

## **4. SURVEY IMPLICATIONS**

### **4.1 CONCLUSIONS AND RECOMMENDATIONS**

#### **4.1.1 Public views on the need for a sewerage collection system**

4.1.1.1 That the residents of the National capital district do not need to be further convinced or further educated about the need for improvements to the existing sewerage system of the district.

4.1.1.2 That half of the public consider the existing public sewerage system as inadequate, and to some extent, contributing to, rather than reducing their existing health problems.

4.1.1.3 That even in areas fully serviced with a sewerage collection system, there is generally more public discontentment with this service than with most other services in the area.

4.1.1.4 That squatters are the most discontent residents of the district with their housing and public services (including the provision of sewage collection and treatment).

#### **4.1.2 Sewerage collection in relation to water supply**

4.1.2.1 That household discontent with the existing sewerage system may be due in part to poor water pressure in some areas and the consequent inability of residents to use the flush toilets in their houses.

4.1.2.2 That more than half of District households consider that they do not always have access to water for more than one month a year (not necessarily continuously).

4.1.2.3 That the potential benefits of any improvements to the sewerage system may be very limited without prior improvement in the adequacy and constancy of the water supply.

4.1.2.4 That metering does have an effect on improving the efficient use of potable water, but it may also be encouraging more public exposure to health risks.

#### **4.1.3 Public knowledge of the link between personal hygiene, health and the environment**

4.1.3.1 That a large majority of households (more than eighty percent ) have a good understanding of the effects of pollution and poor personal hygiene on their health and on the environment.

4.1.3.2 That despite public knowledge of basic health and hygiene practices, the public are experiencing a significant health problem, part of which may be due to inadequate water and sanitation services rather than a poor understanding of the causes.

4.1.3.3 That household knowledge of the linkages between basic hygiene, the environmental

and health does not appear to be linked to the formal education level of local inhabitants.

4.1.3.4 That the respondents in squatter housing are as aware of the effects of untreated sewage, the cause of malaria and other hygiene and environment related health matters as the survey respondents in other types of housing.

4.1.3.5 That squatter areas and other unsewered parts of the National Capital District show no higher incidence of sickness than elsewhere in the district, with the exception of a relatively high incidence of skin disease in water village areas, perhaps due to polluted water.

4.1.3.6 That of all environment/ health areas covered by the survey, the public's understanding of the linkage between untreated sewage and its impact on the environment (e.g. shell fish, public health etc.) was the area least understood (only two households out of three understood the link).

#### **4.1.4 Household income and expenditure considerations**

4.1.4.1 That on average, one in six households in the District have an income of less than 25 Kina a week, and making payments for the use of a sewerage system services is likely to be difficult for them.

4.1.4.2 That 8% of households live on minimal incomes (less than 10 Kina a week), and these households are relatively evenly spread right across the District.

4.1.4.3 That there are some substantial differences in expenditure patterns among different household types, but not as much as might be expected for some items such as food and schooling.

#### **4.1.5 Household willing and ability to pay for sewerage collection services**

4.1.5.1 That squatters and other residents living in unsewered areas of the District appear to be willing to pay for an improved method of handling sewage in their housing areas despite some with very low income levels. Only 1 out of 6 households said they should not have to pay a fee for sewerage collection. (although similar to the number of households earning less than 25 Kina a week, there was no observable correlation between the two statistics, however.)

4.1.5.2 That approximately half of all households are willing to pay at least 5 Kina per week for sewerage collection, even in squatter villages and other unserved areas of the district.

4.1.5.3 That the discretionary income of households in squatter areas is comparatively low and such households may not be able to afford to pay as much as they think they can for a sewerage collection service, particularly if they also attempt to improve their housing at the same time (which is likely).

4.1.5.4 That apart from those living in squatter villages, those living in the water villages have the strongest desire in the district to see their sewerage disposal problem improved and

are probably the most able to afford to pay for such improvements should they be introduced (as home ownership and household income levels are both comparatively high in these areas ).

#### **4.1.6 Paying for a sewerage collection service**

4.1.6.1 That if given the opportunity, time and information, residents can see the relationship between water supply and sewerage collection, and more importantly, would be willing to pay for them both.

4.1.6.2 That compared with a "fixed fee" system or a fee based on a household's "ability to pay", the public would prefer to pay for sewerage services according to the amount of water they use, but no method investigated received a majority of public support. Those households earning less than 25 Kina a week and those households not on the public sewerage system were particularly supportive of a sewerage fee based on water charges.

4.1.6.3 That most respondent households, except those living in high cost housing, consider the present provision of public roading, suggesting that the relative funding priority of these two public expenditures could be reconsidered.

4.1.6.4 That in the short term, while the water services are being brought to standard it may be more appropriate to improve and maintain other even less adequately provided public health services, such as public toilets, and medical facilities, rather than extend the sewerage system into new areas.

#### **4.1.7 Sewerage system planning and design considerations**

4.1.7.1 That 1990 census figures on household size should not be used for sewerage system planning purposes, although the figures used in the Wilbur Smith study may be somewhat high.

4.1.7.2 That future sewerage planning for the district should be based on an average household size of at least 10 people per dwelling unit.

4.1.7.3 That it would be prudent to design sewerage systems in the water villages and other coastal areas on an average household size of at least 14 people per dwelling unit.

4.1.7.4 That toilet paper is a luxury among many households and any sewerage system should be designed to handle newspaper decomposition / removal / disposal.

4.1.7.5 That in the water villages, three out of four houses now have toilets which drop directly into the sea.

4.1.7.6 That in part because of the water supply in the Town area and in Six Mile, and in part because of the high number of rental units in these areas, long term sewerage system maintenance in these areas may be higher than normal.

4.1.7.7 That outdoor open bush is the primary form of toilet for 2 percent of all households,

with a 3 percent using the "bush" in the Town area and 7 percent using the "bush" in squatter areas.

4.1.7.8 That even in areas where there are both public toilets and a high use of "bush" toilets, no one uses the public toilets as their primary toilet because they are inadequately maintained.

4.1.7.9 That any sewerage system extended into non sewerred areas should be accompanied by an improved rubbish collection system in these areas to ensure the sewerage system is not abused as a rubbish disposal system.

4.1.7.10 That for future social surveys, the University of Papua New Guinea should be approached to conduct them., as they would appear to be both willing and able to undertake them.

#### **4.1.8 Health education**

4.1.8.1 That there would appear to be an effective health campaign (either formally or informally) already in operation in the water villages and other unsewered parts of the district.

4.1.8.2 That any additional funding for health education may be better spent on the needed public works themselves (sewerage and water system ) or on the medical facilities caring for the consequences of not having these systems.

4.1.8.3 That any health education efforts considered necessary despite the above recommendation, should be aimed at the general public rather than at specific areas of the community.

4.1.8.4 That if a public health campaign relating to the provision of sewerage services were undertaken, it would be most effective if it utilised local schools, the local radio and local clinics.

### **4.2 SUGGESTED OBJECTIVES AND STRATEGIES FOR THE SEWERAGE MASTER PLAN**

#### **4.2.1 Regarding existing health conditions and the sanitary habits of local households**

**OBJECTIVE 1** : to provide all existing and future households in the national capital district (within the limits defined by the 1995 urban development and services study ) with access to a safe and sanitary sewerage disposal system (and by implication, a safe and constant water supply ) by the year 2015.

**OBJECTIVE 2** : to consider objective 1 in all infrastructure planning for the national capital district.

**OBJECTIVE 3** : to encourage the public of the national capital district to continue to learn about the relationship between the environment, personal hygiene and health, and to encourage them put into practice their knowledge to the best of their abilities

**STRATEGY EXPLANATION:** The first objective in particular needs to be explicitly spelled out in the Sewerage Master Plan in order for the public to be able to measure progress toward achieving it over time. If this objective is not realistically achievable, an alternative objective stating explicitly what is achievable should be formulated. Although sewerage and water supply services are now controlled by corporatised agencies they are still an essential public service and at least on a policy level need to be considered in conjunction with the provision of other public services, such as roading, medical facilities and public education.

**4.2.2 Regarding the level of household satisfaction / dissatisfaction with the existing sewerage system and the need to improve it**

**OBJECTIVE 4 :** to recognise in planning for future public works, that household satisfaction with how sewage is handled in the district is presently very low compared with such public services as roading, both in areas that are now serviced by a public sewerage collection system and in areas now reliant on other means of sewage disposal.

**OBJECTIVE 5 :** to recognise that for those households living in areas of the district that are on a public sewerage system, there is a direct link between the adequacy of the public water supply and the adequacy of sewerage collection.

**STRATEGY EXPLANATION:** The public generally see the provision of sewerage collection services as substantially less adequately catered for than many other public services, particularly public roads. They also see that improvements to the sewerage system will only be effective if there are also improvements to the water supply system. These objectives remind everyone of the fact that scarce public funds need to be balanced carefully between competing resource needs. Sometimes high profile needs like roads win out simply because of their visibility and/ or comparative ease to implement.

**4.2.3 Regarding local household knowledge of the link between the environment, personal hygiene and health, their awareness of the cause and effect of disease outbreak, and the need to further educate the public on such matters**

**OBJECTIVE 6 :** to encourage resource allocations to be made bearing in mind there already is a good understanding among households of the linkage between the environment, personal hygiene and health

**OBJECTIVE 7 :** to continue with current health education programs and to make minor adjustments to such existing programmes where there are obvious reasons, but not to invest heavily in additional health education programs until significant improvements have been made to the water supply and sewerage collection system of the district.

**OBJECTIVE 8 :** to consider the health costs of not providing a safe sewerage system when calculating the cost benefit ratios between competing public expenditure priorities.

**STRATEGY EXPLANATION:** The public is already very aware of the problems caused by pollution and poor hygiene, but are largely unable to help themselves because of the state of existing public water and sewerage services (and in many instances, the state of their housing). Further "education" is likely to simply increase their disappointment over their existing water and sewerage services with little additional effect on improving their health. Scarce public health resources would be better spent making tangible improvements to the existing water and sewerage services, and / or providing better medical facilities to help care for those affected by these presently inadequate systems.

**4.2.4 Regarding the income levels of local households and the ability / willingness of households to pay for a sewerage collection service**

**OBJECTIVE 9 :** to recognise that there is strong interest among all sectors of the public to see improvements in the way sewage is handled in the district and that a large percentage of district household are willing to contribute towards the costs of such improvements.

**OBJECTIVE 10:** to finance the construction of improvements to the sewerage system in a way that recognises the public's (particularly those on low incomes) general desire to be charged on the basis of the amount of water each household uses.

**OBJECTIVE 11:** to finance the construction of improvements to the sewerage system in a way that recognises that those on low incomes, particularly those in squatter areas, may need financial and / or development assistance to use the service (over at least the medium term).

**STRATEGY EXPLANATION:** While there would appear to be genuine support across the district to finance sewerage system improvements, once squatters and others on low incomes realise that they cannot afford to both pay for such improvements and at the same time also improve or replace their existing dwellings, they may well withdraw their present support unless there is a financial and / or development assistance programme available for them to call upon.

**4.2.5 Regarding planning for improvements to the sewerage system in the national capital district**

**OBJECTIVE 12:** to design any improvements to the public sewerage collection system to cater for an average occupancy level per household of at least 10 people.

**OBJECTIVE 13:** to design any improvements to the public sewerage collection system in areas near the coast, including water villages, for an average occupancy level of at least 14 people.

**OBJECTIVE 14:** to design any improvements to the public sewerage collection and treatment system to handle newspaper decomposition / removal / disposal.

**OBJECTIVE 15:** to provide and more importantly, maintain, public toilets in areas

where there are high public concentrations of people or where there is significant household use of the "bush" as a toilet.

**OBJECTIVE 16:** to provide for a public rubbish collection system in any area that is improved with a sewerage collection system at least over the short term, to minimize operation and maintenance problems of the new system.

**OBJECTIVE 17:** to develop and keep an accurate digital record of household access to the public sewerage system in conjunction with the district's present digital mapping program and to monitor expansion and maintenance of this system, so that the impact on the environment of such improvements can be monitored.

**STRATEGY EXPLANATION:** Most of the above objectives simply confirm how the findings of this study should be used in preparing and implementing a Sewerage System Master Plan. The last one, objective 17, is not directly from the study, but is based on the need to monitor objective 1 in some detail. The practical and relatively simple solution is to maintain a geographical database (GIS) which will serve a number of other purposes at the same time (including future system design and maintenance work). As preparation of the primary maps for the National Capital District are now almost complete, the bulk of the work to set up such a system is already over.

# Port Moresby Inhabitant's Behaviour Survey

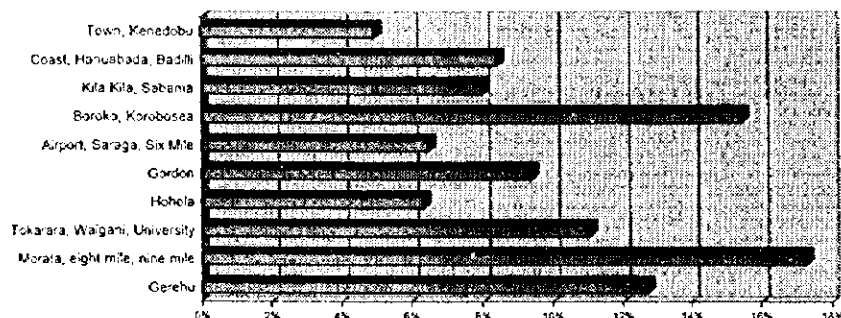
May, 1997

Results for: **National Capital District**  
Households surveyed: 724

Survey Return by Area

## 1. Percentage of survey return by area

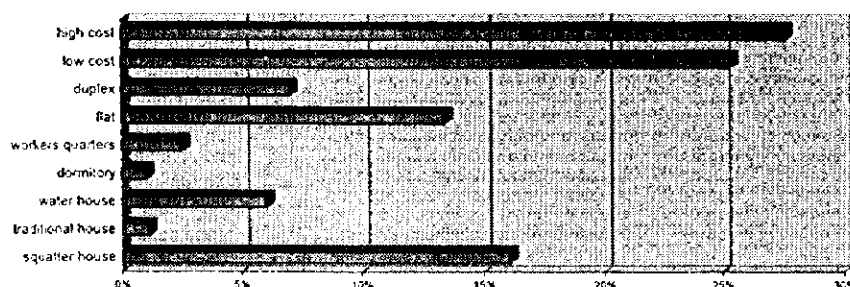
Town, Kenedobu	5%
Coast, Hanuabada, Badili	8%
Kila Kila, Sabana	8%
Boroko, Korobosea	15%
Airport, Saraga, Six Mile	6%
Gordon	9%
Hohola	6%
Tokarara, Waigani, University	11%
Morata, eight mile, nine mile	17%
Gerehu	13%



## 2. Percentage of Survey Results by House Type

high cost	28%
low cost	25%
duplex	7%
flat	13%
workers quarters	3%
dormitory	1%
water house	6%
traditional house	1%
squatter house	16%

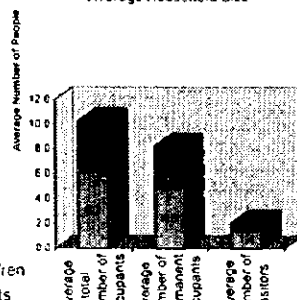
Survey Return by House Type



## 3. Average number of people per household

	adults	children
average total number of occupants	6.2	4.0
average number of permanent occupants	4.8	3.4
average number of visitors	1.4	0.6
average total occupancy of house	10.2	
average number of couples	1.4	

Average Household Size



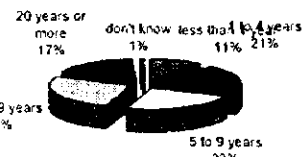
Household Breakdown



## 5. Length of Occupancy

less than 1 year	11%
1 to 4 years	21%
5 to 9 years	23%
10 to 19 years	27%
20 years or more	17%
don't know	1%

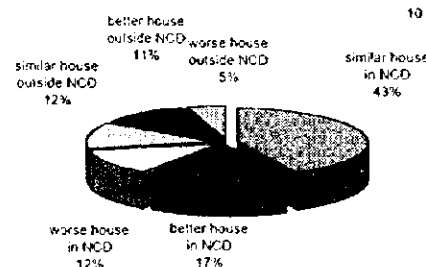
Length of Occupancy



## 6. Location and quality of previous house

similar house in NCD	42%
better house in NCD	17%
worse house in NCD	12%
similar house outside NCD	12%
better house outside NCD	11%
worse house outside NCD	5%

Location and Quality of Previous House





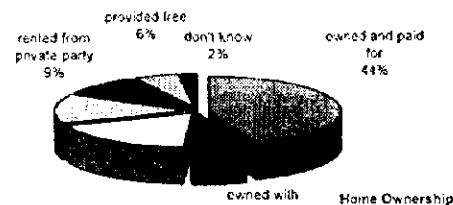
# Port Moresby Inhabitant's Behaviour Survey

May, 1997

Results for: **National Capital District**  
Households surveyed: 724

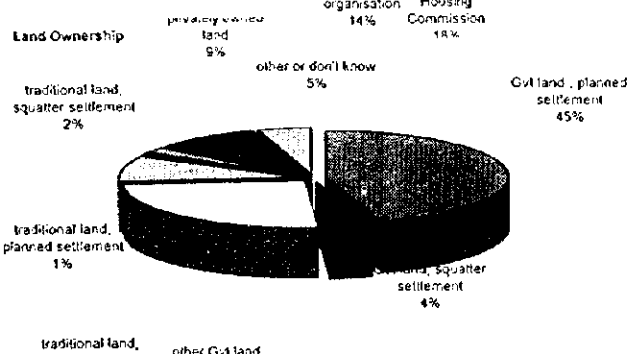
## 7. Home ownership

owned and paid for	44%
owned with mortgage	7%
rented from Housing Commission	18%
rented from other Govt. organisation	14%
rented from private party	9%
provided free	6%
don't know	2%



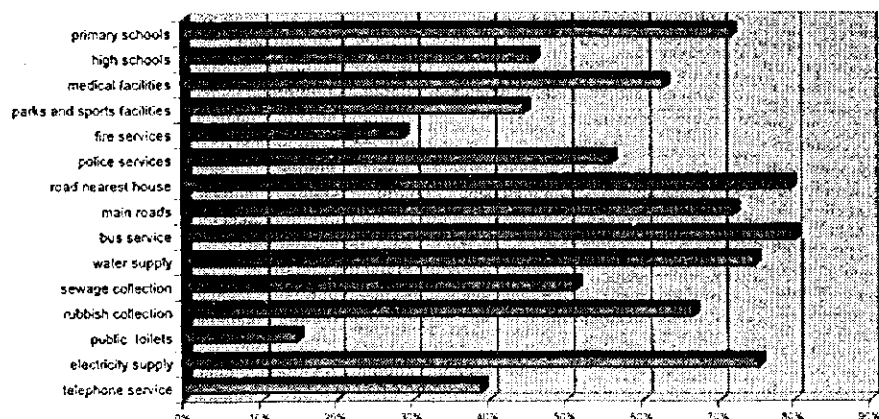
## 8. Land ownership

Gvt land, planned settlement	45%
Gvt land, squatter settlement	4%
other Govt land	25%
traditional land, traditional village	9%
traditional land, planned settlement	1%
traditional land, squatter settlement	2%
privately owned land	9%
other or don't know	5%



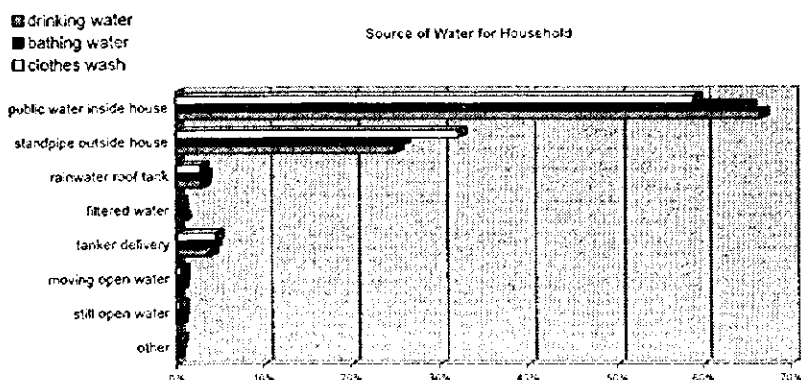
## 9. Adequacy of community facilities and services

primary schools	72%
high schools	46%
medical facilities	63%
parks and sports facilities	45%
fire services	29%
police services	56%
road nearest house	80%
main roads	72%
bus service	80%
water supply	75%
sewage collection	51%
rubbish collection	66%
public toilets	15%
electricity supply	75%
telephone service	39%



## 10. Source of water for household

	drinking water	bathing water	clothes wash
public water inside house	67%	65%	59%
standpipe outside house	25%	26%	32%
rainwater roof tank	3%	3%	3%
filtered water	1%	0%	0%
tanker delivery	4%	4%	5%
moving open water	0%	1%	1%
still open water	0%	0%	0%
other	0%	0%	0%



# Port Moresby Inhabitant's Behaviour Survey

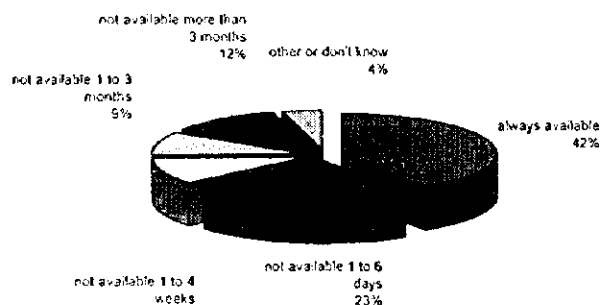
May, 1997

Results for: **National Capital District**  
Households surveyed: 724

## Availability of Safe Drinking Water

### 11. Availability of safe drinking water

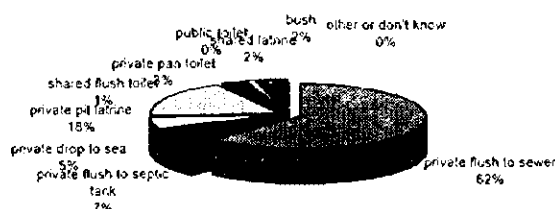
always available	41%
not available 1 to 6 days	23%
not available 1 to 4 weeks	10%
not available 1 to 3 months	9%
not available more than 3 months	12%
other or don't know	4%



### 12. Type of toilet

private flush to sewer	62%
private flush to septic tank	7%
private drop to sea	5%
private pit latrine	18%
private pan toilet	3%
shared flush toilet	1%
shared latrine	2%
public toilet	0%
bush	2%
other or don't know	0%

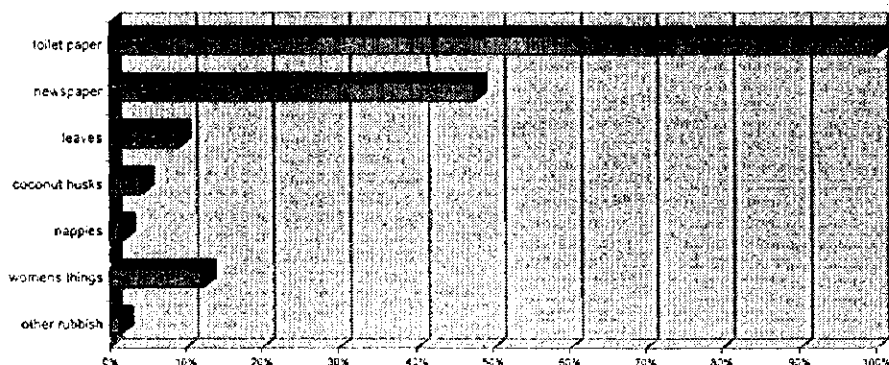
## Type of Toilet used by Household



### 13. Materials put in toilet

toilet paper	100%
newspaper	48%
leaves	9%
coconut husks	4%
nappies	2%
womens things	12%
other rubbish	1%

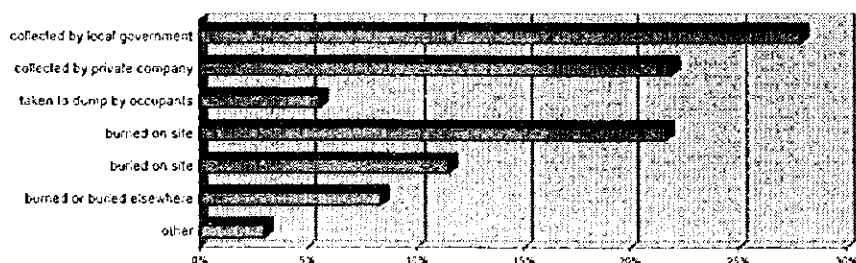
## Materials put in toilet



### 14. Method of household rubbish collection

collected by local government	28%
collected by private company	22%
taken to dump by occupants	6%
burned on site	22%
buried on site	12%
burned or buried elsewhere	8%
other	3%

## Method of rubbish collection



# Port Moresby Inhabitant's Behaviour Survey

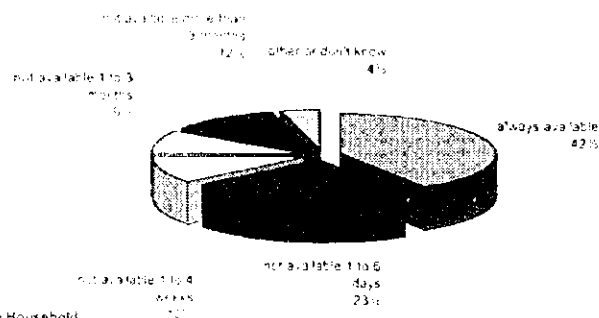
May, 1997

Results for: **National Capital District**  
Households surveyed: 724

## Availability of Safe Drinking Water

### 11. Availability of safe drinking water

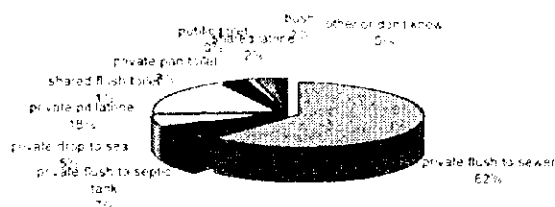
always available	41%
not available 1 to 6 days	23%
not available 1 to 4 weeks	10%
not available 1 to 3 months	9%
not available more than 3 months	12%
other or don't know	4%



### 12. Type of toilet

private flush to sewer	62%
private flush to septic tank	7%
private drop to sea	5%
private pit latrine	18%
private pan toilet	3%
shared flush toilet	1%
shared latrine	2%
public toilet	0%
bush	2%
other or don't know	0%

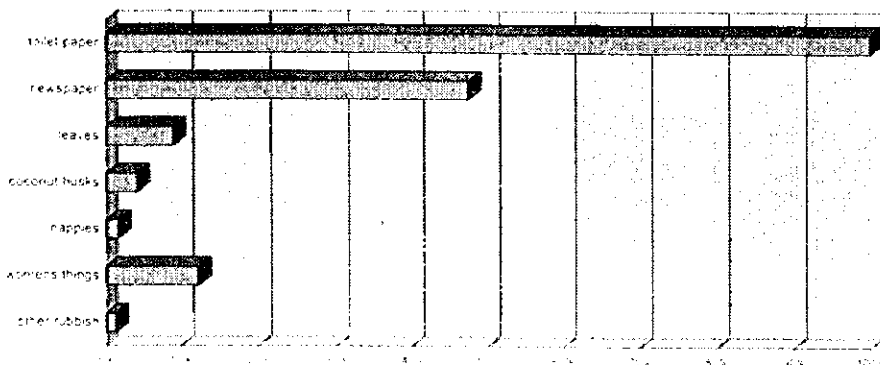
## Type of Toilet used by Household



### 13. Materials put in toilet

toilet paper	100%
newspaper	43%
leaves	9%
coconut husks	4%
nappies	2%
womens things	12%
other rubbish	1%

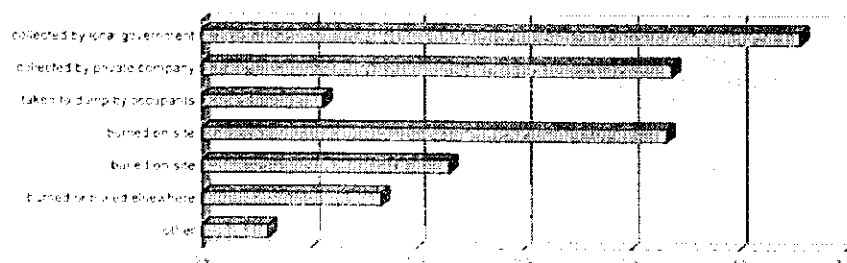
## Materials put in toilet



### 14. Method of household rubbish collection

collected by local government	28%
collected by private company	22%
taken to dump by occupants	6%
burned on site	22%
burned on site	12%
burned or buried elsewhere	8%
other	3%

## Method of rubbish collection



# Port Moresby Inhabitant's Behaviour Survey

May, 1997

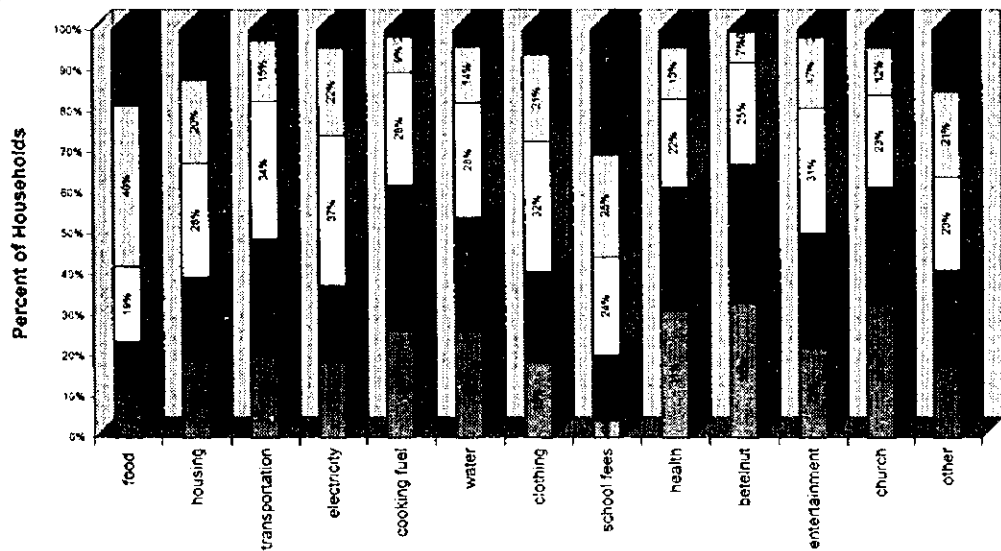
Results for: **National Capital District**  
Households surveyed: 724

## 15. Weekly Household Expenditure

	less than K2	between K2 and K6	between K7 and K24	between K25 and K125	more than K125
food	11%	19%	20%	18%	11%
housing	19%	20%	29%	19%	18%
transportation	20%	18%	26%	26%	26%
electricity	18%	36%	28%	9%	14%
cooking fuel	26%	28%	23%	21%	25%
water	26%	22%	14%	6%	31%
clothing	18%	22%	24%	4%	31%
school fees	4%	31%	22%	13%	7%
health	31%	34%	25%	0%	2%
betel nut	33%	28%	31%	17%	4%
entertainment	22%	29%	23%	12%	15%
church	33%	24%	23%	21%	18%
other	18%	24%	23%	21%	15%

- more than K125
- between K25 and K125
- between K7 and K24
- between K2 and K6
- less than K2

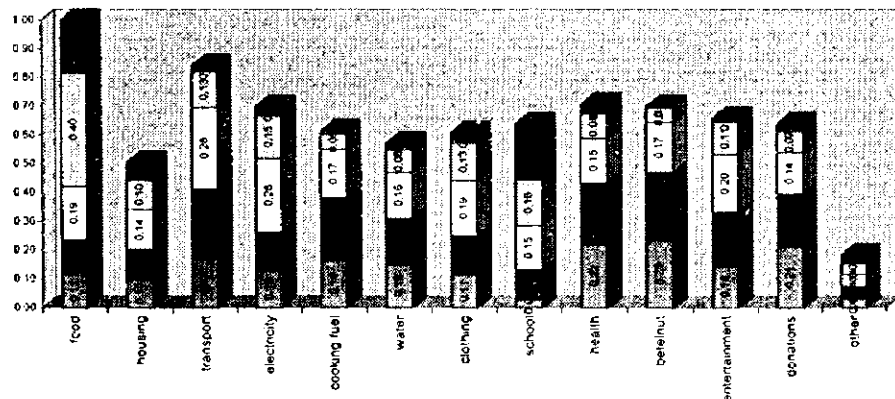
Weekly Household Expenditure  
(by percentage of households which responded)



	less than K2	between K2 and K6	between K7 and K24	between K25 and K125	more than K125
food	0.11	0.10	0.17	0.13	0.16
housing	0.12	0.10	0.24	0.13	0.22
transport	0.19	0.14	0.28	0.26	0.17
electricity	0.13	0.28	0.17	0.16	0.19
cooking fuel	0.16	0.22	0.16	0.16	0.15
water	0.15	0.16	0.16	0.16	0.15
clothing	0.11	0.14	0.10	0.10	0.14
school	0.03	0.10	0.15	0.15	0.19
health	0.22	0.21	0.15	0.17	0.20
betel nut	0.23	0.19	0.20	0.14	0.07
entertainment	0.14	0.18	0.14	0.04	0.03
donations	0.21	0.18	0.14	0.04	0.03
other	0.03	0.04	0.04	0.04	0.03

- more than K125
- K25 to K125
- K8 to K24
- K2 to K7
- less than K2

Weekly Household Expenditure  
(in relation to food)



# Port Moresby Inhabitant's Behaviour Survey

May, 1997

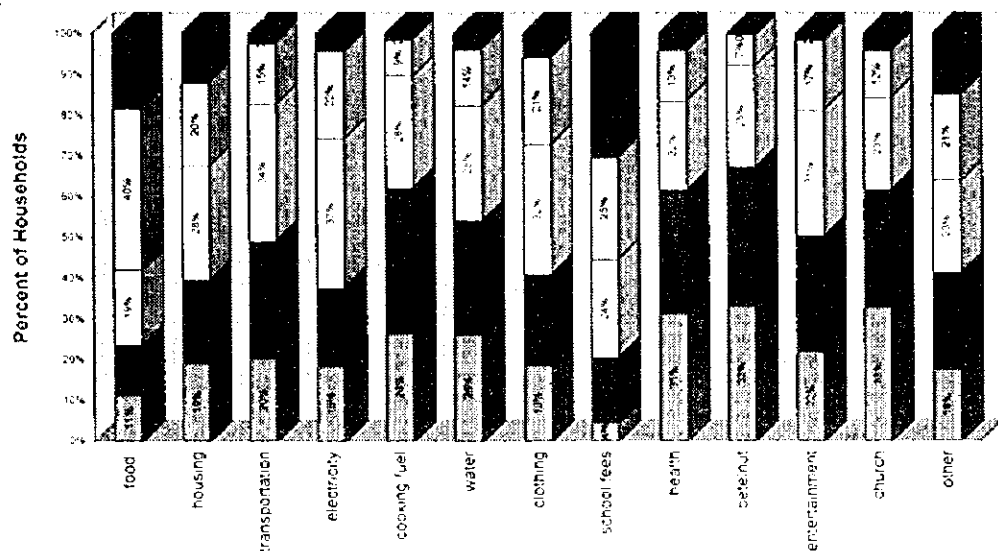
Results for: **National Capital District**  
Households surveyed: 724

## 15. Weekly Household Expenditure

less than K2	11%	19%	20%	18%	26%	26%	18%	4%	31%	33%	22%	33%	18%
between K2 and K6	12%	20%	29%	15%	36%	28%	22%	16%	30%	34%	28%	23%	24%
between K7 and K24	19%	28%	34%	37%	28%	28%	32%	24%	22%	25%	31%	23%	23%
between K25 and K125	40%	20%	15%	22%	9%	14%	21%	25%	13%	7%	17%	12%	21%
more than K125	16%	12%	2%	4%	2%	4%	6%	31%	4%	0%	2%	4%	15%

- more than K125
- between K25 and K125
- between K7 and K24
- between K2 and K6
- less than K2

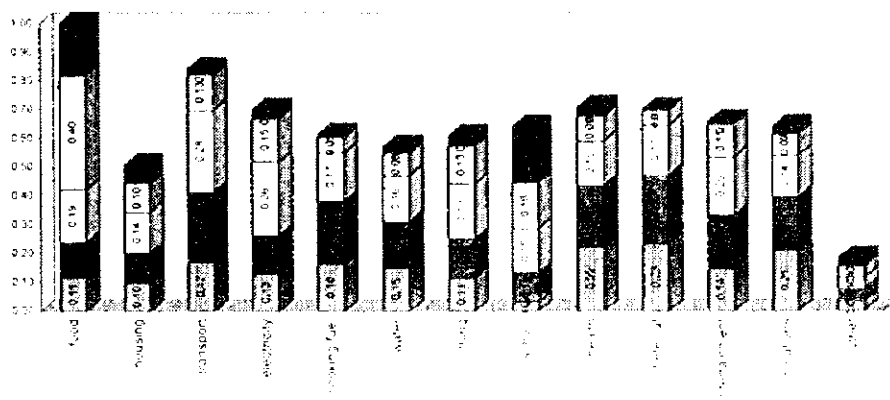
Weekly Household Expenditure  
(by percentage of households which responded)



less than K2	0.11	0.10	0.17	0.13	0.15	0.15	0.11	0.03	0.22	0.23	0.14	0.21	0.03
K2 to K7	0.12	0.10	0.24	0.13	0.22	0.15	0.14	0.10	0.21	0.24	0.19	0.18	0.04
K8 to K24	0.19	0.14	0.28	0.26	0.17	0.15	0.19	0.15	0.15	0.17	0.20	0.14	0.04
K25 to K125	0.40	0.10	0.13	0.15	0.05	0.08	0.13	0.15	0.09	0.05	0.11	0.07	0.04
more than K125	0.18	0.06	0.02	0.03	0.01	0.02	0.04	0.19	0.03	0.00	0.01	0.03	0.03

- more than K125
- K25 to K125
- K8 to K24
- K2 to K7
- less than K2

Weekly Household Expenditure  
(in relation to food)



# Port Moresby Inhabitant's Behaviour Survey

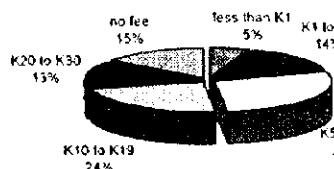
May, 1997

Results for: **National Capital District**  
Households surveyed: 724

## 16. Reasonable fee for water supply

less than K1	5%
K1 to K4	14%
K5 to K9	26%
K10 to K19	23%
K20 to K30	13%
no fee	15%

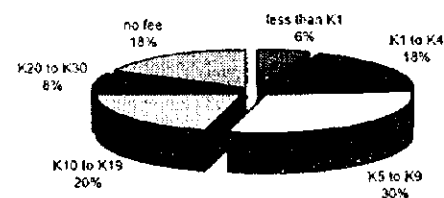
Reasonable Water Fee



## 17. Reasonable fee for sewerage collection

less than K1	6%
K1 to K4	18%
K5 to K9	31%
K10 to K19	20%
K20 to K30	8%
no fee	18%

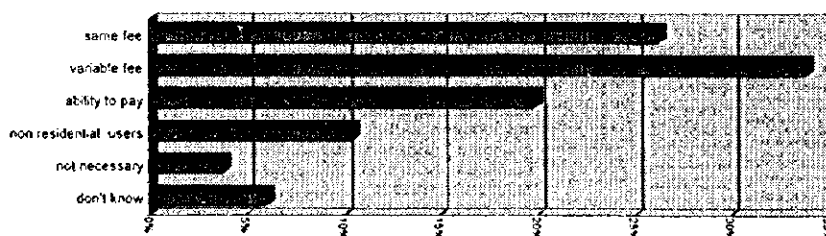
Reasonable Sewerage Collection Fee



## 18 Method of payment for sewerage collection

same fee	26%
variable fee	34%
ability to pay	20%
non residential users	10%
not necessary	4%
don't know	6%

Preferred method of payment for sewerage collection



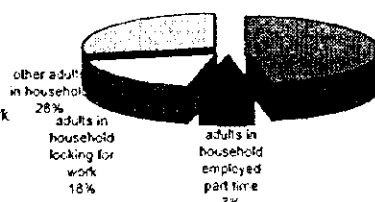
## 19. Employment of household members

adults in household employed full time	47%
adults in household employed part time	7%
adults in household looking for work	18%
other adults in household	28%

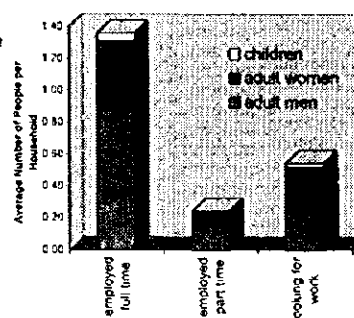
### Percent of household with one or more members employed

employed full time	0.88	0.15	0.34
adult men	0.44	0.08	0.18
adult women	0.05	0.01	0.03
children			

Household Adults in Employment



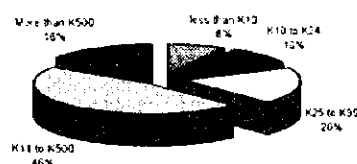
Household Employment



## 20. Weekly Household Income

less than K10	8%
K10 to K24	10%
K25 to K99	20%
K11 to K500	47%
More than K500	16%

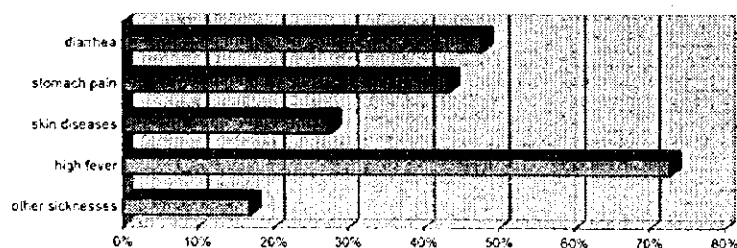
Weekly Household Income



## 21. Household sicknesses last year

diarrhea	48%
stomach pain	43%
skin diseases	28%
high fever	73%
other sicknesses	17%

Household Sicknesses Last Year



# Port Moresby Inhabitant's Behaviour Survey

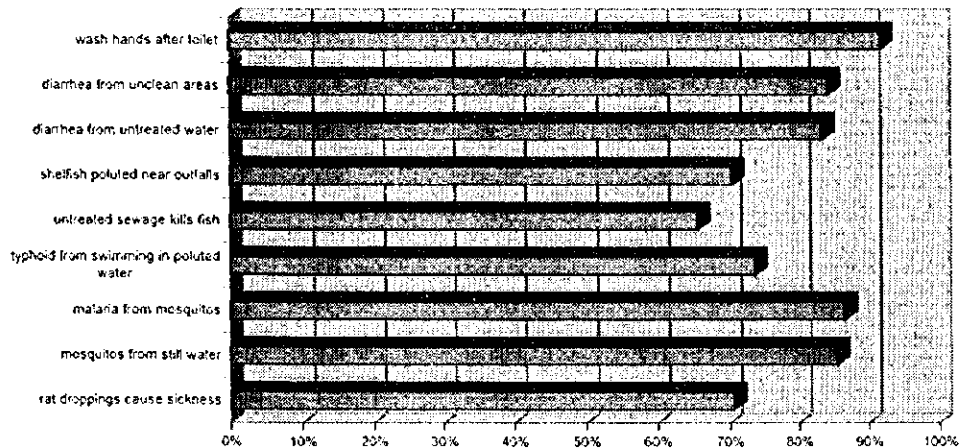
May, 1997

Results for: **National Capital District**  
Households surveyed: 724

Percent of population that understand the causes of sickness

## 22. Understanding of sickness causes

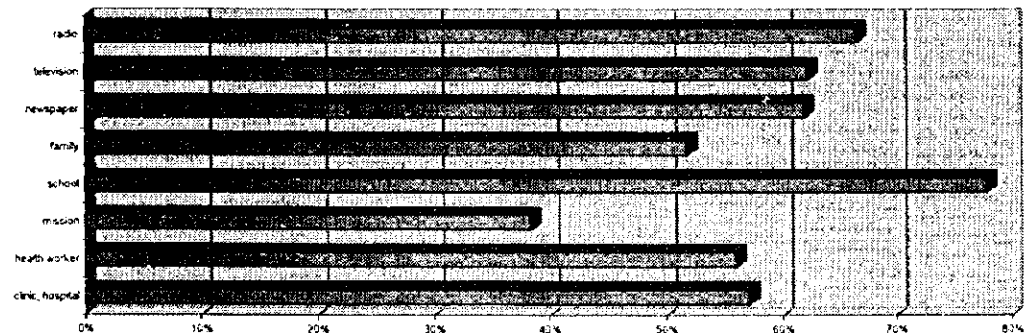
wash hands after toilet	92%
diarrhea from unclean areas	84%
diarrhea from untreated water	83%
shellfish polluted near outfalls	70%
untreated sewage kills fish	66%
typhoid from swimming in polluted water	74%
malaria from mosquitos	87%
mosquitos from still water	85%
rat droppings cause sickness	71%



Source of health education

## 23. Source of health education

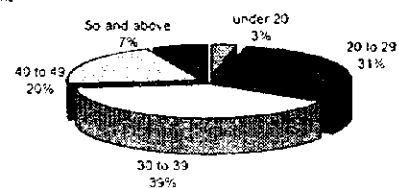
radio	66%
television	62%
newspaper	62%
family	52%
school	78%
mission	38%
health worker	56%
clinic, hospital	57%
other	5%



## 24. Age of respondent

under 20	3%
20 to 29	31%
30 to 39	39%
40 to 49	20%
50 and above	7%

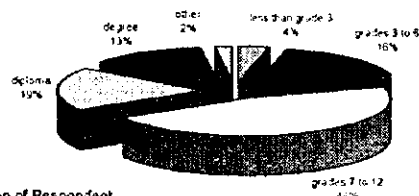
Age of Respondent



## 25. Education of respondent

less than grade 3	3%
grades 3 to 6	15%
grades 7 to 12	43%
diploma	18%
degree	12%
other	2%

Education of Respondent



## 26. Sex of respondent

male	62%
female	38%

Sex of respondent



# Port Moresby Inhabitant's Behaviour Survey

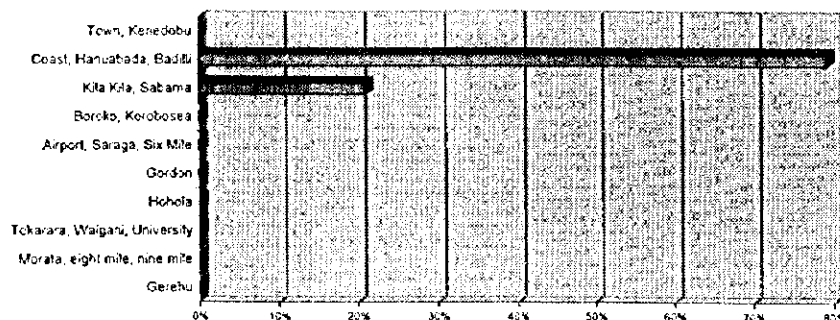
May, 1997

Results for: **Water Villages**  
Households surveyed: 43

Survey Return by Area

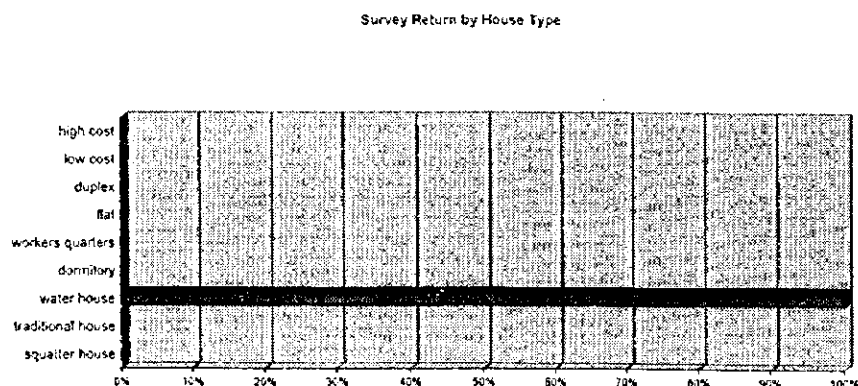
## 1. Percentage of survey return by area

Town, Kenedobu	0%
Coast, Hanuabada, Badili	79%
Kila Kila, Sabama	21%
Boroko, Korobosea	0%
Airport, Saraga, Six Mile	0%
Gordon	0%
Hohola	0%
Tokarara, Waigani, University	0%
Morata, eight mile, nine mile	0%
Gerehu	0%



## 2. Percentage of Survey Results by House Type

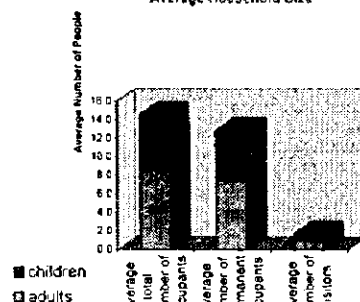
high cost	0%
low cost	0%
duplex	0%
flat	0%
workers quarters	0%
dormitory	0%
water house	100%
traditional house	0%
squalter house	0%



## 3. Average number of people per household

	adults	children
average total number of occupants	8.5	6.1
average number of permanent occupants	7.5	5.3
average number of visitors	1.0	0.7
average total occupancy of house	14.6	
average number of couples	2.4	

Average Household Size



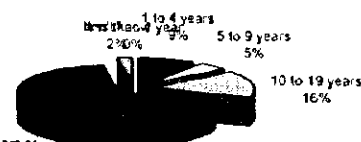
Household Breakdown



## 5. Length of Occupancy

less than 1 year	0%
1 to 4 years	9%
5 to 9 years	5%
10 to 19 years	16%
20 years or more	67%
don't know	2%

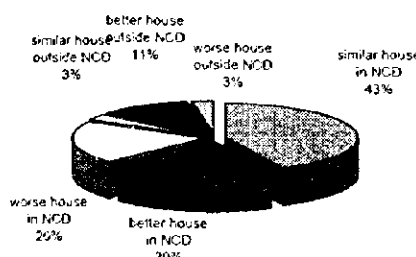
Length of Occupancy



## 6. Location and quality of previous house

similar house in NCD	43%
better house in NCD	20%
worse house in NCD	20%
similar house outside NCD	3%
better house outside NCD	11%
worse house outside NCD	3%

Location and Quality of Previous House





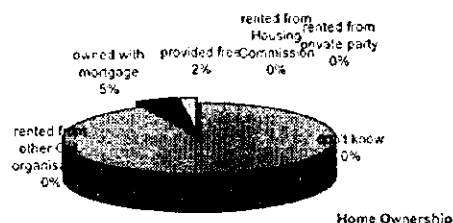
# Port Moresby Inhabitant's Behaviour Survey

May, 1997

Results for: **Water Villages**  
Households surveyed: 43

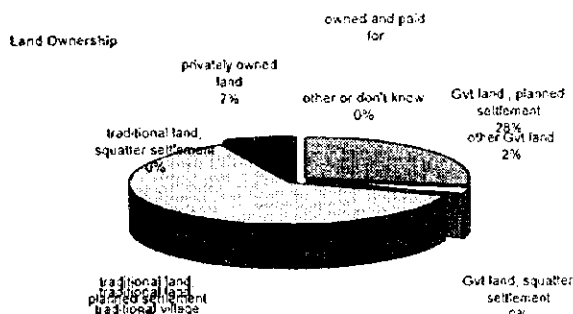
## 7. Home ownership

owned and paid for	93%
owned with mortgage	5%
rented from Housing Commission	0%
rented from other Govt. organisation	0%
rented from private party	0%
provided free	2%
don't know	0%



## 8. Land ownership

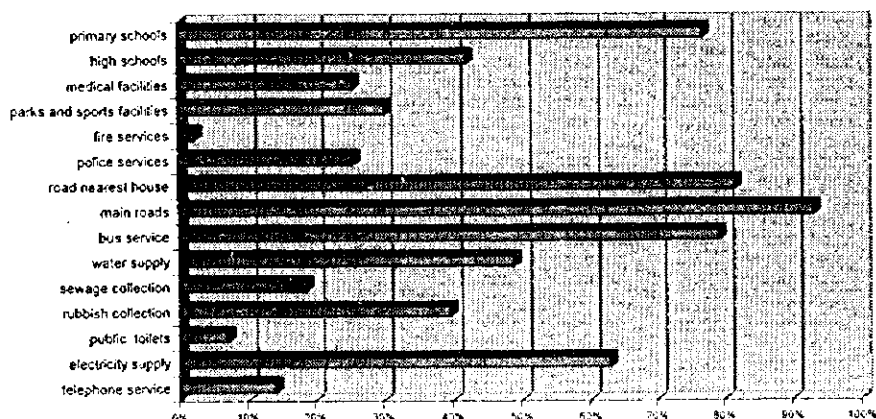
Gvt land, planned settlement	28%
Gvt land, squatter settlement	0%
other Govt land	2%
traditional land, traditional village	63%
traditional land, planned settlement	0%
traditional land, squatter settlement	0%
privately owned land	7%
other or don't know	0%



## 9. Adequacy of community facilities and services

primary schools	77%
high schools	42%
medical facilities	26%
parks and sports facilities	30%
fire services	2%
police services	26%
road nearest house	81%
main roads	93%
bus service	79%
water supply	49%
sewage collection	19%
rubbish collection	40%
public toilets	7%
electricity supply	63%
telephone service	14%

## Adequacy of Community Facilities and Services

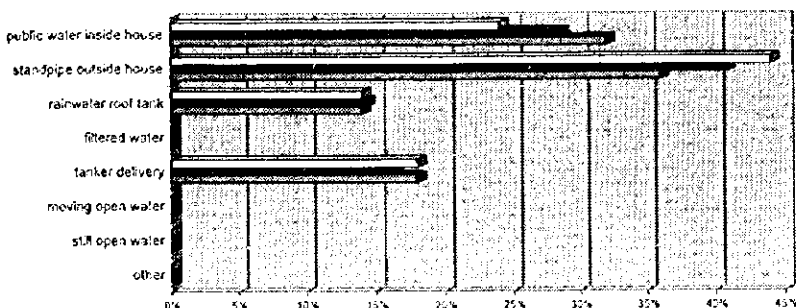


## 10. Source of water for household

	drinking water	bathing water	clothes wash
public water inside house	32%	29%	24%
standpipe outside house	36%	41%	44%
rainwater roof tank	14%	14%	14%
filtered water	0%	0%	0%
tanker delivery	18%	18%	18%
moving open water	0%	0%	0%
still open water	0%	0%	0%
other	0%	0%	0%

drinking water  
bathing water  
clothes wash

## Source of Water for Household



# Port Moresby Inhabitant's Behaviour Survey

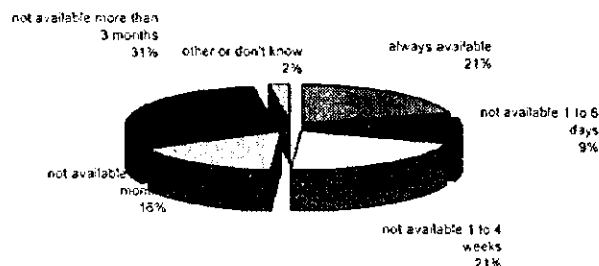
May, 1997

Results for: **Water Villages**  
Households surveyed: 43

## 11. Availability of safe drinking water

always available	21%
not available 1 to 6 days	9%
not available 1 to 4 weeks	21%
not available 1 to 3 months	16%
not available more than 3 months	30%
other or don't know	2%

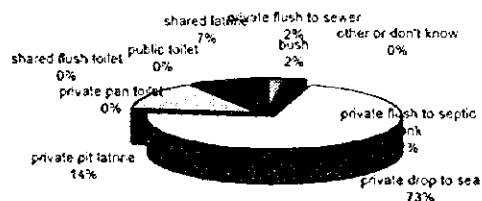
Availability of Safe Drinking Water



## 12. Type of toilet

private flush to sewer	2%
private flush to septic tank	2%
private drop to sea	72%
private pit latrine	14%
private pan toilet	0%
shared flush toilet	0%
shared latrine	7%
public toilet	0%
bush	2%
other or don't know	0%

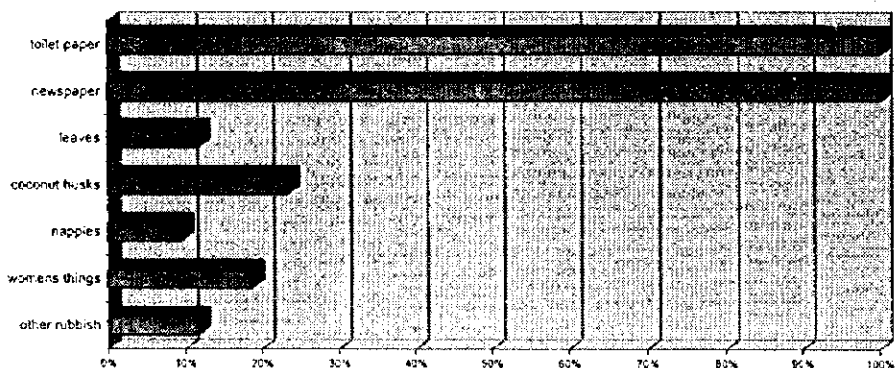
Type of Toilet used by Household



## 13. Materials put in toilet

toilet paper	100%
newspaper	100%
leaves	12%
coconut husks	23%
nappies	9%
womens things	19%
other rubbish	12%

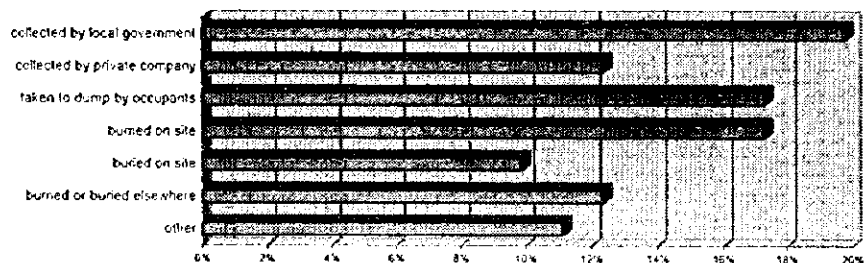
Materials put in toilet



## 14. Method of household rubbish collection

collected by local government	20%
collected by private company	12%
taken to dump by occupants	17%
burned on site	17%
buried on site	10%
burned or buried elsewhere	12%
other	11%

Method of rubbish collection



# Port Moresby Inhabitant's Behaviour Survey

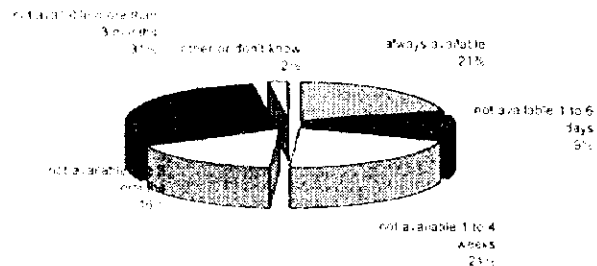
May, 1997

Results for: **Water Villages**  
Households surveyed: 43

## 11. Availability of safe drinking water

always available	21%
not available 1 to 6 days	9%
not available 1 to 4 weeks	21%
not available 1 to 3 months	16%
not available more than 3 months	30%
other or don't know	2%

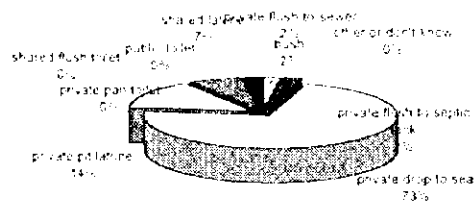
Availability of Safe Drinking Water



## 12. Type of toilet

private flush to sewer	2%
private flush to septic tank	2%
private drop to sea	72%
private pit latrine	14%
private pan toilet	0%
shared flush toilet	0%
shared latrine	7%
public toilet	0%
flush	2%
other or don't know	0%

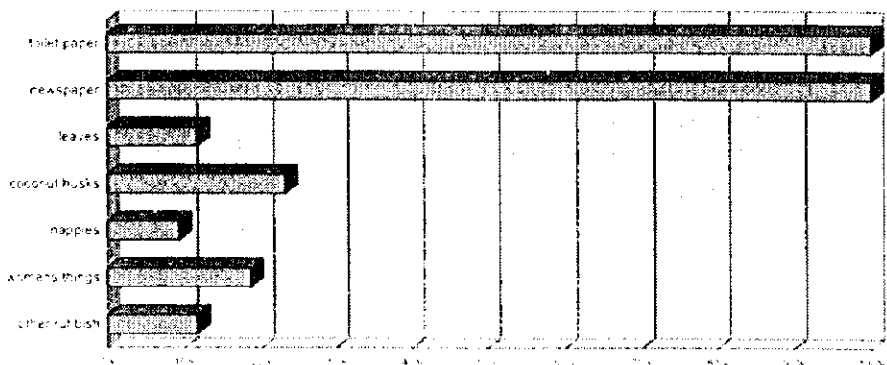
Type of Toilet used by Household



## 13. Materials put in toilet

toilet paper	100%
newspaper	100%
leaves	12%
coconut husks	23%
nappies	9%
womens things	19%
other rubbish	12%

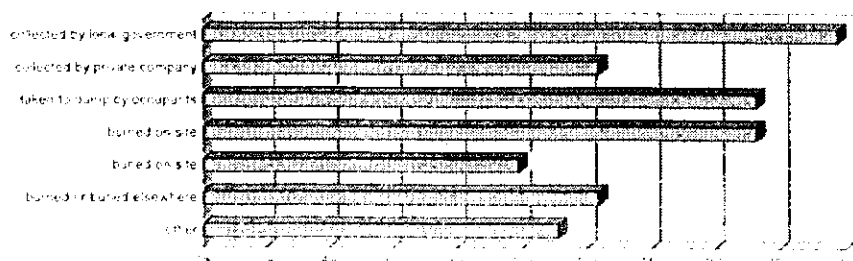
Materials put in toilet



## 14. Method of household rubbish collection

collected by local government	20%
collected by private company	12%
taken to dump by occupants	17%
burned on site	17%
burned on site	10%
burned or buried elsewhere	12%
other	11%

Method of rubbish collection



# Port Moresby Inhabitant's Behaviour Survey

May, 1997

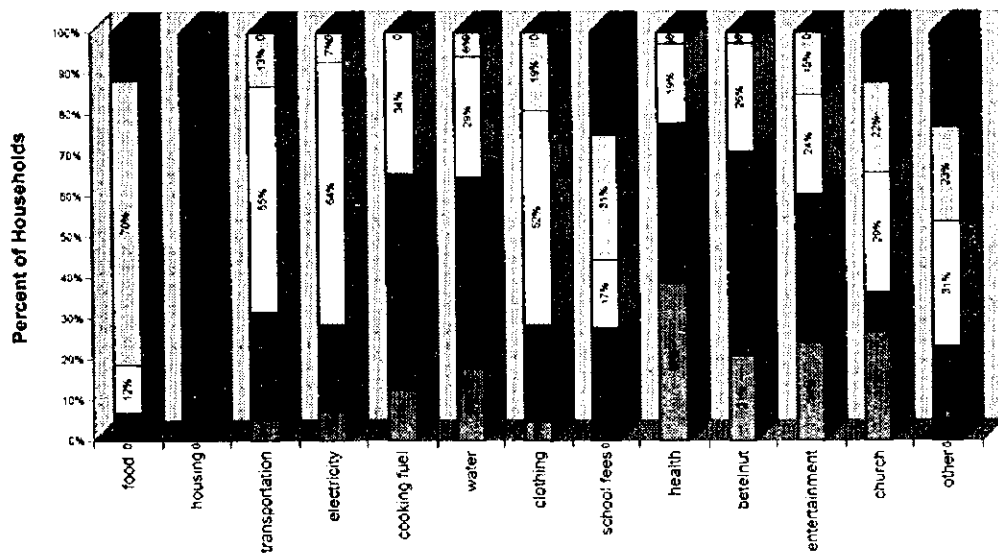
Results for: **Water Villages**  
Households surveyed: 43

## 15. Weekly Household Expenditure

	less than K2	between K2 and K6	between K7 and K24	between K25 and K125	more than K125
food	0%	7%	12%	70%	12%
housing	0%	0%	0%	0%	0%
transportation	5%	26%	55%	13%	0%
electricity	7%	21%	64%	7%	0%
cooking fuel	13%	53%	34%	0%	0%
water	18%	47%	29%	6%	0%
clothing	5%	24%	52%	19%	0%
school fees	0%	28%	17%	31%	25%
health	39%	39%	19%	3%	0%
betelnut	21%	50%	26%	3%	0%
entertainment	24%	36%	24%	15%	0%
church	27%	10%	29%	22%	12%
other	0%	23%	31%	23%	23%

- more than K125
- between K25 and K125
- between K7 and K24
- between K2 and K6
- less than K2

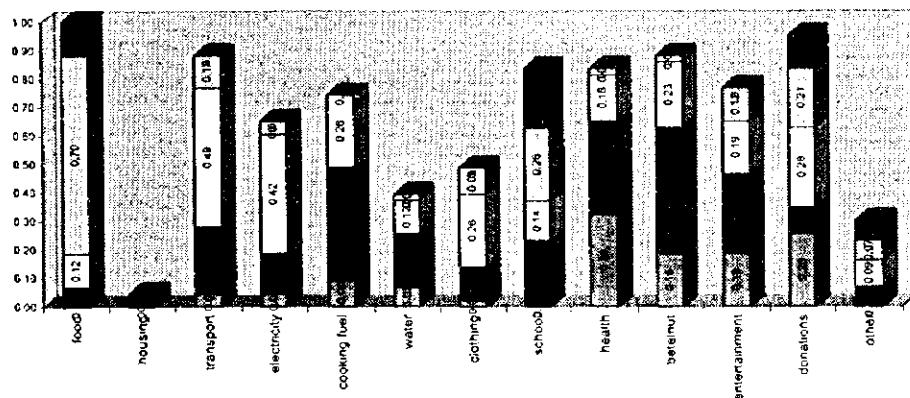
Weekly Household Expenditure  
(by percentage of households which responded)



	less than K2	K2 to K7	K8 to K24	K25 to K125	more than K125
food	0.00	0.07	0.12	0.70	0.12
housing	0.00	0.05	0.00	0.00	0.00
transport	0.05	0.23	0.49	0.12	0.00
electricity	0.05	0.14	0.42	0.05	0.00
cooking fuel	0.09	0.40	0.26	0.00	0.00
water	0.07	0.19	0.12	0.02	0.00
clothing	0.02	0.12	0.26	0.09	0.00
school	0.00	0.23	0.14	0.26	0.21
health	0.33	0.33	0.16	0.02	0.00
betelnut	0.19	0.44	0.23	0.02	0.00
entertainment	0.19	0.28	0.19	0.12	0.00
donations	0.26	0.09	0.28	0.12	0.00
other	0.00	0.07	0.09	0.07	0.00

- more than K125
- K25 to K125
- K8 to K24
- K2 to K7
- less than K2

Weekly Household Expenditure  
(in relation to food)



# Port Moresby Inhabitant's Behaviour Survey

May, 1997

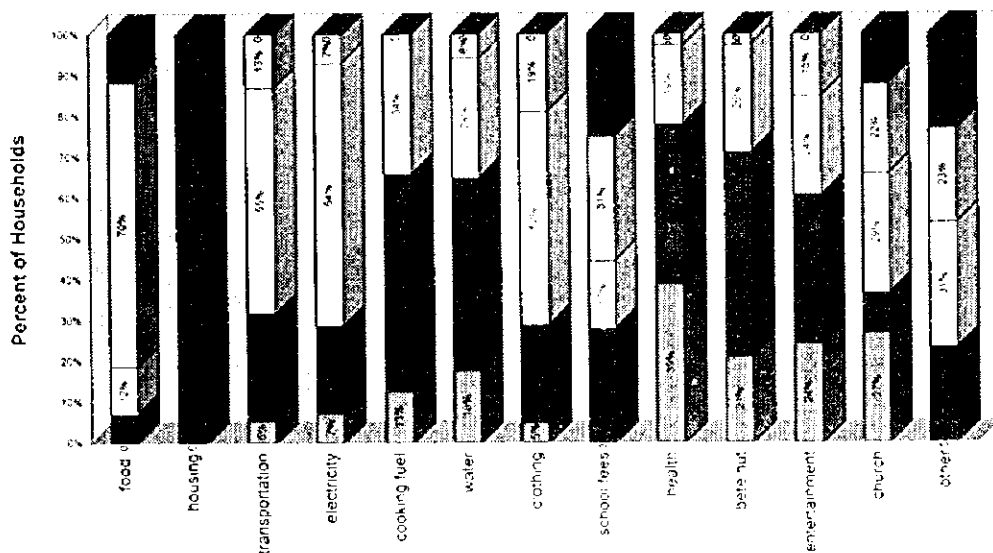
Results for: **Water Villages**  
Households surveyed: 43

## 15. Weekly Household Expenditure

less than K2	0%	0%	5%	7%	13%	18%	5%	0%	3%	21%	24%	27%	0%
between K2 and K6	7%	100%	25%	21%	53%	47%	24%	28%	39%	50%	36%	10%	23%
between K7 and K24	12%	0%	55%	64%	34%	29%	52%	17%	19%	26%	24%	29%	31%
between K25 and K125	70%	0%	13%	7%	0%	6%	19%	31%	3%	3%	15%	22%	23%
more than K125	12%	0%	0%	0%	0%	0%	0%	25%	0%	0%	0%	12%	23%

- more than K125
- between K25 and K125
- between K7 and K24
- between K2 and K6
- less than K2

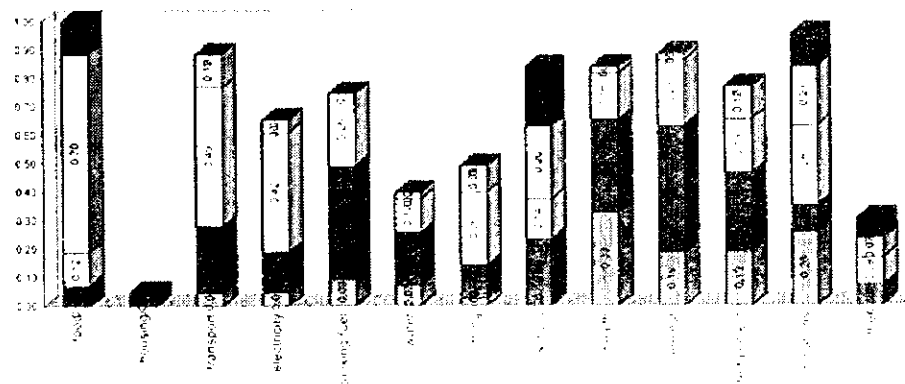
Weekly Household Expenditure  
(by percentage of households which responded)



	food	housing	transport	electricity	cooking fuel	water	clothing	school	health	basic nut.	entertainment	church	other
less than K2	0.00	0.00	0.05	0.05	0.09	0.07	0.02	0.00	0.33	0.10	0.19	0.28	0.00
K2 to K7	0.07	0.05	0.23	0.14	0.40	0.19	0.12	0.23	0.33	0.44	0.28	0.09	0.07
K8 to K24	0.12	0.00	0.49	0.42	0.26	0.12	0.26	0.14	0.15	0.23	0.19	0.28	0.09
K25 to K125	0.70	0.00	0.12	0.05	0.00	0.02	0.03	0.26	0.02	0.02	0.12	0.21	0.07
more than K125	0.12	0.00	0.00	0.00	0.00	0.00	0.00	0.21	0.00	0.20	0.00	0.12	0.07

- more than K125
- K25 to K125
- K8 to K24
- K2 to K7
- less than K2

Weekly Household Expenditure  
(in relation to food)



# Port Moresby Inhabitant's Behaviour Survey

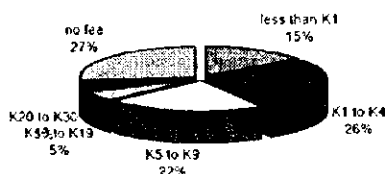
May, 1997

Results for: **Water Villages**  
Households surveyed: 43

## 16. Reasonable fee for water supply

less than K1	15%
K1 to K4	27%
K5 to K9	22%
K10 to K19	5%
K20 to K30	5%
no fee	27%

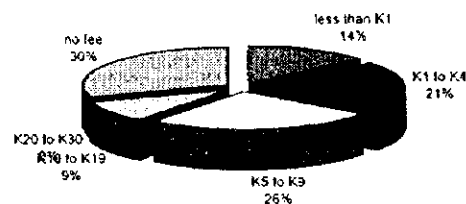
Reasonable Water Fee



## 17. Reasonable fee for sewerage collection

less than K1	14%
K1 to K4	21%
K5 to K9	26%
K10 to K19	9%
K20 to K30	0%
no fee	30%

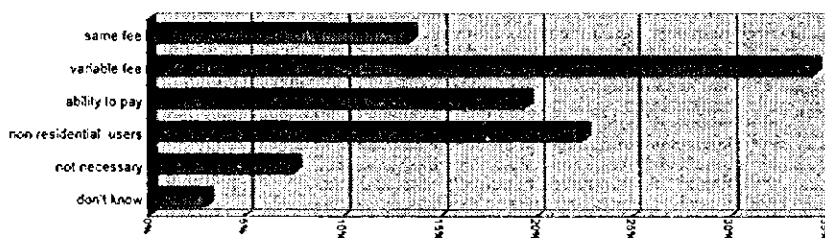
Reasonable Sewerage Collection Fee



## 18. Method of payment for sewerage collection

same fee	13%
variable fee	34%
ability to pay	19%
non residential users	22%
not necessary	7%
don't know	3%

Preferred method of payment for sewerage collection



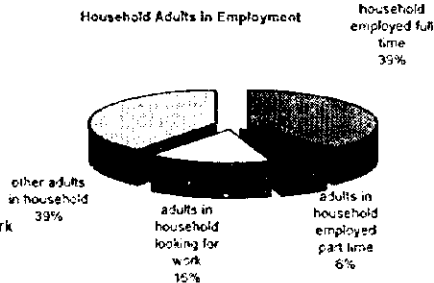
## 19. Employment of household members

adults in household employed full time	39%
adults in household employed part time	6%
adults in household looking for work	16%
other adults in household	39%

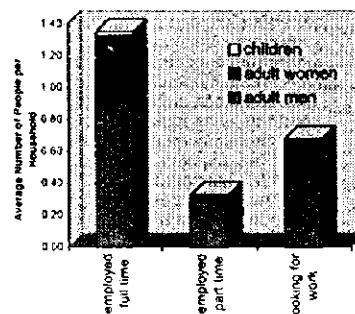
### Percent of household with one or more members employed

employed full time	employed looking for work
adult men 0.91	0.28
adult women 0.42	0.05
children 0.02	0.00

Household Adults in Employment



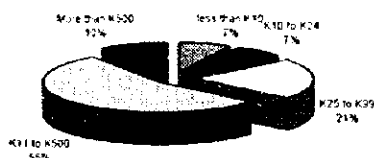
Household Employment



Weekly Household Income

## 20. Weekly Household Income

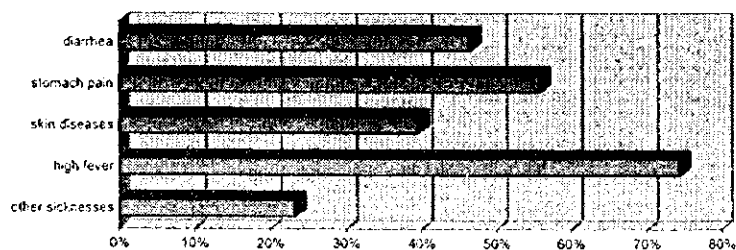
less than K10	7%
K10 to K24	7%
K25 to K39	21%
K40 to K500	55%
More than K500	10%



## 21. Household sicknesses last year

diarrhea	47%
stomach pain	56%
skin diseases	40%
high fever	74%
other sicknesses	23%

Household Sicknesses Last Year



# Port Moresby Inhabitant's Behaviour Survey

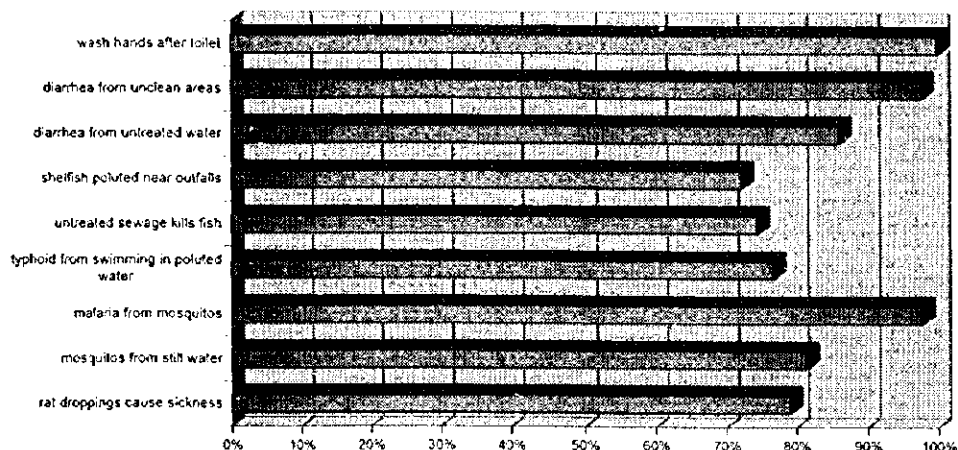
May, 1997

Results for: **Water Villages**  
Households surveyed: 43

Percent of population that understand the causes of sickness

## 22. Understanding of sickness causes

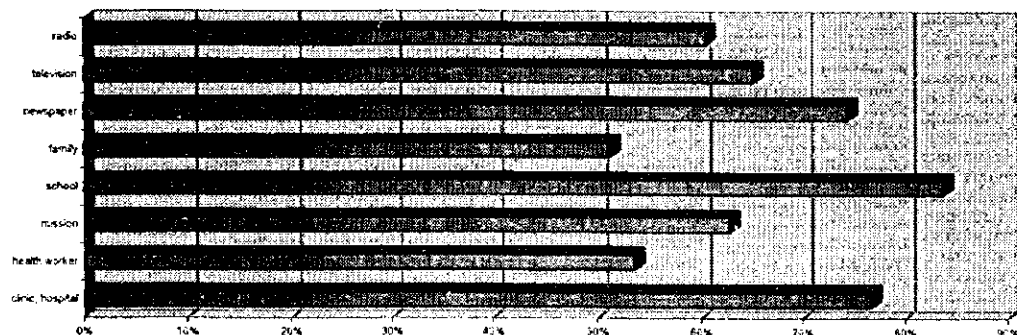
wash hands after toilet	100%
diarrhea from unclean areas	98%
diarrhea from untreated water	86%
shellfish polluted near outfalls	72%
untreated sewage kills fish	74%
typhoid from swimming in polluted water	77%
malaria from mosquitos	98%
mosquitos from still water	81%
rat droppings cause sickness	79%



Source of health education

## 23. Source of health education

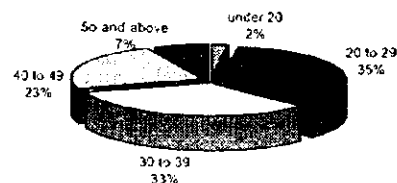
radio	60%
television	65%
newspaper	74%
family	51%
school	84%
mission	63%
health worker	53%
clinic, hospital	77%
other	14%



## 24. Age of respondent

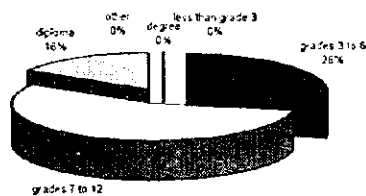
under 20	2%
20 to 29	35%
30 to 39	33%
40 to 49	23%
50 and above	7%

Age of Respondent



## 25. Education of respondent

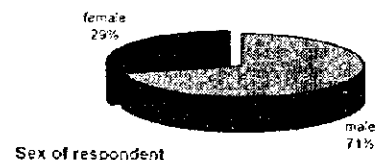
less than grade 3	0%
grades 3 to 6	26%
grades 7 to 12	52%
diploma	15%
degree	0%
other	0%



## 26. Sex of respondent

male	71%
female	29%

Education of Respondent



# Port Moresby Inhabitant's Behaviour Survey

May, 1997

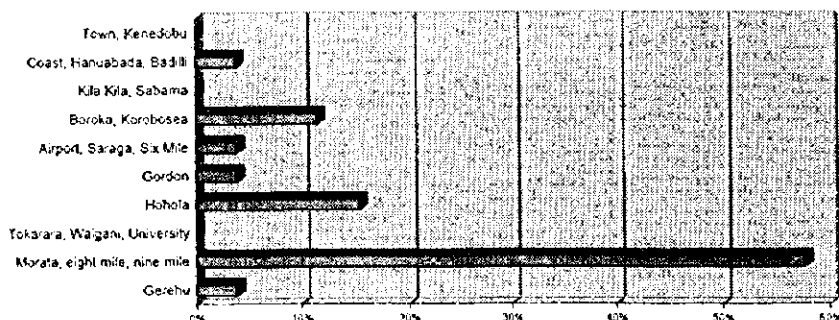
Results for: Respondents who completed less than 3 grades in School

Households surveyed: 26

Survey Return by Area

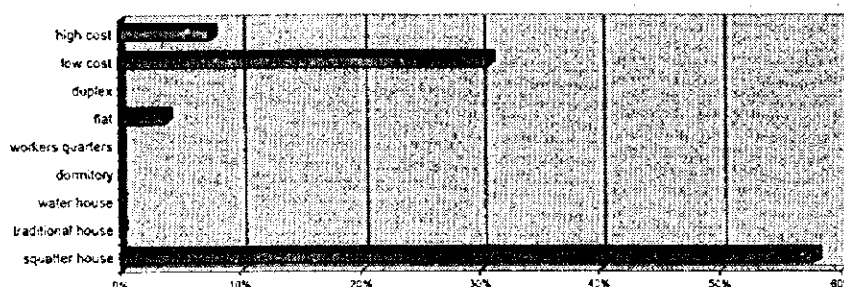
## 1. Percentage of survey return by area

Town, Kenedobu	0%
Coast, Hanuabada, Badili	4%
Kila Kila, Sabama	0%
Boroko, Korobosea	12%
Airport, Saraga, Six Mile	4%
Gordon	4%
Hohola	15%
Tokarara, Waigani, University	0%
Morata, eight mile, nine mile	58%
Gerehu	4%



## 2. Percentage of Survey Results by House Type

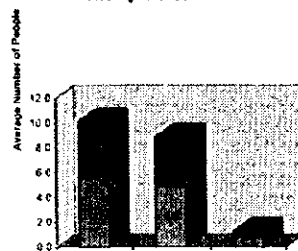
high cost	8%
low cost	31%
duplex	0%
flat	4%
workers quarters	0%
dormitory	0%
water house	0%
traditional house	0%
squatter house	58%



## 3. Average number of people per household

	adults	children
average total number of occupants	5.7	4.5
average number of permanent occupants	4.9	4.0
average number of visitors	0.8	0.5
average total occupancy of house	10.1	
average number of couples	2.3	

Average Household Size



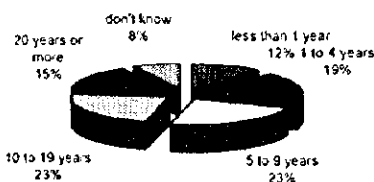
Household Breakdown



## 5. Length of Occupancy

less than 1 year	12%
1 to 4 years	19%
5 to 9 years	23%
10 to 19 years	23%
20 years or more	15%
don't know	8%

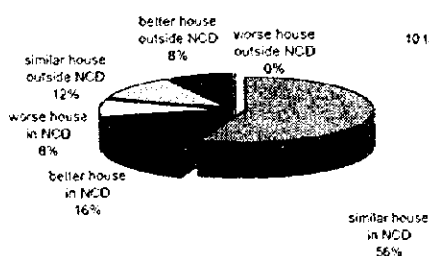
Length of Occupancy



## 6. Location and quality of previous house

similar house in NCD	56%
better house in NCD	16%
worse house in NCD	8%
similar house outside NCD	12%
better house outside NCD	8%
worse house outside NCD	0%

Location and Quality of Previous House





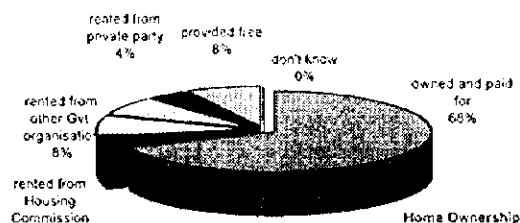
# Port Moresby Inhabitant's Behaviour Survey

May, 1997

Results for: **Respondents who completed less than 3 grades in School**  
Households surveyed: 26

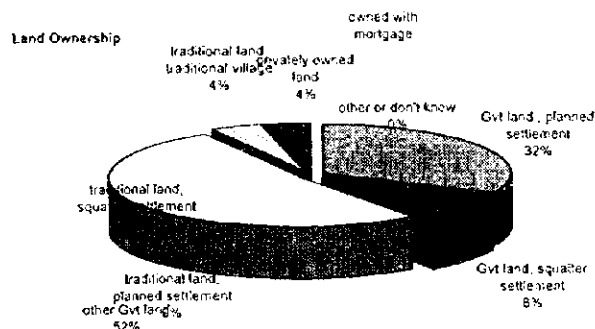
## 7. Home ownership

owned and paid for	69%
owned with mortgage	4%
rented from Housing Commission	8%
rented from other Gvt. organisation	8%
rented from private party	4%
provided free	8%
don't know	0%



## 8. Land ownership

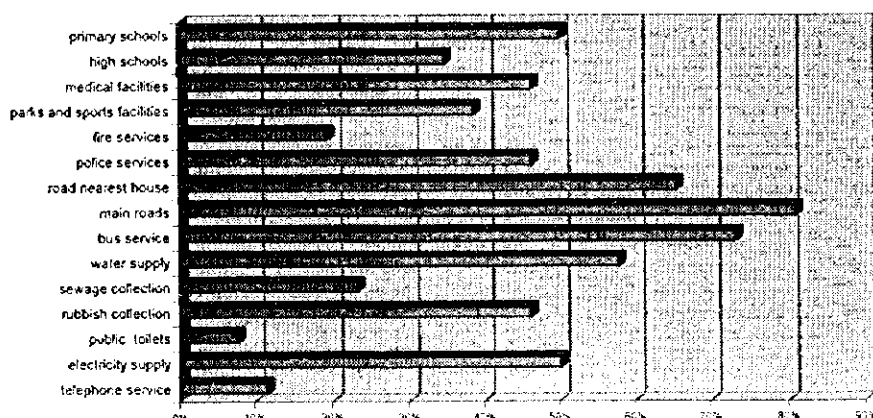
Gvt land, planned settlement	32%
Gvt land, squatter settlement	8%
other Gvt land	52%
traditional land, traditional village	4%
traditional land, planned settlement	0%
traditional land, squatter settlement	0%
privately owned land	4%
other or don't know	0%



## 9. Adequacy of community facilities and services

primary schools	50%
high schools	35%
medical facilities	46%
parks and sports facilities	38%
fire services	19%
police services	46%
road nearest house	65%
main roads	81%
bus service	73%
water supply	58%
sewage collection	23%
rubbish collection	45%
public toilets	8%
electricity supply	50%
telephone service	12%

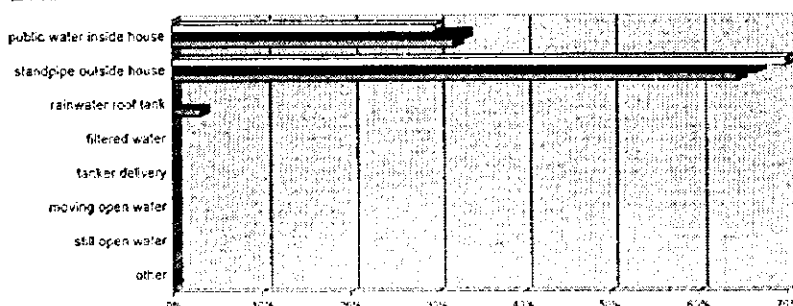
## Adequacy of Community Facilities and Services



## 10. Source of water for household

	drinking water	bathing water	clothes wash
public water inside house	32%	33%	30%
standpipe outside house	65%	67%	70%
rainwater roof tank	3%	0%	0%
filtered water	0%	0%	0%
tanker delivery	0%	0%	0%
moving open water	0%	0%	0%
still open water	0%	0%	0%
other	0%	0%	0%

## Source of Water for Household



# Port Moresby Inhabitant's Behaviour Survey

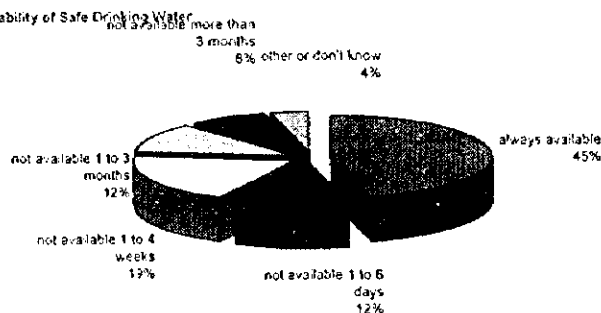
May, 1997

Results for: **Respondents who completed less than 3 grades in School**  
Households surveyed: 26

## 11. Availability of safe drinking water

always available	45%
not available 1 to 6 days	12%
not available 1 to 4 weeks	19%
not available 1 to 3 months	12%
not available more than 3 months	8%
other or don't know	4%

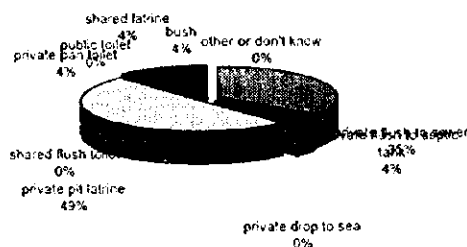
Availability of Safe Drinking Water



## 12. Type of toilet

private flush to sewer	35%
private flush to septic tank	4%
private drop to sea	0%
private pit latrine	50%
private pan toilet	4%
shared flush toilet	0%
shared latrine	4%
public toilet	0%
bush	4%
other or don't know	0%

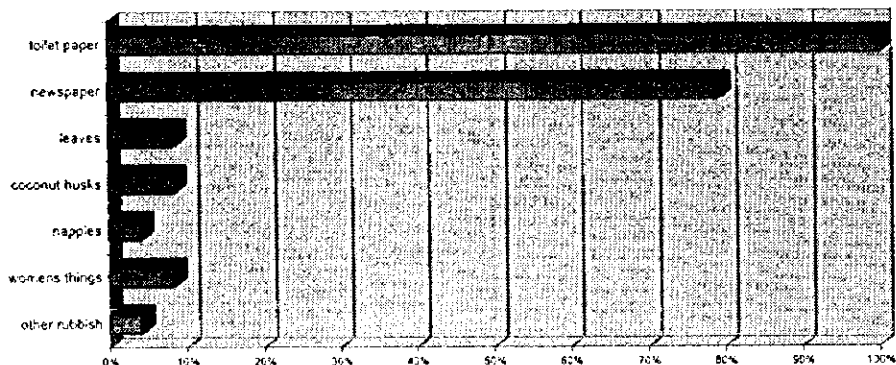
Type of Toilet used by Household



## 13. Materials put in toilet

toilet paper	100%
newspaper	79%
leaves	8%
coconut husks	8%
nappies	4%
womens things	8%
other rubbish	4%

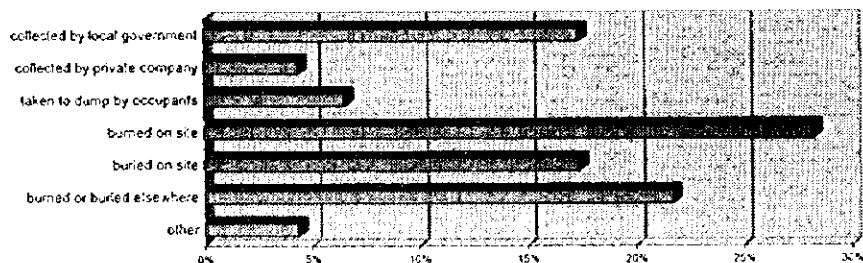
Materials put in toilet



## 14. Method of household rubbish collection

collected by local government	17%
collected by private company	4%
taken to dump by occupants	7%
burned on site	28%
buried on site	17%
burned or buried elsewhere	22%
other	4%

Method of rubbish collection



# Port Moresby Inhabitant's Behaviour Survey

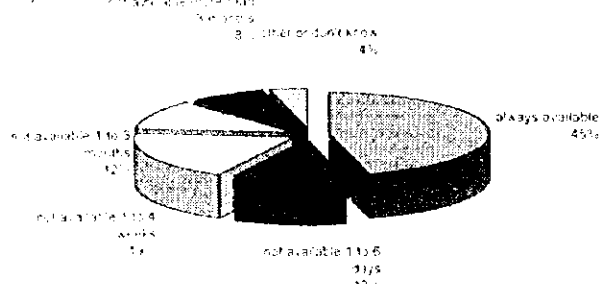
May, 1997

Results for: **Respondents who completed less than 3 grades in School**  
Households surveyed: 26

## 11. Availability of safe drinking water

always available	45%
not available 1 to 6 days	12%
not available 1 to 4 weeks	19%
not available 1 to 3 months	12%
not available more than 3 months	8%
other or don't know	4%

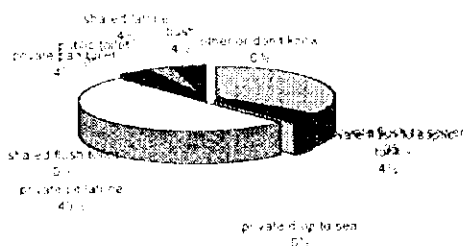
Availability of Safe Drinking Water



## 12. Type of toilet

private flush to sewer	35%
private flush to septic tank	4%
private drop to sea	0%
private pit latrine	50%
private pan toilet	4%
shared flush toilet	0%
shared latrine	4%
public toilet	0%
bush	4%
other or don't know	0%

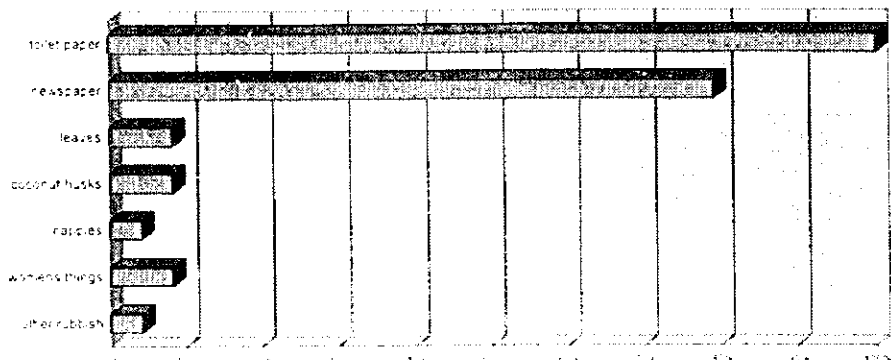
Type of Toilet used by Household



## 13. Materials put in toilet

toilet paper	100%
newspaper	79%
leaves	8%
coconut husks	8%
nappies	4%
women's things	8%
other rubbish	4%

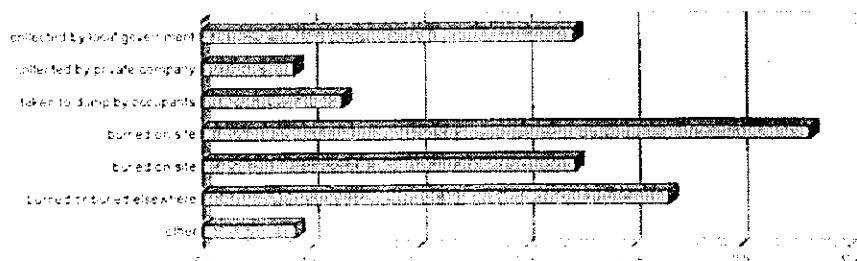
Materials put in toilet



## 14. Method of household rubbish collection

collected by local government	17%
collected by private company	4%
taken to dump by occupants	7%
burned on site	28%
burned on site	17%
burned or buried elsewhere	22%
other	4%

Method of rubbish collection



# Port Moresby Inhabitant's Behaviour Survey

May, 1997

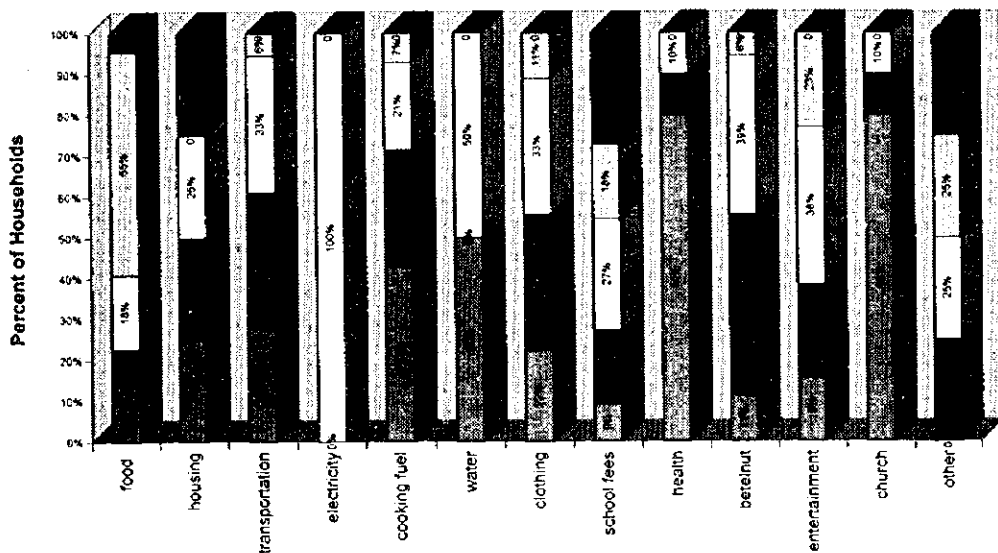
Results for: Respondents who completed less than 3 grades in School  
Households surveyed: 26

## 15. Weekly Household Expenditure

	less than K2	between K2 and K6	between K7 and K24	between K25 and K125	more than K125
food	14%	25%	28%	0%	43%
housing	9%	25%	33%	0%	29%
transportation	18%	25%	33%	100%	21%
electricity	55%	0%	6%	0%	7%
cooking fuel	5%	25%	0%	0%	0%
water					
clothing					
school fees					
health					
betelnut					
entertainment					
church					
other					

- more than K125
- between K25 and K125
- between K7 and K24
- between K2 and K6
- less than K2

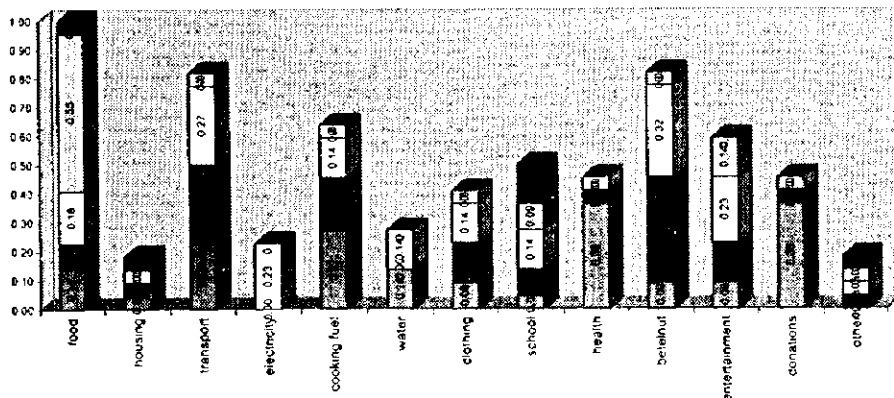
Weekly Household Expenditure  
(by percentage of households which responded)



	less than K2	between K2 and K6	between K7 and K24	between K25 and K125	more than K125
food	0.14	0.05	0.23	0.00	0.27
housing	0.09	0.05	0.27	0.00	0.18
transport	0.18	0.05	0.27	0.23	0.14
electricity	0.55	0.00	0.05	0.00	0.05
cooking fuel	0.05	0.05	0.00	0.00	0.00
water					
clothing					
school					
health					
betelnut					
entertainment					
donations					
other					

- more than K125
- K25 to K125
- K8 to K24
- K2 to K7
- less than K2

Weekly Household Expenditure  
(in relation to food)



# Port Moresby Inhabitant's Behaviour Survey

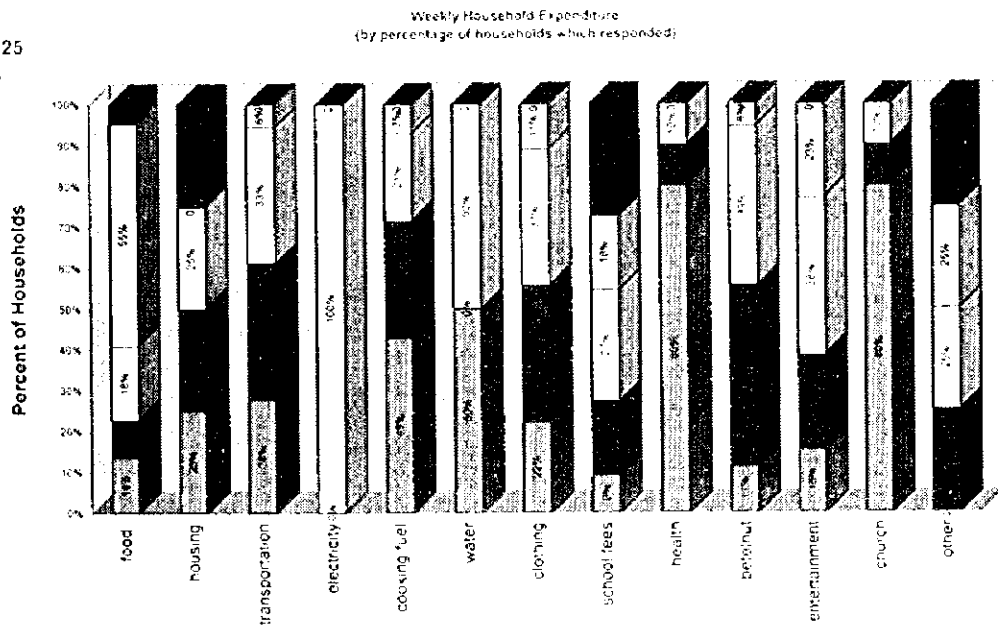
May 1997

Results for: Respondents who completed less than 3 grades in School  
Households surveyed: 26

## 15. Weekly Household Expenditure

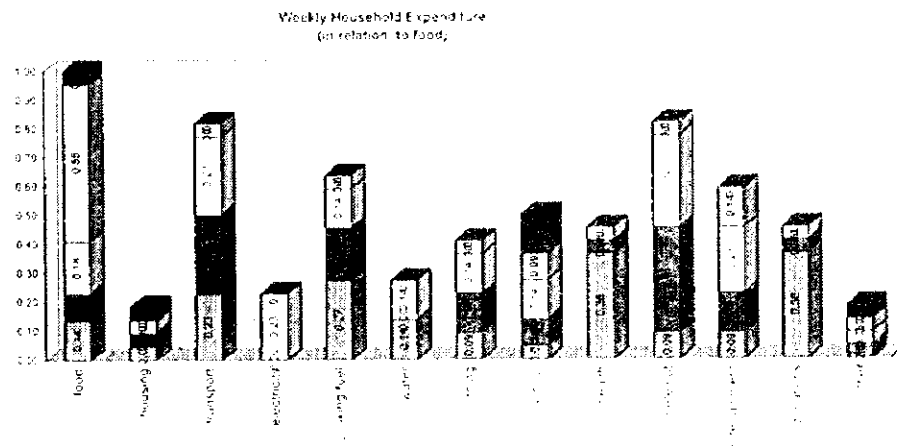
less than K2	14%	25%	28%	0%	43%	50%	22%	9%	80%	11%	15%	85%	0%
between K2 and K6	9%	25%	33%	0%	23%	0%	33%	18%	10%	44%	23%	10%	25%
between K7 and K24	18%	25%	33%	100%	21%	50%	33%	27%	10%	39%	38%	10%	25%
between K25 and K125	55%	0%	6%	0%	7%	0%	11%	18%	0%	5%	23%	0%	25%
more than K125	5%	25%	0%	0%	0%	0%	0%	27%	0%	0%	0%	0%	25%

- more than K125
- between K25 and K125
- between K7 and K24
- between K2 and K6
- less than K2



	food	housing	transport	electricity	cooking fuel	water	clothing	school	health	petrol/nut	entertainment	church	other
less than K2	0.14	0.05	0.23	0.00	0.27	0.14	0.09	0.05	0.35	0.36	0.03	0.36	0.00
K2 to K7	0.09	0.05	0.27	0.00	0.18	0.50	0.14	0.05	0.05	0.36	0.14	0.05	0.05
K8 to K24	0.18	0.05	0.27	0.23	0.14	0.14	0.14	0.14	0.05	0.32	0.23	0.05	0.05
K25 to K125	0.55	0.00	0.05	0.00	0.05	0.00	0.05	0.03	0.03	0.05	0.14	0.00	0.05
more than K125	0.05	0.05	0.00	0.00	0.00	0.00	0.00	0.14	0.00	0.00	0.00	0.00	0.05

- more than K125
- K25 to K125
- K8 to K24
- K2 to K7
- less than K2



# Port Moresby Inhabitant's Behaviour Survey

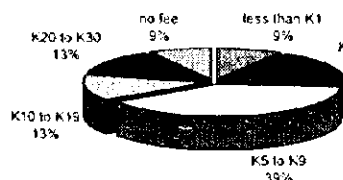
May, 1997

Results for: **Respondents who completed less than 3 grades in School**  
Households surveyed: 26

## 16. Reasonable fee for water supply

less than K1	9%
K1 to K4	17%
K5 to K9	39%
K10 to K19	13%
K20 to K30	13%
no fee	9%

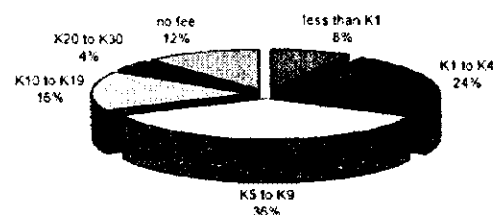
Reasonable Water Fee



## 17. Reasonable fee for sewerage collection

less than K1	6%
K1 to K4	24%
K5 to K9	36%
K10 to K19	16%
K20 to K30	4%
no fee	12%

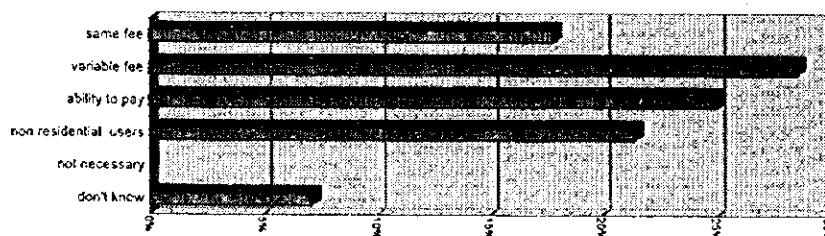
Reasonable Sewerage Collection Fee



## 18. Method of payment for sewerage collection

same fee	18%
variable fee	29%
ability to pay	25%
non residential users	21%
not necessary	0%
don't know	7%

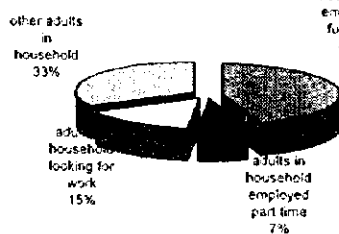
Preferred method of payment for sewerage collection



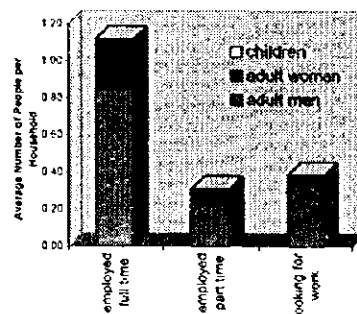
## 19. Employment of household members

adults in household employed full time	45%
adults in household employed part time	7%
adults in household looking for work	15%
other adults in household	33%

Household Adults in Employment



Household Employment



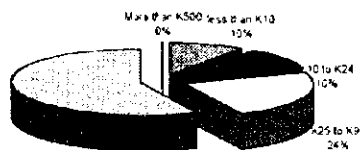
## Percent of household with one or more members employed

employed full time	employed looking for work
adult men 0.85	0.23
adult women 0.27	0.08
children 0.00	0.00

Weekly Household Income

## 20. Weekly Household Income

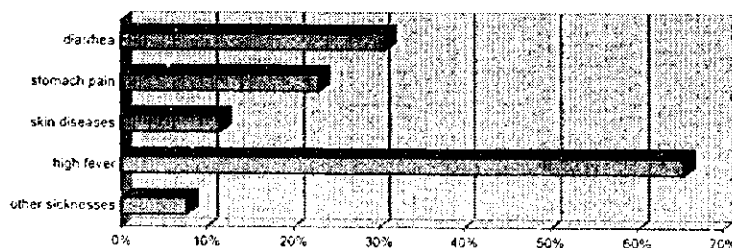
less than K10	10%
K10 to K24	10%
K25 to K99	24%
K100 to K500	57%
More than K500	0%



## 21. Household sicknesses last year

diarrhea	31%
stomach pain	23%
skin diseases	12%
high fever	65%
other sicknesses	8%

Household Sicknesses Last Year



# Port Moresby Inhabitant's Behaviour Survey

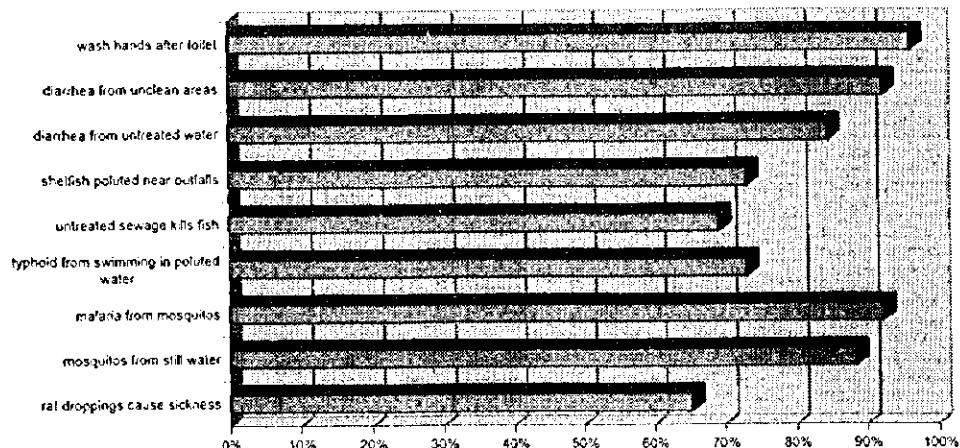
May, 1997

Results for: **Respondents who completed less than 3 grades in School**  
Households surveyed: 26

Percent of population that understand the causes of sickness

## 22. Understanding of sickness causes

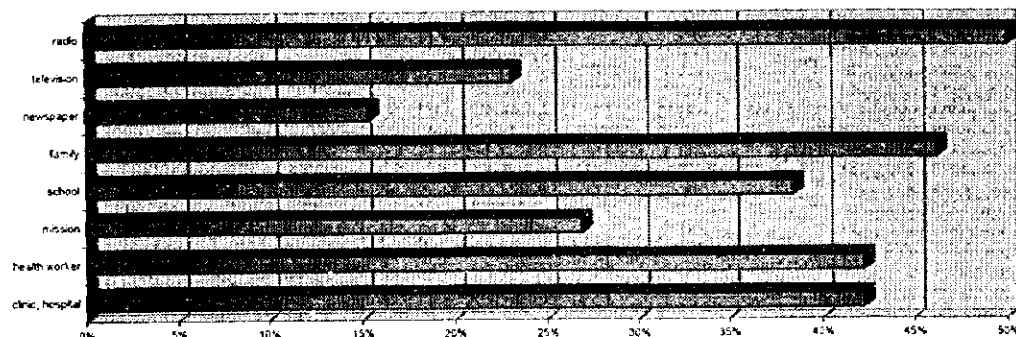
wash hands after toilet	96%
diarrhea from unclean areas	92%
diarrhea from untreated water	85%
shellfish polluted near outfalls	73%
untreated sewage kills fish	69%
typhoid from swimming in polluted water	73%
malaria from mosquitos	92%
mosquitos from still water	85%
rat droppings cause sickness	65%



Source of health education

## 23. Source of health education

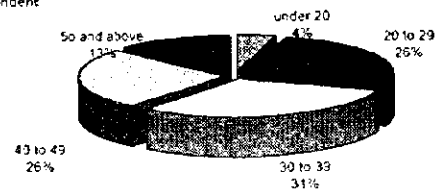
radio	50%
television	23%
newspaper	15%
family	46%
school	38%
mission	27%
health worker	42%
clinic, hospital	42%
other	4%



## 24. Age of respondent

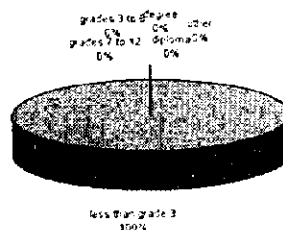
under 20	4%
20 to 29	26%
30 to 39	30%
40 to 49	26%
50 and above	13%

Age of Respondent



## 25. Education of respondent

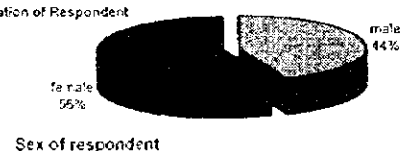
less than grade 3	90%
grades 3 to 6	0%
grades 7 to 12	0%
diploma	0%
degree	0%
other	0%



Education of Respondent

## 26. Sex of respondent

male	44%
female	56%



Sex of respondent

student name \_\_\_\_\_ 1

area no. \_\_\_\_\_ 2

survey no. \_\_\_\_\_ 3

**National Capital District  
(Port Moresby)**

# **Sewerage Study Inhabitant's Behaviour Survey**

**1. In what part of the National Capital District is this house located? (Tick only one box)**

- ☐ Town - Paga Hill - Kenedobu (Areas 1 & 2)  
☐ Poreporena villages - Badilli (Areas 3 & 4)  
☐ Kila Kila - Sabama (Areas 5 & 6)  
☐ Boroko - Korobosea (Areas 7 & 8)  
☐ Saraga - Six/Seven Mile - Airport (Areas 9 & 10)

- ☐ Gordon (Areas 11 & 12)  
☐ Hohola (Areas 13 & 14)  
☐ Tokarara - Waigani (Areas 15 & 16)  
☐ Morata - Nine Mile (Areas 17 & 18)  
☐ Gerehu (Areas 19 & 20)

**2. What type of house is this? (Tick only one box)**

- ☐ High cost single house  
☐ low cost single house  
☐ duplex (two houses together)  
☐ flat (many houses together)  
☐ domestic or workers quarters  
☐ dormitory  
☐ water village house  
☐ other traditional house (well made)  
☐ squatter/makeshift house

**3. How many people normally live in this house?**

number of Adults (15 years or older)  number of children (under 15 years)  number of couples

**4. How many visitors are temporarily staying in this house?**

number of adults (15 years or older)  number of children (under 15 years)

**5. How long have the occupants lived in this house? (Tick only one)**

- ☐ less than 1 year  
☐ 1 to 4 years  
☐ 5 to 9 years  
☐ 10 to 19 years  
☐ 20 years or more  
☐ don't know

**6. Before moving into this house, where did most existing occupants live?**

(Tick only one box)

- ☐ in another similar type of house in the National Capital District  
☐ in a better house in the National Capital District  
☐ in a worse house in the National Capital District  
☐ in another similar type of dwelling **not in** the National Capital District  
☐ in a better house **not in** the National Capital District  
☐ in a worse house **not in** the National Capital District

**7. Is this house owned, rented, or provided by someone else for free?**

(Tick only one box)

- ☐ owned and fully paid for (NOTE: many traditional and squatter houses are owned and fully paid for)  
☐ owned but not fully paid for (money borrowed from bank, relative, friend)  
☐ rented or leased from Housing Commission  
☐ rented or leased from other Government (or semi-government) organisation  
☐ rented or leased from private party (non-government)  
☐ provided free (by a public organisation, business, relative, friend etc)  
☐ other or don't know.



**8. Is this house on Government land or traditional land?**

(Tick only one box)

- ☐ Government leased land within a planned settlement  
☐ Government leased land in a squatter settlement  
☐ other Government land  
☐ traditional land within a traditional village or settlement  
☐ traditional land within a planned settlement  
☐ traditional land within a squatter settlement  
☐ privately owned land  
☐ other or don't know

**9. Which of the following community facilities, services and utilities adequately meet the needs of this household.**

(Describe each service below to respondent, and tick adjacent box if respondent considers it adequate)

- |  |   |
|--|---|
| <input type="checkbox"/> primary schools                                     | <input type="checkbox"/> bus services                       |
| <input type="checkbox"/> high schools  | <input type="checkbox"/> water supply                       |
| <input type="checkbox"/> medical facilities                                  | <input type="checkbox"/> sewage collection and/or disposal  |
| <input type="checkbox"/> parks, sports and recreation facilities             | <input type="checkbox"/> rubbish collection and/or disposal |
| <input type="checkbox"/> fire services                                       | <input type="checkbox"/> public toilets                     |
| <input type="checkbox"/> police services                                     | <input type="checkbox"/> electricity supply                 |
| <input type="checkbox"/> the road nearest your house.                        | <input type="checkbox"/> telephone services                 |
| <input type="checkbox"/> other public roads in the National Capital District |   |

**10. Where do most people in this household get water . . .**

(Tick only one box in each column)

**. . . safe to drink?**

**to bathe?**

**to wash clothes?**

- |  |                          |                          |                          |
|--|--------------------------|--------------------------|--------------------------|
| pipe inside house from public water supply . . . . .       | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| standpipe outside house from public water supply . . . . . | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| rainwater (roof) tank or well. . . . .                     | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| bottled or specially filtered water . . . . .              | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| tanker delivery . . . . .                                  | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| river - creek - spring - other moving water . . . . .      | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| lake - pond - other standing water . . . . .               | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| other or don't know . . . . .                              | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |

**11. Was safe drinking water available to this household every day last year?**

(Tick only one box)

- ☐ Yes, safe drinking water was **always** available last year  
☐ No, safe drinking water was **not available 1 to 6 days** last year  
☐ No, safe drinking water was **not available 1 to four weeks** last year  
☐ No, safe drinking water was **not available 1 to 3 months** last year  
☐ No, safe drinking water was **not available more than 3 months** last year.  
☐ don't know

**12. What type of toilet do most people in this household use while at home?**

(Tick only one box)

- ☐ private household toilet which flushes to public sewerage system  
☐ private household toilet which flushes to a septic tank on the site  
☐ private household toilet which flushes/drops straight to sea, lake, river or open drain  
☐ private household pit latrine  
☐ private household pan toilet  
☐ shared (with two or more households) flush toilet  
☐ shared (with two or more households) pit latrine or pan toilet  
☐ public toilet  
☐ bush or other open outdoor site.  
☐ other or don't know

**13. What type of material besides sewage (excreta) is sometimes put into the household toilet?** (tick as many boxes as apply)

- ☐ toilet paper  
☐ newspaper  
☐ leaves  
☐ coconut husks  
☐ nappies  
☐ women's things  
☐ other household rubbish (food scraps, cans, etc)

**14. How does this household dispose of empty plastic containers, paper and other rubbish?** (tick as many boxes as apply)

- ☐ It is collected by the local government.  
☐ It is collected by a private company.  
☐ It is taken by occupants to public dump.  
☐ It is burned on the site.  
☐ It is buried on the site.  
☐ It is burned or buried elsewhere not in a public dump.  
☐ other or don't know

**15. Last week (last month/last year) how much did your household spend on the following?** Ask respondent to estimate what all occupants combined spent, not just the respondent.

(Describe all items

below and tick only one column for each.)

	last week last month last year	less than K2 less than K8 less than K100	K2 to K6 K8 to K24 K100 to K299	K7 to K24 K25 to K99 K300 to K1199	K25 to K125 K100 to K499 K1200 to K6000	more than K125 more than K500 more than K6000
food	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
housing (rent, land lease, mortgage)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
transportation (bus fares, petrol, car)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
electricity	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
cooking fuel (wood, kerosene, etc)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
water	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
clothing	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
school fees	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
health/medicines	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
betelnut	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
drinking - cigarettes - entertainment	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
church contributions and other gifts	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
other (what?)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

**16. What amount would your household consider a reasonable fee to pay for the supply of safe and healthy water to your house?** (tick only one box)

- ☐ less than 1 Kina per month  
☐ between 1 and 4 Kina per month  
☐ between 5 and 9 Kina per month  
☐ between 10 and 19 Kina per month  
☐ between 20 and 30 Kina per month  
☐ no fee (it should be paid by public taxes)

**17. What amount would your household consider a reasonable fee to pay for the safe collection and treatment of sewage from your house?** (tick only one box)

- ☐ less than 1 Kina per month  
☐ between 1 and 4 Kina per month  
☐ between 5 and 9 Kina per month  
☐ between 10 and 19 Kina per month  
☐ between 20 and 30 Kina per month  
☐ no fee (it should be paid by public taxes)

**18. How do you think the costs of collecting and treating sewage should be paid for?** (Describe each alternative and tick as many boxes below as the respondent thinks fair.)

- ☐ By charging all households the **same fee** so they equally share the costs.  
☐ By charging each household a **variable fee** based on the amount of water each house uses.  
☐ By charging each household a fee according to the **ability of the household to pay** (that is, smaller houses pay less)  
☐ By charging **nonresidential users** (such as industries and businesses) very **high fees**  
 (NOTE: this could seriously raise industry costs and increase unemployment)  
☐ It is **not necessary** to provide a public sewage collection and treatment service.  
☐ Other or don't know.

adult males (number)      adult females (number)      children (number)

210 ☐ 211 ☐ 212 ☐

213 ☐ 214 ☐ 215 ☐

<b>last week</b>	<b>less than K10</b>	<b>K10 to K24</b>	<b>K25 to K99</b>	<b>K100 to K500</b>	<b>more than K500</b>
last month	less than K40	K40 to K99	K100 to K399	K400 to K2000	more than K2000
last year	less than K500	K500 to K1199	K1200 to K4099	K5000 to K24999	more than K25000
	216 <input type="text"/>	217 <input type="text"/>	218 <input type="text"/>	219 <input type="text"/>	220 <input type="text"/>

221 ☐ diarrhoea? 224 ☐ malaria or other high fever?  
222 ☐ stomach pain? (other than women's pain) 225 ☐ other sicknesses (what? if known) .....  
223 ☐ skin diseases?

226 ☐ You should always wash your hands after going to the toilet.

227 ☐ Children playing in unclean areas or in rubbish can get worms and diarrhoea.

228 ☐ You can get diarrhoea from drinking untreated water even if it is clear and does not smell.

229 ☐ You can get sick from eating shellfish collected near water villages and sewage outlets.

230 ☐ Untreated sewage in streams, lakes and the sea can kill plants and fish that live in the water nearby.

231 ☐ If you wash or swim in a stream, lake or sea that has untreated sewage in it, you may become sick with typhoid or another serious disease.

232 ☐ You can get malaria from the bite of a mosquito.

233 ☐ Mosquitoes come from swamps, puddles and other places containing still water.

234 ☐ Rat droppings carry diseases that can make you sick.

235 ☐ radio

236 ☐ television

237 ☐ newspaper

238 ☐ family and friends

239 ☐ school

240 ☐ mission

241 ☐ health worker - health inspector

242 ☐ aid station - clinic - hospital

243 ☐ other or don't know

244 ☐ under 20    245 ☐ 20 to 29    246 ☐ 30 to 39    247 ☐ 40 to 49    248 ☐ 50 and above    Page 0

249 ☐ less than grade 3      251 ☐ grade 7 to 12      253 ☐ degree  
250 ☐ grades 3 to 6      252 ☐ diploma or certificate      254 ☐ other or don't know

Use space below for additional comments from household or to note problems doing survey (if any)