

# **ASPECTS OF COPRA PRODUCTION AND MARKETING IN VANUATU**

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## **SUMMARY**

Coconuts occupy the largest area under any crop in Vanuatu and provide employment and incomes for the majority of the rural population; copra exports have provided far and away the most important source of foreign exchange earnings during most of the past one hundred years, and their position remains paramount. Copra exports also provide an important source of Government revenue; and, finally, coconuts are an important component of the national diet.

Given the fundamental importance of the coconut subsector to the economic life of the country, a deeper understanding of its recent and projected evolution is essential for macro-economic policy formulation.

This paper <sup>1</sup> provides a brief introduction to the physical geography and the agricultural sector in Vanuatu, in order to provide the background into which the main features of the national production of coconuts and copra can be fitted. A description of the recent history of the marketing and processing of the crop, leads into a discussion of its local and world prices. The importance of the sub-sector in the national economy is highlighted and the paper concludes with a description of the ways in which the Government is seeking to offset the effects on the economy of the commodity's deteriorating terms of trade.

## **INTRODUCTION**

Vanuatu is a y-shaped archipelago made up of 80 widely-dispersed islands, stretching some 800 km from north to south in the South-West Pacific. The climate ranges from tropical to wet equatorial (depending on the aspect of the island in question) in the north, to semi-tropical with a high humidity and a well-distributed rainfall in the south, the mean annual total is 2,360 mm.

The islands are mainly mountainous in the interior with some high plateaux, while the coastal strips provide the main areas for cultivation. The total surface area is approximately 12,600 sq. km., of which 45 percent can be considered as potential arable land, although only 17 percent is currently exploited for agricultural purposes. Both the soils, which are mainly young and volcanic in origin - and therefore fertile - and the climate, are conducive to the development of arable and livestock farming.

The population is currently estimated to be approximately 130,000, of which more than 80 percent is classified as rural. The population is young, with 50 percent being under 15 years of age and it is growing at 3.2 percent per annum.

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The economic structure of the country has evolved from an almost totally subsistence mode of production prior to the advent of overseas traders, through phases of overseas contract labour, casual employment on plantations which were largely established by expatriates at the turn of the century, cash cropping and urban development, to the present co-existence of the "traditional" (subsistence) and "modern" (commercial) sectors.

Agriculture is the major sector of the economy, and the bulk of the working population is directly dependent on it for its livelihood. Subsistence production is centred on the cultivation of root crops partially yams, taro and cassava - while commercial production is dominated by coconuts which are exported as copra. Other agricultural exports include cocoa, coffee and beef, although they are much less significant than copra in terms of foreign exchange earnings.

### **THE COCONUT SUB-SECTOR**

Coconuts are widely grown in the coastal areas of Vanuatu, and occupy an estimated 60,000 ha. which represents 6 percent of the total land surface and 32 percent of the area currently cultivated (National Planning Office, 1982, p.25). They thus occupy the largest area under any one crop in the country and provide employment and incomes for the majority of the rural population. Furthermore, they were the basis for the plantations which were established towards the end of the nineteenth century, and exports of copra have provided by far the most important source of foreign exchange earnings during most of the present century.

Production of copra for export has increased gradually since the early 1900's, although it has fluctuated from year to year. (The pattern since 1957 is shown in Figure 1). Various attempts have been made to relate these fluctuations to such factors as producer prices and rainfall; no statistically significant relationship is apparent, although a broad, general - but delayed positive relationship between output and prices is apparent (Figure 1).

There has been little planting or replanting activity in the plantations since before World War II, which means that the national stock of coconuts has a large proportion of old and senile trees, thus depressing national yield figures. (Of the total coconut hectareage on plantations recorded by the agricultural census in 1983, 62 per cent was more than 50 years old, and only 1 per cent was under 14 years of age). The high cost and scarcity of labour - particularly since the repatriation in the early 1960's of Tonkinese labourers who had worked as copra cutters on many plantations - and the low net returns compared with other operations, particularly cattle raising, have been the main causes. These factors were aggravated in the years immediately before independence by the uncertain investment climate and, for a few years after 1980, by the delay and difficulty in securing a duly executed and registered lease.

On the other hand, new plantings have been taking place continuously on smallholding's, most often on land cleared for food crops (the advantage being that only one clearing operation is required and maintenance can be carried out simultaneously on both the food crops and the coconuts).

The overall impact has been for smallholdings to provide a rapidly increasing (both relative and absolute) tonnage - from one-sixth of national production in the 1930's, smallholders were producing 50 per cent in the early 1950's and now account for more than three-quarters. This trend is likely to continue given the poor future price prospects for copra and the relatively buoyant market for beef. The future of the coconut industry therefore appears now to lie with the smallholding farmers.

Yield estimates are difficult in the absence, until recently, of any firm data on the area under coconuts. However, initial estimates made after the agricultural census are that average yields in the plantation sector are approximately three - quarters of a tonne per hectare, and declining. There are

marked differences between islands. The census data on smallholdings has not yet been analyzed although estimates give similar figures to those for plantations (to the figure for smallholdings should be added the tonnage harvested for consumption - see below - which would result in average annual yields closer to one tonne per hectare). Potential average yields of the selected Local Tall, seedlings of which are now being distributed by the Government, are considerably higher than the unselected Local Tall. Furthermore, the former begins bearing sooner after planting and reaches maximum production sooner than the latter. Distribution of a hybrid (Selected Local Tall X Rennel Tall) with an annual yield potential of 3.0 tonnes per hectare is now under way.

The additional call being made on farmers' time from June onwards by the need to clear and prepare land for food crop planting, together with the smaller quantity of ripe nuts falling in the September/October period, give rise to declining average monthly production levels from the peak in May/June. Output reaches a minimum in November, but rises sharply in December - due mainly to the increased cash needs of the population (For Christmas celebrations and school fees) at this time of the year.

Production per head varies considerably between the islands due to a variety of factors, including the different agricultural potential of each island, the ease of access to the export ports, and the range of alternative income-earnings opportunities in the islands. Overall, however, the average annual export production per head is 308 kg, significantly higher than the figures for other major exporters - Solomon Islands: 140 kg, Western Samoa: 129 kg, Papua New Guinea: 46 kg, and the Philippines: 41 kg.

Production is concentrated - the islands of Aoba, Ambrym, Espiritu Santo and Malakula, which are all close to the centre of the country, and close to the port of Luganville, supply more than two-thirds of national production. These islands occupy 60 per cent of the total land area and contain only 41 per cent of the country's population. Nevertheless, copra is produced on all of the inhabited islands in the archipelago.

In spite of the importance of copra to the national economy (see below), Vanuatu's exports until 1980 comprised a relatively small proportion of total world trade in the commodity - 3.6 per cent on average in the 1970's. However, this proportion has risen rapidly in recent years following the reduction in the volume coming on to the world market, due to the increased local processing and consumption of coconuts in the major producing countries (Indonesia, Thailand and the Philippines). In the most recent five-year period for which data are available, Vanuatu was, on average, the third largest copra exporter in the world, behind the Philippines and Papua New Guinea, supplying 10 per cent of the copra coming onto the world market.

## **MARKETING, PRICING, PROCESSING AND CONSUMPTION**

Copra is transported to the export ports of Luganville and Port Vila in small cargo vessels. An international wharf was constructed in Luganville in 1958, since which time it has received approximately three-quarters of national production as it is closer to the main producing islands than Port Vila.

The carriage of copra to the export ports is, in a sense, the mirror-image of the outward distribution of imported consumer goods from these ports; not only because the ships backload copra while distributing foodstuffs, but also because the sale of copra is the principal source of cash with which people in the outer islands purchase goods. There is thus a close correlation between the volume of copra purchased and the value of merchandise sold on each voyage. At the national level, this results in the level of national imports being closely related to foreign exchange receipts from copra exports.

Traditionally, Vanuatu produced very poor quality copra-reputedly among the worst in the world, and known locally as "rubbish copra". After it had been "shelled-out", the green copra was - and still is for the most part - dried over a smoky fire. The result is a product with a high moisture content, a high level of free-fatty-acid, and a dark colour. This poor quality was reflected in the discounted price paid on the world market.

Since 1982, the Government has encouraged the production of hot-air dried copra through the provision of extension advice and subsidised material for new driers. In November of the same year, these efforts were supplemented by the Vanuatu Commodities Marketing Board (VCMB), which offered a price premium for hot-air dried copra. The result has been a marked improvement in the quality of exports, with hot-air dried copra now comprising a quarter of total exports. Price discounts on the world market have consequently been reduced.

All copra was exported prior to 1978 - the major markets being France, Japan and South America. A crushing mill in Marseilles took the bulk of the copra which it was able to mix with good quality copra from elsewhere to produce an acceptable end product.

The opening of a small (1 5,000 tonnes capacity) crushing mill in Luganville in 1978, resulted in some copra being diverted to local processing, although the bulk continued to be exported. Coconut oil exports went mainly to France, the Netherlands and Italy, but ceased in 1981 after the mill had been destroyed in the civil disturbances immediately prior to independence. Husked coconuts have also been exported on an irregular basis to Australia.

Following the closure of the mill in Marseilles in 1981, Vanuatu was forced to seek alternative markets. West Germany, the major crusher in Western Europe, began to buy Vanuatu's copra. This market is supplied through the entrepôts of Antwerp and Rotterdam, hence the high recorded level of copra exports to Belgium and the Netherlands. Export contracts are negotiated by the VCMB with a UK-based dealer, and the recent improvement in the quality of the copra appears to have assured the export markets for the foreseeable future.

Prior to the establishment of the VCMB, most copra had been purchased and exported by two private trading companies and the Co-operative Movement. The reason for the rapid increase, in the involvement in the trade by Cooperative Movement in the 1960's, is probably that the private traders had, "established a reasonable *modus operandi* which is somewhere on the amicable side of cutthroat competition"! (Davey and Rogers, 1974).

Before 1981 there had been no attempt by the Government to intervene directly in the marketing process. There had been no attempt to stabilise, producer prices, nor to equalize them between islands, and producers were accustomed to them changing daily.

The view had long been held that stable prices be preferred by producers as they would thus be better able to plan a clear, rational production strategy. (Classical economic theory posits that a stabilisation scheme that reduces the variability of the income of producers, without reducing the mean, will improve welfare since producers are risk-averse. It is a difficult theory to test, although it would appear self-evident that uncertainty and risk aversion discourage investment in such a long-term enterprise as coconuts).

Partly in response to this line of argument, but also, for several other reasons the VCMB was established by an Act of Parliament in late 1981 and given monopsonistic control of the copra trade. Operations began in April 1982 following an initial grant by the Government to it, of approximately VT 400 million (which had, in turn, been received in STABEX payments), which was used to set up a price stabilisation scheme and for working capital for the Board.

The VCMB arranges all export shipments and sales of copra from Vanuatu, and sub-contracts to private companies on an agency basis, its receipt and preparation for export at the two ports. Sub-contracting is necessary as the VCMB lacks any facilities itself, it may no longer be necessary once the current infra-structural re-development work at the ports is completed.

Since April 1982, the floor price of copra delivered to the export ports has been fixed by the VCMB. Prior to the end of 1982, copra had been purchased as a single grade with no adjustment for moisture content or other quality variables - there was thus no incentive to produce better quality copra. In November of that year the single pricing system was scrapped and a system introduced which created a differential between smoke-dried and hot-air/sun-dried copra. An extension of the price differential was also introduced; shippers moving copra from different "zones" are paid different transport allowances depending on the distance from the two export ports. This results in pan-territorial prices which mean that producers are paid approximately the same net price for their copra regardless of where they are in the archipelago. This was done in order to help producers in the remote islands who had previously been penalised by being paid lower prices for their copra than producers in the more accessible islands.

The objective of the price stabilisation scheme was seen as being the stabilisation of nominal producer prices around the trend in world prices; at no stage was it envisaged as being a price support scheme (Bastin, 1986, p.36). Prior to 1982 producer prices had been based on a net-back from the f.o.b. price, less freight and other charges; thus they changed with the world market every few weeks. The impact of the stabilisation scheme on domestic producer prices is clear - during a 10-month period in 1980, for example, the producer price changed 24 times. By contrast, during the first 42 months' operation of the stabilisation scheme, the administered price altered only 9 times. The scheme is clearly achieving its objective.

The construction of a 30,000 tonnes capacity copra crushing mill was included as a major investment item in the Government's First National Development Plan (National Planning Office, 1982). However in spite of several proposals which have been submitted by private interests, no mill has yet been constructed. Detailed evaluation of the proposals has shown that the building and operation of a mill is neither-financially nor economically justified under the present circumstances - the current and projected crushing margins (the added value resulting from the crushing of copra and the production of coconut oil and expeller meal) fail to provide an adequate return on the investment.

Given the rapid rise in the local consumption of imported vegetable oils (currently at an annual level of between 300 and 400 tonnes), investment in a small mill to provide coconut oil as a substitute for some of these imports may prove to be an economic proposition in the near future.

The 1983 agricultural census revealed a consistent pattern of coconut consumption throughout Vanuatu - average daily consumption of 6 nuts per household, with a further 9 nuts per household being fed to chickens and pigs.

Extrapolating from this micro-level data, national annual consumption is estimated to be approximately 18,000 tonnes (copra equivalent), increasing at approximately the same rate as the national population.

## **INTERNATIONAL PRICES AND TERMS OF TRADE**

The price of copra on the world market appears to be becoming more unstable - the coefficient of variation fell between the 1950 - 1959 and 1960 - 1969 reference periods, but increased over the 1970 - 1979 and 1980 - 1986<sup>3</sup> reference periods. (The result holds even if the high prices of the 1973 - 1974 commodities' boom are removed.

Table. 1 : Copra Export Volume, Barter and Income Terms of Trade, 1951 - 1984

Year	Copra Export Volume Index	Barter Terms of Trade	Income Terms of Trade
1951	100	100	100
1952	76	65	49
1953	81	81	66
1954	85	75	64
1955	87	62	54
1956	100	57	57
1957	122	52	63
1958	121	56	68
1959	126	74	93
1960	86	60	52
1961	117	45	53
1962	113	44	50
1963	128	53	68
1964	136	65	88
1965	104	77	80
1966	124	58	72
1967	153	60	92
1968	124	73	91
1969	133	61	81
1970	112	62	69
1971	123	48	59
1972	66	26	17
1973	80	48	38
1974	129	106	137
1975	97	28	27
1976	123	34	42
1977	158	51	81
1978	162	45	73
1979	144	58	84
1980	96	31	30
1981	170	32	54
1982	125	29	36
1983	139	48	68
1984	168	84	141

Source: Calculated from Fowler (1986) and World Bank (1986).

Not only is the international price of copra becoming more unstable, but also the past 25 years have witnessed decline in its real price. Table 1 gives Vanuatu's barter terms of trade<sup>4</sup> - calculated by deflating the annual nominal export price of copra by the World Bank's MUV index, which is a unit value series for the world price of manufactured goods. (It has been demonstrated (Fowler, 1986, p.80) that the MUV index is a good proxy for the Vanuatu retail price index: the advantage of using the former is that the period of analysis can be extended back before 1964).

The income terms of trade, which are the barter terms of trade multiplied by the export volumes, have not, on the other hand, shown any definite trend (Table. 1), although they have

fluctuated considerably. In other words, the declining barter terms of trade have been offset by a continuing expansion in output.

Figure 2: Real price of copra, 1950-2000\*

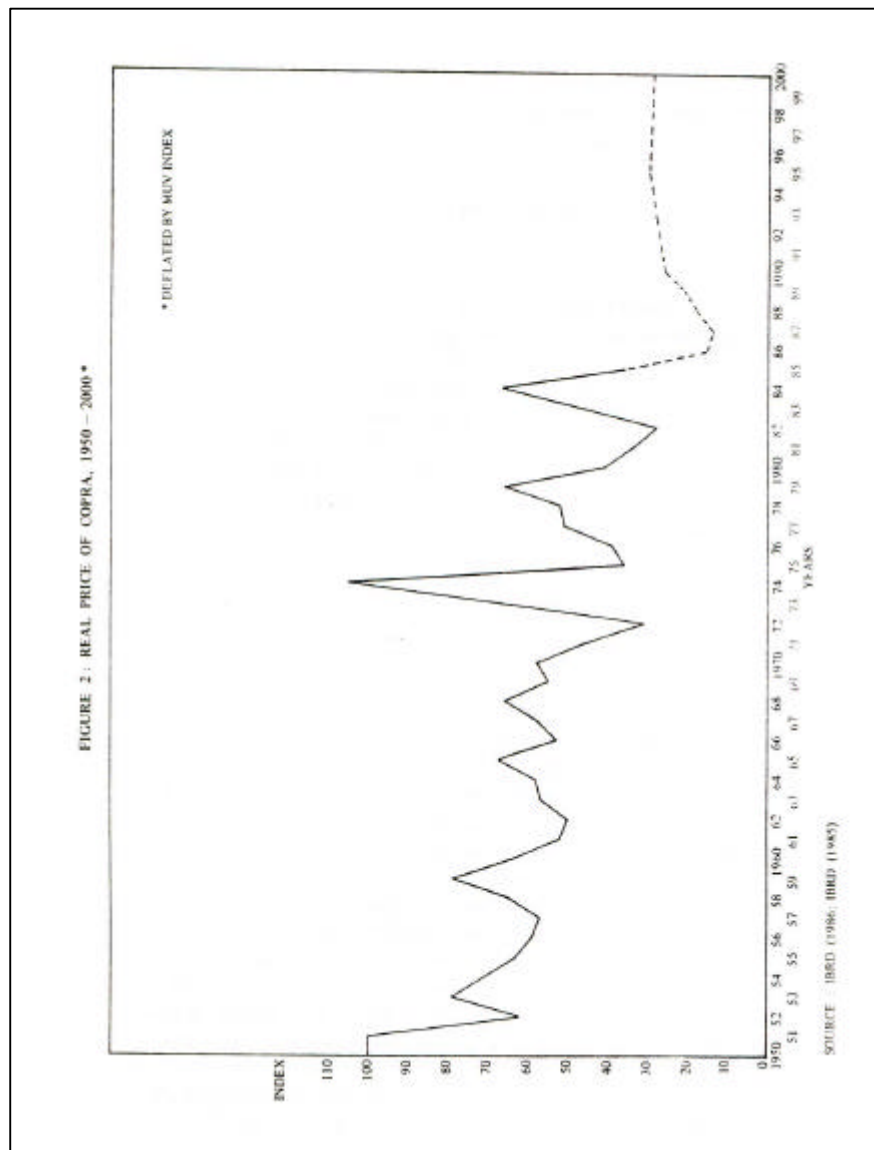


Figure 2 shows that the real price of copra has steadily worsened since 1951 - and during the first half of 1986 prices fell, in real terms, to the lowest levels realised during the analysis period, possibly to the lowest levels ever. Projections of future world prices indicate that this downward trend will be maintained during the next few years (Fig. 2), and will climb only gradually thereafter. Indeed, by the end of the present century the real price of copra is projected to be no higher than the lowest price of copra recorded during the period under review, which was in 1982. The cause of this; as Bastin (1986, p.21) recently highlighted, is the rapidly increasing production of other-lauric oil crops particularly palm kernels - "which are the main substitutes for copra as a source of lauric fatty acids", and which are forecast increasingly to displace coconut products in the world market.

## COPRA IN THE NATIONAL ECONOMY

Copra exports have provided by far the most important source of foreign exchange earnings during most of the present century. During the last 10 years, for example, the value of copra exports. has averaged more than two-thirds of total domestic exports from Vanuatu (Table. 2).

Table 2: Contribution of Copra to Domestic Export Earnings, 1959-1985.

Year	Copra Exports (In tones)	Copra Exports (In VT Millions)	Domestic Export (In VT Million)	Value of Copra Exports as Proportion of Domestic Exports (%)
1959	35,067	n.a.	n.a.	90
1960	23,844	n.a.	n.a.	86
1961	32,362	n.a.	n.a.	91
1962	31,449	n.a.	n.a.	78
1963	35,617	393	n.a.	-
1964	37,667	520	n.a.	-
1965	28,725	473	n.a.	66
1966	34,478	445	n.a.	64
1967	42,407	570	861	66
1968	34,304	557	806	69
1969	37,015	531	692	77
1970	31,197	483	695	69
1971	34,035	428	634	68
1972	18,282	137	308	44
1973	22,159	354	609	58
1974	35,667	1,517	1,743	87
1975	27,046	338	542	62
1976	34,228	521	790	66
1977	43,861	1,107	1,467	75
1978	44,879	1,163	1,714	68
1979	39,821	1,505	2,016	75
1980	26,732	592	880	67
1981	47,070	1,071	1,402	76
1982	34,798	710	1,027	69
1983	38,538	1,308	1,781	73
1984	46,682	2,735	3,221	85
1985 (provisional)	n.a.	1,312	1,922	68

Source : Fowler (1986, p.4 and p.49).

Given the rapid change in the world economy which are to a large extent reflected in copra. price fluctuations, over which Vanuatu has no control, it is extremely difficult for the country to maintain an equilibrium in its balance of payments. Trade forms a large part of the country's Gross Domestic Product, therefore these fluctuations in the balance of payments have a fundamental impact on the domestic economy (export earnings have a strong impact on total incomes and thus on demand). In 1984, for example, GDP grew by an estimated 5 per cent (compared with an average of 2 per cent during the previous three years) mainly due to an increase in both the quantity of copra exported and the increase in its world price. In addition, the balance of payments is vulnerable to variations in the weather-in 1972, for example, cyclones reduced domestic export earnings from copra to only 49 per cent of their value in the previous year.

Government revenue is dominated by import and export duties - together they comprise 85 per cent of tax revenue and almost 70 per cent of total revenue. Of the export tax revenues, a considerable proportion (approximately 70 per cent) has been provided by copra for many years (Table. 3). Changes in the world price of copra have resulted in abrupt changes in the annual copra duty receipts - copra being taxed on a graduated scale ranging from 2 per cent to 10 per cent depending upon its f.o.b. price.

(The purpose of the graduated scale is to enable the Government to capture more of the selling price when inflated earnings accrue to the exporters and rural population as a result of rising international prices).

Because the world demand for copra is highly elastic, the burden of the export tax falls fully on the producer. However, it is felt that the rates of duty are such that they do not act as a disincentive to production. Perhaps, more importantly, the rural producers pay few other taxes and the costs of collecting export duties are relatively low, while administration is relatively simple. For this reason, government revenues will continue to fluctuate in line with changes in foreign exchange earnings from copra exports.

Table 3: Government Revenues, 1969 - 1985.

Year	Copra Export Duties (In VT Million)	Total Export Duties (In VT Million)	Total Government Revenue) (In VT Million
1969	29.5	42.1	345.2
1970	26.6	43.8	384.9
1971	23.7	43.1	385.0
1972	7.5	31.7	n.a.
1973	19.5	58.8	646.8
1974	89.5	121.0	985.3
1975	16.3	30.7	702.0
1976	25.8	51.6	681.0
1977	75.3	117.0	933.0
1978	80.5	112.0	1,043.0
1979	116.0	140.0	1,286.0
1980	59.7	79.4	1,965.0
1981	81.2	129.8	2,371.4
1982	58.5	91.3	2,485.5
1983	82.4	126.7	2,565.7
1984 (estimates)	84.0	129.0	2,826.8
1985 (estimates)	212.5	243.5	3,255.1

Source : Fowler (1986, p.98).

Note : Includes duties on coconut oil 1978-1980 and 1982.

## **CONCLUSIONS**

The declining terms of trade experienced by the Vanuatu economy in the recent past, a trend which is projected to continue, means that the foreign exchange earned from each tonne of copra exported will purchase a decreasing value of manufactured imports.

Realising this, the Government has sought to :

- (a) increase copra production through a programme of producing and distributing high-yielding coconut seedlings to both smallholders and plantation owners, in order at least to maintain real gross copra earnings;
- (b) reduce the internal marketing costs of copra - and thus to increase the net returns to the producers - through a programme of infrastructural development (the construction of rural roads, inter-island wharves and jetties, and regional commercial centres where copra can be well stored prior to shipment);
- (c) improve the standard of copra processing through the provision of subsidised materials for constructing hot-air driers, and through the payment of a premium for good quality copra; and
- (d) diversify agricultural export production by promoting cocoa, coffee and cattle projects in order to avoid economic fortunes being reliant on a single commodity.

In spite of the efforts of policy makers and planners in Vanuatu to diversify the sources of foreign exchange earnings, there can be little doubt that copra's position as the main source is unlikely to be seriously challenged for many years to come. For this reason, the task of economic planning will continue to be complicated by the impact that the marked volatility in the world price of the commodity will have on Vanuatu's economic growth.

## **NOTES**

- 1) This paper is a shortened and slightly up-dated version of a paper produced early last year (Fowler, 1986), the purpose of which was to collect together the large amount of data on the copra industry which was contained in a variety of documents and statistical publications.
- 2) Although the relationship has become weaker in recent years, particularly since the introduction of the price stabilisation scheme in 1982.
- 3) The first 9 months only.
- 4) The barter terms of trade are the ratio of export prices to import prices.

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