dpi
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STATISTICAL REPORT ON THE EAST NEW BRITAIN PROVINCIAL SMALLHOLDER CROP SURVEY 1979/80

INTRODUCTION

1. East New Britain was one among the first provinces to participate during the first series of Provincial Smallholder Crop Surveys conducted during 1979/80. The survey was designed in conjunction with the provincial authority and included was a wide range of agricultural activities performed by households in the province. It was felt that there was a need to up-date statistics, already available with provincial planners, so that better services are provided to growers in the province.

2. Briefing of enumerators was conducted in May 1980; the field-work commenced in June and completed in October, 1980.

3. Provincial DPI provided the field staff while the Rural Statistics Section was responsible for planning, design of the survey, training as well as the overall supervision of the field enumerators, data processing, analysis and publication of the results.

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4. The sample design in East New Britain was the same as other provinces, i.e. a two-stage sampling scheme for each district (called "stratum") was adopted in which villages were selected as first-stage units with a probability proportional to estimated size (p.p.e.s.), the "sizes" in this case being the 1977/78 population estimates. In all, 35 villages were selected from the four (4) districts of the province. The composition of the selected villages per district were as follows:-

DISTRICT	NO. OF VILLAGES SELECTED
Kokopo	10
Rabaul	10
Keravat	5
Pomio	10
Total	35

Five (5) crop-growing households were selected, through simple random sampling, from each selected village as second-stage units. The information collected from each of the selected household was on important cash crops i.e. cocoa and coconut; food crops; other economic activities such as possession of pigs, poultry, PMV, trade-store; fishing and acquisition of loans from the Development Bank.

RESULTS

5. Tables 1 to 9 show the summary of survey results depicting the smallholder agriculture as well as other economic activities in the respective districts and also reflecting provincial situation. While the results are estimates based on a moderate sized sample, they do, however, indicate important aspects of the state of present agricultural activity in the districts. Tables 1.1 and 1.2 show the number of households

owning sole-planted cocoa, sole-planted coconut and inter-planted cocoa/coconut gardens. They also show per district, number of gardens, total areas as well as number of trees by age classification. Also included is the total number of trees affected by diseases and pests in each district. Tables 2.1 and 2.2 show percentage distribution of main diseases and pests affecting cocoa and coconut trees in the province. Tables 3.1, 3.2 and 3.3 show management indicators, in respective districts, for sole-planted cocoa, sole-planted coconut and inter-planted cocoa/coconut gardens, namely, spacing, use of self sown seedlings, and garden conditions. Tables 4.1, 4.2 and 5 show, in percentages, the marketing outlets for cocoa, copra, coconut and chillies as well as usage of driers and fermentaries by growers. Table 6 covers the information on food crops, i.e., total number of food gardens, number of households growing food crops and percentage of gardens with particular crop. Tables 7.1 and 7.2 refer to fishing activities, i.e., number of boats owned, disposal of the catch and fishing implements used by households. Table 8 indicates the state of the other activities such as the number of betelnut trees owned by households, possession of pigs, poultry, PMV and trade-stores by households. Table 9 show the acquisition of loans from the Development Bank by households and purposes of acquiring such loans.

NUMBER OF HOUSEHOLDS, GARDENS, TREES, AND AREA

6. The survey results reveal that there are, in the province, an estimated 9,164 inter-planted cocoa/coconut growing households, 3,998 households owning sole-planted coconut gardens and 1,961 sole-planted cocoa growers (Tables 1.1 & 1.2). Kokopo district has an estimated 4,578 or (50% of the total in the province) inter-planted cocoa/coconut growing

households, 972 (24%) sole-planted coconut and 744 (38%) sole-planted cocoa growers. Rabaul has 3,255 (36%) households owning inter-planted cocoa/coconut gardens. Pomio district has the largest number of sole-planted coconut growing households i.e. 2,175 or 54% of the total in the province while Keravat has 925 (47%) households, largest number among all four districts, growing sole-planted cocoa.

7. In all, there are an estimated 15,243 inter-planted cocoa/coconut gardens, 4,727 sole-planted coconut gardens and 2,371 sole-planted cocoa gardens accounting for 17,723, 3,171 and 1,273 hectares (ha) respectively. The highest number of inter-planted cocoa/coconut gardens are in Kokopo district with 9,047 gardens or 59% of the total gardens in the province followed by Rabaul with 4,639 (30%) gardens. Pomio accounts for 2,451 (52%), the largest in the province, sole-planted coconut gardens while Kokopo has the largest number of sole-planted cocoa gardens i.e. 1,045 gardens (44%). The average area of inter-planted cocoa/coconut gardens was higher in Keravat (2.94 ha) and Rabaul (1.43), nearer to the provincial average (1.16ha) in Kokopo (1.05ha) and considerably lower in Pomio (0.81ha). The average area of sole-planted coconut gardens in the province was 0.67ha while gardens sown with sole-planted cocoa has an average area of 0.54ha.

8. Out of an estimated 3.8 million coconut trees in the province, 2.3 million (60% of the total number of coconut trees) are bearing, 1.3 million (34%) immature and the rest senile. Of the 2.1 million coconut trees in Kokopo, which accounts for 56% of total trees in the province, 1.2 million (57%) are bearing, 811,000 (38%) immature and the rest (5%) senile. The age distribution in all districts except Keravat, which has the least number of coconut trees (1%), follows that of the province.

9. There are an estimated number of 6.1 million cocoa trees in the province comprising of 3.0 million (49% of the total number of trees) immature trees, 2.3 million (38%) bearing and 856,000 (14%) senile trees. Kokopo district, which has the highest number of coconut trees, also has the highest number of cocoa trees with 3.5 million (58% of the total number of trees) followed by Rabaul with 1.6 million (27%), Keravat 598,000 (10%) and Pomio, having the least, with 357,000 (6%). Out of a total number 3.5 million cocoa trees in Kokopo, 1.8 million (50%) are immature, 1.1 million (32%) bearing while 658,000 (19%) are senile ones.
East New Britain province has an estimated 82,000 pure chillie bushes (Table 5) mainly grown in Kokopo district (44,000 bushes) and Pomio district (38,000 bushes).

DISEASES AND PESTS

10. Compared with other provinces where crop surveys have been carried out so far, incidence of diseases and pests appear to be quite high in East New Britain Province. It is, however, to be noted here that the figures from this report are not strictly comparable with those in earlier ones due to the fact that in the present report there has been a multiple recording of trees (for all significant diseases and pests) as against single recordings (only for the most dominant disease and pest) in earlier reports and that the sum of percentage components may not necessarily add up to 100.

11. Out of a total of 3.8 million coconut trees in the province 2.3 million (59%) are affected by diseases and pests (Table 1). The incidence is highest in Pomio District where as many as 87 p.c. of trees are affected; next is Kokopo (63%) followed by Rabaul (40% of trees).

Coming to individual disease/pest (Table 2.1) "leaf spot" is the most dominant disease affecting 54 p.c. of all coconut trees in the province, followed by "saksava" affecting 25 p.c. while "rhino beetle" seems to be the only major pest (9%). 83 p.c. of all coconut trees in Pomio district are affected by "leaf spot", 67 p.c. by "saksava" and 33 p.c. are affected by "rhino beetle". "Leaf spot" also accounts for 58 p.c. of affected trees in Kokopo District.

12. With regard to cocoa trees (Table 1.2) 3.1 million or just over half of the trees in the province are affected by diseases and pests. Kokopo district has the highest number (1.9 mill.) as well as percentage (55%) of affected trees, followed by Rabaul (50%) and Keravat (45%) while Pomio, unlike coconut has least incidences of cocoa diseases/pests (31% of trees). Table 2.2 reveals that "black pod" is the major disease affecting 42 p.c. of trees in the province followed by "V.S.D.B." (32%) and "Pantherohtys Channel" (21%) while "pod sucker" is the major pest, affecting 12 p.c. of all cocoa trees. "Black pod" seems to affect most districts: Rabaul (47% of cocoa trees), Keravat (47%) and Kokopo (42%) while "V.S.D.B." is most dominant among diseases and pests in Kokopo District (47% of trees).

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MANAGEMENT

13. Tables 3.1 - 3.3 present certain management indicators e.g. spacing between trees, garden conditions etc., for coconut and cocoa gardens. The survey reveals generally good management of sole-planted coconut and sole-planted cocoa gardens in the province except for cleaning aspect. Management of inter-planted cocoa/coconut gardens is a suspect - 65% need cleaning, 54% of cocoa trees and 61% coconut trees are not regularly spaced.

MARKET OUTLETS FOR COCOA AND COPRA (Tables 4.1 and 4.2)

14. Copra in East New Britain province is mainly sold to Copra Marketing Board (75% of households) and traders (17%).

Growers in East New Britain province sell their cocoa in the form of either wet or dry beans. Some 83% of cocoa growers in the province sell wet cocoa beans to traders while 13% sell to exporting companies. Most of cocoa farmers (95%) in the province sell their dry cocoa beans to exporters.

15. Department of Primary Industry purchases chillies from more than three-fourth of the growers in the province while traders purchase from rest of chillie growers.

USE OF DRIERS AND FERMENTARIES (Tables 4.1 and 4.2)

16. Of the three different types of driers used by coconut growers to make copra, "hot air" (drum) is the most common one, used by 74% of the growers. The most common type of fermentary in the province is "hot drier" used by 83% of cocoa growers. It should be noted that driers and fermentaries may not necessarily be owned by farmers.

FOOD GARDENS

17. Table 6 shows that there are an estimated number of 14,838 households owning 26,929 food gardens, giving an average of about 2 (two) food gardens per household. The average number of food gardens in each district is as follows: Keravat - 3.7, Pomio - 2.4, Kokopo - 1.4 and Rabaul 1.2.

The highest number of food gardens (11,211) are in Pomio district while the highest number of food crop growers (4,995) are in Kokopo district.

Banana (mau), the most important food crop in the province is grown in 83% of all food crop gardens; it is followed by sugarcane (grown in 79% of all food crop gardens), aibika and cassava (both 77%), banana (kukim) - 74% and taro "tru"/"kongkong" (both 64%).

There is, however, some variation on cultivation practices by farmers between districts. Important food crops grown in districts are as follows: Kokopo district - Taro 'kongkong' - grown in 87% of food gardens, Pawpaw (81%), Cassava (77%), Banana 'mau' (72%), Sugarcane (67%) and Aibika (64%). Rabaul district - Banana 'kukim (97%), Banana 'mau' (91%), Pawpaw (78%), Cassava (75%), Aibika (65%), Sugarcane and Taro ~~'Tru'~~ 'kongkong' (both 58%). Keravat district - Banana 'kukim' - grown in 87% of food gardens, Banana 'mau' (85%), Pitpit (84%), Sugarcane (83%), Taro (Tru' (78%) and Aibika (77%). Pomio district - Sugarcane (94%), Aibika (90%), Cassava (89%), Banana 'kukim' and Kaukau (both 87%), Banana 'Mau' (85%) and Taro 'Tru' (82%).

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FISHING ACTIVITIES

18. Tables 7.1 and 7.2 show some basic indicators on fishing activities in the province. The result reveals that fishing, in the province, is a minor activity to most of the households (98%) who catch fish. Major portion of the catch is consumed by fishermen and their families.

Fish are caught using both traditional and modern implements/methods. Use of spear is the most popular (42% of fishing households) among the traditional methods/implements to catch fish while "hook-handling" is much prefered among the modern categories (78%).

OTHER ECONOMIC ACTIVITIES

19. The survey reveals (table 8) that an estimated 510,000 betelnut palms are in the province of which 233,000 (46%) are in Kokopo district and 150,000 (29%) in Rabaul district.

Table 8 also reveals that 58% of the households in the province kept pigs and 78% owned poultry. Public Motor Vehicle (PMV) and trade-store ownership were not a major activity.

DEVELOPMENT BANK LOANS

20. Table 9 shows the acquisition and use of Development Bank loans by households. Some 6% of the households indicate to have acquired Development Bank loans, mainly for the following purposes: purchase of trade-store (30% of households acquiring loan), copra drier (22%) and block development (19%).

CONCLUSION

21. This is the seventh statistical report on the series of provincial smallholder crop surveys conducted jointly by the Rural Statistics Section and Provincial Division of Primary Services. Survey results presented in the report were discussed with and endorsed by the staff of the Division of Primary Services in the East New Britain. The results are estimates based on a moderate sized sample and are liable to have some margin of errors.

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Symbol used: - nil or negligible.

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Rural Statistician.

2nd September, 1983.

TABLE 1.1 COCONUT: NUMBER OF HOUSEHOLDS, GARDENS AND THE AREA.

District / Province	Sole Planted			Inter-planted with Cocoa			Number of Trees by Age classification ('000)				Trees Affected by Diseases and Pests '000
	Number of H/holds	Number of Gardens	Area of Gardens (Hectare)	Number of H/holds	Number of Gardens	Area of Gardens (Hectare)	Bearing	Immature	Senile	Total	
Kokopo	972	1205	737	4578	9047	9502	1205	811	109	2125	1342
Rabaul	800	1020	1076	3255	4639	6631	700	376	63	1139	458
Keravat	51	51	78	153	153	450	9	23	5	37	10
Pomio	2175	2451	1280	1178	1404	1140	395	100	30	525	458
East New Britain	3998	4727	3171	9164	15243	17723	2309	1310	207	3826	2268

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TABLE 1.2 COCOA: NUMBER OF HOUSEHOLDS, GARDENS, TREES & THE AREA.

District / Province	Sole Planted			Inter-planted with Coconut			Number of Trees by Age Classification ('000)				Trees Affected by Diseases and Pests ('000)
	Number of H/holds	Number of Gardens	Area of Gardens (Hectare)	Number of H/holds	Number of Gardens	Area of Gardens (Hectare)	Bearing	Immature	Senile	Total	
Kokopo	744	1045	430	4578	9047	9502	1120	1767	658	3545	1933
Rabaul	66	66	25	3255	4639	6631	723	772	144	1639	811
Keravat	925	1034	733	153	153	450	337	214	47	598	269
Pomio	226	226	85	1178	1404	1140	124	226	7	357	112
East New Britain	1961	2371	1273	9164	15243	17723	2304	2979	856	6139	3125

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TABLE 2.1 COCONUT: PERCENTAGE DISTRIBUTION OF TREES AFFECTED BY DISEASES AND PEST. (1)

District/ Province	Diseases		Pest
	Leaf Spot	Saksava	Rhino Beetle
Kokopo	58	27	3
Rabaul	36	3	6
Keravat	-	27	20
Pomio	83	67	33
East New Britain	54	25	9

TABLE 2.2 COCOA: PERCENTAGE DISTRIBUTION OF TREES AFFECTED BY DISEASES AND PESTS. (1)

District/ Province	Diseases				Pests	
	Black Pod	Canker	Panthe-rohtys Channel	(2) V.S.D.B.	Panthe-rohtys Weevil	Pod Sucker
Kokopo	42	16	32	47	4	17
Rabaul	47	2	1	8	1	5
Keravat	47	5	14	16	12	4
Pomio	22	3	13	11	6	11
East New Britain	42	10	21	32	4	12

1) The total of percentages may not necessarily add up to 100 because in most cases more than one pest or disease were listed per tree.

2) Vascular Streak Die-back.

TABLE 3.1 SOLE-PLANTED COCONUT: CONDITION OF GARDENS, PERCENTAGE.

District/ Province	Planting		Garden Condition			Unpicked Nuts			Garded with 'KRU' (1)		
	Regular	Irregular	Clean	Need Slashing	Over Grown	Very Few	Some	Plenty	Very Few	Some	Plenty
Kokopo	57	43	22	57	21	68	28	4	57	28	15
Rabaul	8	92	23	54	23	30	62	8	54	46	-
Keravat	100	-	-	100	-	100	-	-	100	-	-
Pomio	80	20	24	72	4	76	16	8	90	10	-
East New Britain	60	40	23	65	12	65	28	7	74	22	4

1) Unpicked germinated nuts.

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TABLE 3.2 SOLE-PLANTED COCOA: CONDITION OF GARDENS, PERCENTAGE.

District/ Province	Planting		Garden Condition			Use of Self Sown Seedling		
	Regular	Irregular	Clean	Need Slashing	Over Grown	Very Few	Some	Plenty
Kokopo	75	25	45	55	-	81	-	19
Rabaul	-	100	-	100	-	100	-	-
Keravat	77	23	30	50	20	74	19	7
Pomio	100	-	-	100	-	100	-	-
East New Britain	76	24	33	58	9	80	8	12

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TABLE 3.3 INTER-PLANTED COCOA AND COCONUT: CONDITION OF GARDENS, PERCENTAGE.

District/ Province	Garden Condition			COCOA ONLY					COCONUT ONLY							
				Planting		Use of Self-Sown Seedling			Planting		Unpicked Nuts			Garden with 'KRU'(1)		
	Clean	Need Slashing	Over Grown	Regular	Irregular	Very Few	Some	Plenty	Regular	Irregular	Very Few	Some	Plenty	Very Few	Some	Plenty
Kokopo	31	63	6	39	61	60	21	19	31	69	47	43	10	80	14	6
Rabaul	37	60	3	46	54	58	38	4	41	59	50	44	6	61	36	3
Keravat	67	33	-	100	-	100	-	-	67	33	67	33	-	100	-	-
Pomio	50	50	-	92	8	94	6	-	84	16	38	14	48	60	24	16
East New Britain	35	61	4	46	54	63	25	12	39	61	47	41	12	72	22	6

1) Unpicked germinated nuts

TABLE 4.1 COPRA: MARKETING OUTLETS AND TYPES OF DRIERS USED BY HOUSEHOLDS, PERCENTAGE.

DISTRICT/ PROVINCE	MARKETING OUTLETS				Types of Driers Used to make Copra.		
	C.M.B. Rabaul	Traders	Planta-tions	Others	Hot Air (Kiln)	Hot Air (Drum)	Ceylon Drier
Kokopo	86	13	1	-	12	88	-
Rabaul	86	9	5	-	30	90	-
Keravat	-	50	50	-	50	50	-
Pomio	55	27	6	12	60	37	50
East New Britain	75	17	3	5	33	74	13

1) The sum of percentages may not add up to 100 as a farmer may use more than one type of drier.

2) Drier may not necessarily be owned by the maker of copra.

TABLE 4.2 COCOA MARKETING OUTLETS, AND TYPES OF FERMENTARIES USED BY HOUSEHOLDS, PERCENTAGES.

District/ Province	Marketing Outlets				Types of Fementaries Used		
	Wet Beans		Dry Beans				
	Traders	Exporting Companies (1)	Exporters	Business Group	Sun/ Hot Drier	Hot Drier	Others
Kokopo	80	29	100	-	-	100	-
Rabaul	90	-	83	17	30	70	-
Keravat	51	8	100	-	34	66	-
Pomio	100	-	100	-	-	100	31
East New Britain	83	13	95	5	17	83	8

1) Includes:

(a) New Guinea Islands Produce

(b) New Guinea Development Corporation

(c) Plantations

TABLE 5: CHILLIES: NUMBER OF BUSHES AND MARKETING OUTLETS.

District/ Province	Number of Bushes ('000)	Marketing Outlets	
		Percentages	
		D.P.I.	Traders
Kokopo	44	54	46
Rabaul	-	-	-
Keravat	-	-	-
Pomio	38	100	-
East New Britain	82	78	22

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TABLE 6 FOOD GARDENS: NUMBER OF GROWERS, GARDENS, AND PERCENTAGE OF FOOD GARDENS UNDER DIFFERENT CROPS.

DISTRICT/ PROVINCE	KOKOPO	RABAUL	KERAVAT	POMIO	EAST NEW BRITAIN
NUMBER OF GROWERS	4,995	4,082	1,110	4,651	14,838
NUMBER OF GARDENS	6,918	4,718	4,082	11,211	26,929
CROPS:					
Aibika	64	65	77	90	77
Aupa	-	15	7	46	23
Banana: Kukim	28	97	87	87	74
Mau	72	91	85	85	83
Beans: Short	16	13	5	8	10
Sio	1	5	2	9	5
Snake	35	29	4	21	23
Wing	1	2	32	24	15
Cabbage: Chinese	7	10	-	5	6
Cassava	77	75	48	89	77
Chillies: Birds-eye	17	8	-	-	6
Choka	16	7	27	2	10
Corn	38	20	51	10	26
Cucumber	31	6	19	26	23
Egg-Plant	12	5	-	3	5
Karakap	62	42	25	13	32
Kaukau (sweet potato)	46	39	39	87	61
Mami	13	14	4	37	22
Onion	9	24	2	24	17
Paragum	33	13	1	21	20
Pawpaw	81	78	45	18	49

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TABLE 6 CONT'D

DISTRICT/ PROVINCE	KOKOPO	RABAUL	KERAVAT	POMIO	EAST NEW BRITAIN
Peanut	31	20	6	10	49
Pineapple	45	50	27	29	36
Pitpit	39	27	84	65	55
Pumpkin	56	43	13	18	31
Sugarcane	67	58	83	94	79
Taro: KongKong	87	58	65	52	64
Tru	54	21	78	82	64
Tobacco	11	-	13	4	6
Tomato	44	24	12	19	25
Valangua	40	64	24	17	32
Water Melon	7	9	-	20	11
Yam	31	21	31	55	39
Pitpit (Highland)	-	2	44	43	25
Kumu Grass	3	-	39	-	7
Kumu Musong	2	-	52	-	8

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TABLE 7.1 FISHING ACTIVITIES BY HOUSEHOLDS, PERCENTAGE.

District/ Province	Form of Activity		Number of Boats[1]	Number of Nets	Disposal of Fish Caught			Marketed to:		
	Major	Minor			Own Consumption	Marketed	Own Consumption and Marketed	Same Village	Another Village	Town
Kokopo	-	100	701	401	70	18	12	88	-	12
Rabaul	-	100	2609	789	60	29	11	90	5	5
Keravat	-	100	271	-	95	-	5	100	-	-
Pomio	6	94	2111	859	94	6	-	-	100	-
East New Britain	2	98	5692	2049	77	16	7	82	11	7

1) Including canoes.

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TABLE 7.2 FISHING IMPLEMENT/METHOD USED BY FISHERMAN, PERCENTAGE.

District/ Province	TRADITIONAL					MODERN			
	Spear	Gather-ing	Hand Made Net	Bamboo Fish Trap	Darish Root	Hooks Handling	Hooks Trolling	Nets-Gill	Spear-Gun
Kokopo	35	-	-	55	32	93	7	11	7
Rabaul	35	12	2	20	24	72	3	13	6
Keravat	63	33	-	5	-	43	8	5	38
Pomio	47	10	-	5	14	82	-	18	18
East New Britain	42	10	1	23	14	78	4	13	13

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TABLE 8 NUMBER OF BETELNUT PALMS; AND POSSESSION OF PIGS, POULTRY, P.M.V. AND TRADE STORE BY HOUSEHOLDS, PERCENTAGE.

District/ Province	Number of Betelnut Palms ('000)	Pigs		Poultry		P.M.V.		Trade Store	
		Yes	No	Yes	No	Yes	No	Yes	No
Kokopo	233	58	42	92	8	16	84	10	90
Rabaul	150	41	59	93	7	5	95	13	87
Keravat	23	72	28	54	46	3	97	10	90
Pomio	64	68	32	57	43	3	97	3	97
East New Britain	510	58	42	78	22	8	92	8	92

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TABLE 9 ACQUISITION AND USE OF LOAN FROM THE DEVELOPMENT BANK BY HOUSEHOLD, PERCENTAGE.

District/ Province	Acquisition of Loan from the Development Bank		Purpose for which Loan Acquired					
	Yes	No	Purchase of Land	Purchase of Trade Store	Purchase of Copra Drier	Purchase of fermenting Bins	Block Development	Not Indicated
Kokopo	9	91	-	27	26	-	26	21
Rabaul	10	90	22	38	20	20	-	-
Keravat	5	95	-	-	-	-	100	-
Pomio	-	100	-	-	-	-	-	-
East New Britain	6	94	9	30	22	9	19	11