is because the respondents in these study areas were growing rice themselves as well.

Table 6.88: Amount spent on rice by households

Amount spent (Kina)	Villages					
	Maprik		Muschu		Nienguanje	
	No. of households	%	No. of households	%	No. of households	%
Below 50	7	87.5	4	80	3	60
51-100	-	-	-	-	2	40
101-199	-	-	1	20	-	-
Over 200	1	12.5	-	-	-	-
Total:	8	100	5	100	5	100

Source: Field survey data May, 2002

Many of the households bought and consumed rice because the respondents found it to be cheap in price. Taste was also indicated as an indicator for consumption preference. The Table below indicates that 62 .5 percent of the households preferred rice because of its taste, while it was 80 percent for price in Muschu and 40 percent in Nienguanje village respectively.

Table 6.89: Reason for consumption preferences of the households

Reasons for consumption preferences	Villages					
	Maprik		Muschu		Nienguanje	
	No. of people	%	No. of people	%	No. of people	%
Price	3	37.5	4	80	2	40
Taste	5	62.5	1	20	2	40
Availability	-	-	-	-	1	20
Total:	8	100	5	100	5	100

Source: Field survey data May, 2002

Reasons for selection of rice also revolved around price factor. About 50 percent and 60 of households indicated low price for consumption preferences in Maprik and Nienguanje respectively . In the case of Muschu it was 100 percent for fragrance.

Table 6.90: Reasons for selection of rice by households

Reasons for selection	Villages					
	Maprik		Muschu		Nienguanje	
	No. of households	%	No. of households	%	No. of households	%
Low price	4	50.0	-	-	3	60
Taste	1	12.5	-	-	-	-
Fragrance	2	25.0	5	100	2	40
Cooking length	1	12.5	-	-	-	-
Total:	8	100.0	5	100	5	100

Source: Field survey data May, 2002

6.10 Kokopo And East New Britain Province

6.10.1 Kokopo Town Rice Consumption Survey

6.10.2 Profile of Respondents

Table 6.91 below is age groups of the members of the 20 households interviewed in Kokopo town. Unlike distribution of population within the different age groups for Lae city, the Madang and Wewak towns, number of people who fell into the different age groups in Kokopo town was spread equally. This is to say that about 24-29 percent of population fell within the different age groupings, while for 36-50 year age was only 19 percent. This is clearly depicted in Table 6.91 below.

Table 6.91: Number of people in different age groups of the 20 households

Age group	Number of people	Percentage
Below 12 years	37	29.1
13-20	33	26.0
21-35	31	24.4
36-50	25	19.7
Over 51	1	0.8
Total:	127	100.0

Source: Field survey data May, 2002

It is useful to compare status of occupation of spouses and the heads of the household. In Table 6.92 below 75 percent of households were employed while only 57 of the spouses were employed. As observed in the previous discussion spouses of the heads of the household had no jobs. In Kokopo town the proportion was 42 percent.

Table 6.92: Occupation of spouse and head of household

Occupation	Head of household	Percentage	Spouse	Percentage
Employed	15	75.0	11	57.9
Self-employed	3	15.0	-	-
No job	2	10.0	8	42.1
Total:	20	100.0	19	100.0

Source: Field survey data May, 2002

Table 6.93 showed that 45 percent of households earned between K501-1000 on a monthly basis. This distribution is different to that of the respondents from Lae city, Madang and Wewak towns. In the case of the latter, the majority of the people earned below K250 on a monthly basis. The reason for this difference is that in Kokopo town many members of the household are involved in cash economic activity such as selling garden food crops as well as cocoa and copra. This point is further discussed in the section which deals with rural household survey for the selected rural villages of Kokopo and the Rabaul Districts..

Table 6.93: Monthly income earned by the members of the 20 households

Monthly income (Kina)	Total number of wage earners	Percentage
Below 250	4	16.7
251-500	6	25.0
501-999	11	45.8
Over 1000	3	12.5
Total:	24	100.0

Source: Field survey data May, 2002

6.10.3 Dietary habits of respondents

Staple food consumed by households surveyed in Kokopo town indicated rice as their staple food, despite the fact that traditionally bananas and a variety of garden food crops have been the traditional food items of the Tolai people. Rice was again observed as the staple food item for the 18 households surveyed in Kokopo town. This trend was no different to the three previous towns of Lae, Madang and Wewak.

Table 6.94: Staple food consumed by households

Staple food	Number of households	Percentage
Rice	18	90.0
Sweet potato	2	10.0
Total:	20	100.0

Source: Field survey data May, 2002

Table 6.95 indicates the frequency of cooking rice by the 20 households surveyed. Out of this total 70 percent (14 households) cooked rice daily, while a small proportion cooked rice at various times. A further point needs to be raised here is that there is some relationship between a staple food such as rice and the frequency of it being cooked by the members of the household.

Table 6.95: Frequency of cooking rice by households

Frequency of cooking	Number of households	Percentage
Everyday	14	70.0
5 times per one week	1	5.0
4 times per one week	3	15.0
3 times per one week	2	10.0
Total:	20	100.0

Source: Field survey data May, 2002

6.10.4 Methods of cooking rice by respondents

Table 6.96 below shows that a majority of 85 percent of respondents selected normal white rice and again this choice for this rice variety is no different to what has been observed for households interviewed in Lae city, Madang and Wewak towns.

Table 6.96: Rice variety selected by the household

Variety	Number of household	Percentage
Normal white rice	17	85.0
Medium grain	3	15.0
Total:	20	100.0

Source: Field survey data May, 2002

Imported rice was the most preferred variety. There was no household who preferred local rice notwithstanding the fact that OISCA has the main rice training center established at Warongoi. While ths observation is valid only to Kokopo town, impression on consumption of local rice by the local villagers in Kokopo and the Rabual Districts could be quite different.

Table 6.97: Variety of rice preferred by households

Variety	Number of households	Percentage
Local rice	-	-
Imported rice	20	100.0
Either	-	-
Total:	20	100.0

Source: Field survey data May, 2002

Household responses to methods of cooking rice for soft texture, normal texture and hard texture also varied. A majority of households (83 percent) indicated that method of cooking rice was for normal texture. This observation is certainly consistent for those household responses for Lae city, Madang and Wewak towns. Only 18 households out of 20 responded to this question.

Table 6.98: Methods of cooking rice

Method	Number of households	Percentage
Soft texture	3	16.7
Normal texture	15	83.3
Hard texture	-	-
Total:	18	100.0

Source: Field survey data May, 2002

6.10.5 Rice purchased by the respondents

Table 6.99 indicates the frequency of rice purchased by the 19 respondents in Kokopo town. A slightly more than a half (52.6 percent) purchased rice on a weekly basis, while only 31 percent purchased it daily. At least one household indicated that they purchased rice once per 4 days.

Table 6.99: Frequency of rice purchase by households

Frequency of cooking	Number of households	Percentage
Everyday	6	31.6
Weekly	10	52.6
Once per 4 days	2	10.5
Non-periodical	1	5.3
Total:	19	100.0

Source: Field survey data May, 2002

Quantity of rice bought was that 42 percent purchased less than 5 kilograms and another 42 percent purchased between 6-10 kilograms. Observations for three major towns discussed earlier indicate that households preferred to buy rice according to 1 kilogram packet, 5 kilogram packet and a 10 kilogram bag. These different quantities demanded seemed to be more appropriate from household's food budget requirements.

Table 6.100 Quantity of rice purchase by households

Quantity (kgs.)	Number of households	Percentage
Below 5	8	42.1
6-10	8	42.1
Over 11	3	15.8
Total:	19	100.0

Source: Field survey data May, 2002

While surveyed households in Kokopo town earned a reasonably good income (Table 6.101), more than 80 percent of the households however, spent less than K50.00 on the purchase of rice. A possible reason could be that number of dependents within the household was low which in turn affected an increased demand for rice quantities to be purchased at any one time by a household.

Table 6.101: Amount spent by 20 households

Amount spent (kina)	Number of households	Percentage
Below 50	16	80.0
51-100	2	10.0
101-199	1	5.0
Over 200	1	5.0
Total:	20	100.0

Source: Field survey data May, 2002

Table 6.102 indicates that a total of 13 households did not state reasons for consumption preferences. Only 15 percent each (3 households) indicated a low price and taste as a basis of their preference for rice respectively. However, in the absence of those households who did not indicate it is certainly valid to comment that price and taste were the main reasons for consumption preferences.

Table 6.102: Reason for consumption preferences

Reason	Number of households	Percentage
Low price	3	15.0
Taste	3	15.0
Quality	1	5.0
Did not state	13	65.0
Total:	17	100.0

Source: Field survey data May, 2002

Reason for selection of rice also varied among the surveyed households. Out of a total of 18 households 55.6 percent (10 households) selected rice on the basis of price. The next reason was taste and the balance gave various reasons.

Table 6.103: Reasons for selection of rice

Reasons	Number of households	Percentage
Taste	5	27.7
Time length of cooking	1	5.6
Low price	10	55.5
Size of length	1	5.6
Soft texture after cooking	1	5.6
Total:	18	100.0

Source: Field survey data May, 2002

6.11 East New Britain Province: A Case Study of Kokopo and Rabaul Districts

A total of four villages were included in the rice consumption survey. About 20 households were selected from all the four villages within the Kokopo and Rabaul Districts

6.11.1 Profile of respondents

Table 6.104 below illustrates population distribution with different age groupings. Case study households in Raputput village had 46.7 percent of people falling in the young population bracket, that is less than 12 years. On the other hand, sampled household population for Talvat and Sikut areas was concentrated around 21-35 years of age. When populations of the case study villages are compared, Raputput have more younger children while Talvat-Sikut areas have more people in the ages between 21-35 years old.

Table 6.104: Number of people in different age groups of the household

Age groups	Villages							
	Raputput		Talvat-Sikut		Gelagela		Ngunguna	
	No. of people	%	No. of people	%	No. of people	%	No. of people	%
Below 12 years	14	46.7	2	5.6	5	15.6	12	44.4
13-20	4	13.3	8	22.2	7	21.9	5	18.5
21-35	8	26.7	17	47.2	9	28.1	9	33.3
36-50	4	13.3	8	22.2	8	25.0	1	3.7
Over 52	-	-	1	2.8	3	9.4	-	-
Total:	30	100	36	100.0	32	100.0	27	99.9

Source: Field survey data May, 2002

Monthly income for the sampled households was below K250. About 87.5 percent indicated earning less than the amount indicated while it was 63 percent in the case of Talvat-Sikut areas. While this sample is small upon which any concrete conclusions can be made regarding money earned by the family members of the households interviewed, it still gives us some idea of income generated within the household.

Unlike other three case study villages discussed earlier in this Chapter, villages in the East New Britain Province do earn adequate income. This is mainly derived from the sale of cash crops such as cocoa and copra. This is discussed in the section which deals with the socio-economic conditions of the rural households interviewed.

Table 6.105: Monthly income earned by members of the household

Monthly income (Kina)	Villages							
	Raputput		Talvat-Sikut		Gelagela		Ngunguna	
	No. of people	%	No. of people	%	No. of people	%	No. of people	%
Below 250	7	87.5	12	63.2	9	100.0	3	50.0
251-500	1	12.5	3	15.8	-	-	3	50.0
501-999	-	-	-	-	-	-	-	-
Over 1000	-	-	-	-	-	-	-	-
Total	8	100	19	100.1	9	100.0	6	100.0

Source: Field survey data May, 2002

6.11.2 Dietary habits of respondents

In Raputput there is no staple diet specified by the household interviewed while in Talvat-Sikut areas 3 households indicated it as their staple food. This is around 60 percent of the total households interviewed. Other commonly food items consumed by the households are shown in the Table 6.106 below. Sweet potato, cassava, taro and bananas are some of the food items which family members consumed daily.

Table 6.106: Staple food consumed by households

Staple food	Villages							
	Raputput		Talvat-Sikut		Gelagela		Ngunguna	
	No. of households	%	No. of households	%	No. of households	%	No. of households	%
Rice	1	20	3	60	3	60	3	60
Sweet potato	1	20	1	20	1	20	-	-
Cassava	1	20	-	-	1	20	1	20
Taro	1	20	-	-	-	-	-	-
Banana	1	20	1	20	-	-	1	20
Total	5	100	5	100	5	100	5	100

Source: Field survey data May, 2002

Table 6.107 summarizes the frequency of cooking rice by the households. It is clear from the data generated from the rural household surveys that there is no distinct pattern in their responses as far as the frequency of cooking rice was concerned. Only 20 percent indicated that they cooked rice daily.

There is one observation which needs to be made here with regard to food consumption patterns of the Tolai society and as far as traditional food is concerned. Many households prepare and continue to use their traditional means of preparing local food items. This could be one reason why rice was not indicated as a staple food of the household.

Table 6.107: Frequency of cooking rice by households

Frequency of cooking rice	Villages							
	Raputput		Talvat-Sikut		Gelagela		Ngunguna	
	No. of households	%	No. of households	%	No. of households	%	No. of households	%
Everyday	1	20	1	20	2	40	1	20
6 x /week	-	-	1	20	-		-	-
5 x /week	1	20	-	-	-		1	20
4 x /week	-	-	2	40	-		1	20
3 x /week	2	40	1	20	-		2	40
Once a week	1	20	-	-	3	60	-	-
Total:	5	100	5	100	5	100	5	100

Source: Field survey data May, 2002

6.11.3 Methods of cooking

Variety selected by surveyed households was normal white rice. All the 10 households (100 percent) interviewed in both case study areas indicated that they selected normal white rice among many which were listed on the questionnaire. Many reasons have already been given for this and one of them is to do with household's familiarity of the product itself.

Table 6.108: Rice variety selected by households

Variety	Villages							
	Raputput		Talvat-Sikut		Gelagela		Ngunguna	
	No. of households	%	No. of households	%	No. of households	%	No. of households	%
Normal white rice	5	100	5	100	4	80	4	80
Mixed rice	-	-	1	-	1	20	1	20
Total:	5	100	5	100	5	100	5	100

Source: Field survey data May, 2002

In Table 6.109 methods of cooking rice by households also differed. Again responses with regard to this question were not well marked but it was evident that households cooked rice using the three methods outlined in Table 6.106 below.

Table 6.109: Methods of cooking rice by households

Methods of cooking	Villages							
	Raputput		Talvat-Sikut		Gelagela		Ngunguna	
	No. of households	%	No. of households	%	No. of households	%	No. of households	%
Soft texture	1	20	3	60	2	40	1	20
Normal texture	2	40	2	40	3	60	4	80
Hard texture	2	40	-	-	-	-	-	-
Total:	5	100	5	100	5	100	5	100

Source: Field survey data May, 2002

6.11.4 Rice purchased by respondents

Frequency of rice purchased by the respondents was also not well marked so that there was some indication of what was the modal period when households purchased rice. Numbers of households when asked as to how often they bought rice, the responses were widely spread. This factor can also be explained in the context of rural households strong attachment to prepare and consume local food items.

Table 6.110: Frequency of rice purchased by respondents

Frequency of rice purchase	Villages							
	Raputput		Talvat-Sikut		Gelagela		Ngunguna	
	No. of households	%	No. of households	%	No. of households	%	No. of households	%
Everyday	1	20	2	40	-	-	1	20
Once a week	1	20	2	40	3	60	2	40
Once / 4 days	2	40	-	-	2	40	2	40
Once a month	1	20	-		-	-	-	-
Non-periodical	-	-	1	20	-	-	-	-
Total:	5	100	5	100	5	100	5	100

Source: Field survey data May, 2002

The Table 6.111 below gives 4 households (80 percent) who bought rice in small quantities in Raputput and only 40 percent in the case of Talvat-Sikut areas. The reason as to why respondents preferred to buy small amounts of rice during different times considered in Table 6.110 above is not very clear, notwithstanding the fact that this is a small sample which might not well represent the reality prevalent in the study villages.

Table 6.111: Quantity of rice purchased by households

Quantity purchased (kgs.)	Villages							
	Raputput		Talvat-Sikut		Gelagela		Ngunguna	
	No. of households	%	No. of households	%	No. of households	%	No. of households	%
Below 5	4	80	2	40	1	20	3	60
6-10	1	20	1	20	4	80	2	40
Over 11	-	-	-	-	-	-	-	-
Total:	5	100	3	100	5	100	5	100

Source: Field survey data May, 2002

Amount spent by the households is illustrated in Table 6.112 below. Majority of respondents from Raputput (80 percent) spent less than K50 while it was 40 percent for Talvat-Sikut areas. Furthermore, in Talvat-Sikut areas 60 percent spent between K51-100 on the purchase of rice.

Table 6.111: Amount spent on rice by the households

Amount spent (Kina)	Villages							
	Raputput		Talvat-Sikut		Gelagela		Ngunguna	
	No. of households	%	No. of households	%	No. of households	%	No. of households	%
Below 50	4	80	2	40	4	80	4	80
51-100	-	-	3	60	1	20	1	20
101-199	1	20	-	-	-	-	-	-
Over 200	-	-	-	-	-	-	-	-
Total:	5	100	5	100	5	100	5	100

The quantity of rice bought by households, amount spent basically means that households preferred local rice. This observation is logical since a total of 80 percent preferred local rice in Raputput, while it was 60 percent in the Talvat-Sikut areas. This is shown in Table 6.112 below.

Table 6.112: Rice variety preferred by the households

Rice variety preferred	Villages							
	Raputput		Talvat-Sikut		Gelagela		Ngunguna	
	No. of households	%	No. of households	%	No. of households	%	No. of households	%
Local rice	4	80	3	60	1	20	1	20
Imported rice	-	-	1	20	2	40	2	40
Either	1	20	1	20	2	40	2	40
Total:	5	100	5	100	5	100	5	100

Source: Field survey data May, 2002

Table 6.113 shows reasons given by the households for selecting rice as their main food item. The most commonly given answer by all the households interviewed and data generated went for a low price as well as taste. This observation is also true in the case of households reasons for selection at Raputput and the Talvat-Sikut areas of the east New Britain Provinces.

Table 6.113: Reasons for selection by the households

Reasons for selection	Villages							
	Raputput		Talva-Sikut		Gelagela		Ngunguna	
	No. of households	%	No. of households	%	No. of households	%	No. of households	%
Low price	2	40	1	20	3	60	4	80
Taste	1	20	3	60	2	40	1	20
Fragrance	2	40	-	-	-	-	-	-
Form	-	-	1	20	-	-	-	-
Total:	5	100	5	100	5	100	5	100

Source: Field survey data May, 2002

6.11.5 National Summary of urban and rural surveys in rice consumption in the five case study Provinces

Urban Survey Results

A total of 5 main towns were included in this rice consumption survey with 20 households from each town as main respondents to the questionnaires. This gave a total of 100 households upon which conclusions regarding dietary habits, cooking methods and rice purchases in the urban contexts can be drawn. It is evident from the survey results analysed in the previous tables that similar patterns related to the main areas of investigation are repeated in all the five towns. Following observations are made for all the five main towns and these are summarized below.

Population concentration of all the five towns in the different age groups indicated a high concentration of young people less than 12 years old. The proportion ranged frm 26.1 for Lae city, Port Moresby was 30 percent, Madang with 33.1 percent, Wewak 33.8 percent and for Kokopo town it was 29.1 percent. In this case the range was from 26 to 33 percent, meaning that one third of the population of the surveyed households in the five towns fell in this category. The population of all the five towns is therefore young.

The staple food for all the households surveyed in the five town was rice. For example, it was 100 percent for Lae city, 85 percent for Madang, 80 percent in Wewak town and Kokopo town was 90 percent. This high proportions for the five town suggest that rice is certainly becoming a staple diet within the household food basket and in some places it is likely to substitute tradiditional food supplies in the near future. Thus the need toencourage the production of rice on a smallholder basis in selected parts of the country is a logical move made by the national government.

Total number of wages earners appeared to receive less than K250 per month. In Lae city, survey results revealed that 56.7 percent earned less than K250 per month, while in Port Moresby it was 54.5 percent. It was 16.6 percent for Madang, 62.5 percent in Wewak town, 16.7 percent in Kokopo. The main difference for the other two towns is that in Madang 36.7

percent of the population earned between k251-1000 on a monthly basis. A possible reason suggested for this is that some members of thehosuehold also had access to other forms of cash generating activities. For examples, copra and cocoa productions were seen as traditional revenue generating activities for a number of family members in Madang and Kokopo areas.

Regarding the frequency f cooking rice, it was 95 percent for the respondents in Lae city, 60 percent in Madang, 68.4 percent in Wewak and 70 percent in Kokopo town. These proportion are high and therefore can safely state that rice is a staple diet, which is cooked and consumed daily by the surveyed households in the five case study towns.

Also a large majority of surveyed households preferred imported rice as against local rice. About 47.4 percent of households preferred imported rice in Lae, 66.7 in Madang town, 85 percent in Wewak and 100 percent in Kokopo town. In the case of Port Moresby it was only 8 percent, while a majority of 56 percent of households indicated local rice as most preferred. This implies that a majority of Papua New Guineans consumes imported rice. To encourage local production at a village lelve will certainly offset this and can be a cost saving exercise if production of imported rice is to be reduced. Thus the objective to reduce rice imports by 10 percent as advocated in the current rice study program by the national government over a decade is a logical move.

As with regards to methods of cooking rice, also a large proportion of surveyed households indicated that they cooked rice for normal texture. In Lae city it was 73.7 percent, in Madang it was 60 percent, in Wewak it was 83.3 percent and Kokopo was 83.3 percent. The results of the questionnaires revealed that households cooked rice for normal texture, although there were some difficulty in comprehending what was meant by soft texture, normal texture and a hard texture. In Port Moresby 70 percent of households indicated cooking rice for soft texture and only a small proportion of 30 percent indicated normal texture.

Nearly a majority of households interviewed in the 4 major twons indicated that they selected normal white rice cooked in boiled water with added salt. Other types were not so faimilar to the respondents. Examples include parboiled rice, whole rice and broken rice to name but a few of the examples.

Many households interviewed indicated that the frequency of rice purchased differed among the five surveyed towns. For example, Port Moresby it was 55 percent for households to buy rice on a daily basis, in Lae city the proportion was 95 percent, in Madang there was no distinct trend, in Wewak town 60 percent indicated it to purchase rice on a weekly basis and in Kokopo town it was a on a weekly basis with 52.6 percent.

Quantity of rice purchased also varied. Generally there was a trend that a majority of the households surveyed opted to buy rice with less than 10 kilograms in weight.

Majority of the households indicated that they spent less than K50 and this was true for all five towns included in the study with the exception of respondents in Wewak town who stated spending between K51 – K100.

The most significant reason for consuption preferences was low price and good taste. The responses were similar for all respondents in the five major towns included in the rice consumption survey. In many instances households interviewed gave more than one answer.

For example, some households would state a low price and a good taste as most important factors in deciding on consumption preferences.

The results that have now been analysed on rice consumption in the five case study urban centers of the country quite clearly show that responses have not differed significantly between each urban center. Almost all respondents in the five surveyed urban centers gave similar responses. This means that a reduction in rice imports from overseas by 10 percent over a period of 10 years will certainly be a big boost for local rice industry to be developed and expanded in the country. Furthermore the need to currently advocate and promote smallholder rice industry in PNG will become a reality rather than a mere rehetoric.

Rural Survey Results

There is also a need to assess rice consumption patterns in the rural villages of the fiveProvinces. The Provinces included the Central, Morobe, Madang, the East Sepk and the East New Britain Provinces. Within these five Provinces case study villages were selected and surveyed. The data has now been generated, analysed nad discussed. The rural villages where the study was carried out a re nt homogenous intheir socio-economic arrangements. There is some degree of similarity as well as differentiation in terms of their cultures, traditional institutional arrangements, land tenure systems and their attitudes to and of changes to new innovations particularly if rice production on the basis of family units is to be considered as one of those new innovations.

This therefore means that the households that were involved in the survey and from which the data has been used to analysed the nature and the extent of rice consumption in the rural areas should be evaluated with caution. The size of the sample for each case study village or the District within the Province is small and socio-cultural conditions, which might influence the type of food that was commonly consumed in a household. For example, in the rural areas of the Morobe Province taro, sweet potato and cassava are regarded as traditional food crops that are consumed daily. In the case of Madang it is yam and taro, the East Sepik Province it is sago and yam while in the East New Britain Province it it taro and banana. Thus in whole, when asking questions which relate to which is the staple diet of the rural households it is difficult to say that it would be rice because traditional food crops also play an important part of the household's social life. Thus responses given as to whether rice was their staple diet or food can cause this misunderstanding.

Responses given with regard to rice consumption and reasons for their preference gave in many instances of more than one answer. For example it was possible for a family to eat rice daily but also taro and bananas were consumed simultaneously with rice. The respondents gave mutually exclusive answers which means that rice was a staple diet but other food crops such a s taro or sweet potato was equally an important food item to a household.

However, with regard to the case study villages of the five selected Provinces, general observations are summarized below. These are related to the rice consumption patterns of the households included in the surveys.

Like the results, which are available for the urban centers, this is clear evidence that rice is a staple food item for most households. In majority of cases more than 50 percent of the respondents have indicated this to be. Even where it is considered to be tha main diet of a household, their preference for selection and consumption was based on price factor and

taste. Household opted to purchase rice that was cheap and majority of respondents cited Roots rice to be cheap.

Quality of rice purchased and amount spent on it correlated well. Most respondents bought less than 5 kilograms and normally spent less than K50. Rice was cooked on a daily basis in some surveyed areas and are well outlined in the combined results of urban and rural surveys on rice consumption in the five selectd Provinces in this chapter.

It was evident also to note that households cooked rice for soft or normal textures. These are the main responses regarding methods of cooking chosen by the households. In urban areas imported rice was most favoured by most households and in rural areas local rice was the variety most preferred by the households. This was because of its low price, taste, and its availability to some extent.

Thus what this basically means is that rural households will certainly welcome the national governments more to promote smallholder rice readily available in the area where it would be gorwn and would be seen a s a main food source for the households. As noted in the questionnaires if local production increases, many will opt to buy local production rather than imported rice because the production is home grown.