



**GOVERNMENT OF TUVALU**

**Ministry of Finance &  
Economic Planning**



**Tuvalu**  
**National Accounts**  
**1996 to 1998**

**Report**

**September 1999**

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# Tuvalu National Accounts

## 1996 to 1998

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## ***Preface***

This report contains the results of a project carried out in August and September 1999 to estimate the National Accounts for Tuvalu for the years 1996, 1997 and 1998. It provides measure of GDP and gross fixed capital formation in current and constant prices.

The results are given in Tables 1 to 5. The presentation follows that used in the previous National Accounts publications. There is a technical report<sup>1</sup> containing more detailed analysis and showing how the estimates were derived.

It has to be accepted that these National Accounts, like those of any country, represent only an attempt at quantifying the conceptually defined measures of economic activity. Hence the values provided in this report have varying levels of reliability.

Directly recorded information in the form of accounting records is often less than desired, resulting in a need to resort to alternative means of estimation. The accounts that are available are not always ideally suited to analysis for National Accounts. For Tuvalu the information on the Government activity is reasonably reliable. That for most major businesses in the cash economy is also reliable, although some accounts for the last year (1998) were not available.

For smaller cash businesses it has been necessary to estimate their level of activity based on past performance, contributions to the Tuvalu National Provident Fund and local knowledge. These estimates will be subject to revision as more information comes available from administrative records.

Much of the information on the subsistence economy is based on movements in the population. The population estimates themselves are subject to some personal judgement because of missing migration data. This, and the need for assumptions on per head consumption, mean that the value added estimated for the subsistence economy must be regarded as indicative only.

My thanks to the many people in Tuvalu who have provided information used in preparing these estimates. The staff of the statistics office were extremely helpful in finding information and arranging contacts with accountants and others in government and the private sector. My particular thanks to John Howe. He provided information on sources of basic information and indispensable local knowledge.

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27 September 1999

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<sup>1</sup> Tuvalu National Accounts 1996-1998, Technical Report, Central Statistics Division, Ministry of Finance and Economic Planning, Tuvalu. September 1999.

## ***Introduction***

### **What are National Accounts**

Market activity in Tuvalu is carried out by private business, by government and government corporation. No less important is the non-market production of households. The National Accounts bring together a measure of all these activities.

Just as a commercial account records the value of sale and the cost of producing them so the national accounts record the output and use of the goods and services produced in a country.

The key figure in the National Accounts is the Gross Domestic Product. This records the total production in the country. It is the measure of economic well being and one can trace the increase in this over time using this measure.

Besides providing a total measure the National Accounts record which industries and sectors contribute to economic activity. Changes in the importance of the government non-market activity and the subsistence economy are traced by the national accounts. The relative importance of the government owned corporations compared with the private sector are identified. By doing this the National Account monitors the health of the economy. It also provides the starting point for a quantitative examination of possible economic policies.

Tuvalu National Accounts follow international standards set by the United Nations Statistical Office. By following the same concepts and procedure the Tuvalu National Accounts are comparable with those of other countries. This allows the Tuvalu Government, aid agencies and other countries with an interest in Tuvalu's well being, to compare its situation with that of other Pacific Island Nations.

### **The Construction of National Accounts**

To compile national accounts requires the collection of information from all the "economic players" in the country. This comes from the accounts of every business, every government department and corporation and from the accounts of the Island Councils. For the non-market activity, such as fishing, coconuts production and house building, equivalent information has to be estimated using measures of consumption taken from Household Survey and other sources. Information on imports, foreign exchange dealings, wages and employment in the formal sector, and population change also contribute to the estimates.

The initial National Accounts estimates express measures in the prices ruling at the time the activity takes place. Comparisons over time therefore reflect inflation as well changes in "real" economic activity. The inflation impact can be removed by expressing the National Accounts in prices ruling at a particular year, we use 1988 prices for Tuvalu. Relevant price indexes from the CPI, change in wage rates and numbers employed are used to make the constant price estimates.

In the tables that follow the contribution of each industry and sector to economic activity in Tuvalu is given for the three years 1996, 1997 and 1998. These are given in current and constant (1988) prices.

There is a section at the end of this report that gives a brief description of how the estimates are compiled for each industry group. The Technical Report provides more detail on these methods.

**Table 1 Gross Domestic Product and some allied aggregates**

Aggregate	1996	1997	1998
	At Current Prices		
GDP at factor cost (\$A000)	16,445.7	17,442.4	20,769.4
Indirect taxes (\$A000)	1,658.7	1,754.9	2,537.6
Subsidies (\$A000)	1,106.5	527.7	1,262.4
GDP at market prices (\$A000)	16,998.0	18,669.7	22,044.5
Household non-market GDP at factor cost (\$A000)	4,530.2	4,911.4	5,267.6
Percentage of household non-market GDP at factor cost (\$A000)	27.5	28.2	25.4
Population estimate *	9,231	9,809	10,047
Per capita GDP at factor cost (\$A)	1,781.6	1,778.3	2,067.3
Per capita GDP at market prices (\$A)	1,841.4	1,903.4	2,194.2
Gross fixed capital formation	11,353.6	10,150.3	5,175.6
	At 1988 Prices		
GDP at factor cost	13,168.6	13,624.5	15,660.1
Annual economic growth index (1988 = 100) and GDP = 9087.3)	144.9	149.9	172.3
Per capita GDP at factor cost (\$A)	1,426.5	1,389.0	1,558.7
Gross fixed capital formation (\$A000)	10,123.2	8,930.8	4,248.7

**Table 2 Gross Domestic Product at factor cost, by kind of economic activity**

Economic Activity	\$A(000)		
	1996	1997	1998
	<u>At Current Prices</u>		
1. Agriculture, Forestry and Fishing	3,087.6	3,352.4	3,484.2
2. Mining and Quarrying	447.4	466.8	638.3
3. Manufacturing	533.9	710.6	881.0
4. Electricity, Gas and Water	577.9	532.0	574.4
5. Construction	2,076.4	2,206.7	2,951.7
6. Trade, Hotels and Restaurants	2,857.5	2,625.1	2,971.8
7. Transport and Communications	1,274.1	1,620.4	1,379.9
8. Finance and Real Estate	1,730.7	1,936.3	2,376.0
9. General Government	3,248.2	3,315.1	4,805.7
10. Community and Personal Services	1,167.2	1,188.6	1,207.4
11. <i>less</i> : Imputed bank service charges	555.2	511.6	501.0
<b>All Economic Activities</b>	<b>16,445.7</b>	<b>17,442.4</b>	<b>20,769.4</b>
	<u>At 1988 Prices</u>		
1. Agriculture, Forestry and Fishing	1,974.3	2,088.4	2,103.8
2. Mining and Quarrying	398.9	410.7	524.0
3. Manufacturing	281.3	364.5	414.3
4. Electricity, Gas and Water	512.9	450.6	486.6
5. Construction	1,851.4	1,941.6	2,423.1
6. Trade, Hotels and Restaurants	2,227.9	2,014.4	2,284.7
7. Transport and Communications	993.3	1,251.5	1,039.1
8. Finance and Real Estate	1,443.0	1,588.3	1,877.0
9. General Government	3,002.6	2,988.3	3,962.9
10. Community and Personal Services	921.4	924.2	931.3
11. <i>less</i> : Imputed bank service charges	438.4	397.9	386.5
<b>All Economic Activities</b>	<b>13,168.6</b>	<b>13,624.5</b>	<b>15,660.1</b>

**Table 3 Gross Domestic Product at factor cost, at current prices, by kind of economic activity, principle component and type of production.**

Economic Activity	(A\$'000)		
	1996	1997	1998
	<b>At current prices</b>		
1. Agriculture, Forestry and Fishing	3,087.6	3,352.4	3,484.2
Market Production	162.0	201.3	205.6
1.1 Crop Husbandry	40.3	43.7	45.0
1.2 Animal Husbandry	94.6	94.6	94.6
1.3 Forestry	-	-	-
1.4 Fishing	27.1	63.0	66.0
Non-market Production	2,925.6	3,151.2	3,278.6
1.1 Crop Husbandry	882.7	942.6	998.5
1.2 Animal Husbandry	639.0	639.0	639.0
1.3 Forestry	210.7	213.7	215.0
1.4 Fishing	1,193.2	1,355.8	1,426.2
2. Mining and Quarrying	447.4	466.8	638.3
Market Production	433.5	451.0	617.7
2.1 Public Works	431.2	447.1	615.9
2.2 Private Activities	2.2	3.9	1.8
Non-market Production	13.9	15.8	20.5
2.1 Public Works	13.9	15.8	20.5
3. Manufacturing	533.9	710.6	881.0
Market Production	352.8	469.6	584.4
3.1 Manufacturing Concerns	36.6	65.2	95.9
3.2 Cottage Industries	105.8	107.9	110.2
3.3 Local Cigarettes	210.5	296.5	378.3
Non-market Production	181.1	241.0	296.6
3.2 Cottage Industries	40.8	43.3	44.4
3.3 Local Cigarettes	140.3	197.6	252.2
4. Electricity, Gas and Water	577.9	532.0	574.4
Market Production	577.9	532.0	574.4
5. Construction	2,076.4	2,206.7	2,951.7
Market Production	1,832.2	1,930.0	2,591.4
5.1 Public Construction	1,790.6	1,856.3	2,557.3
5.3 Private Enterprises	41.6	73.7	34.1
Non-market Production	244.3	276.7	360.3
5.2 Own Account Construction	244.3	276.7	360.3
6. Trade, Hotels and Restaurants	2,857.5	2,625.1	2,971.8
Market Production	2,857.5	2,625.1	2,971.8
7. Transport and Communications	1,274.1	1,620.4	1,379.9
Market Production	1,274.1	1,620.4	1,379.9

**Table 3 (continued)**  
**Gross Domestic Product at factor cost, at current prices, by kind of economic activity, principle component and type of production.**

<b>Economic Activity</b>	(A\$'000)		
	<b>1996</b>	<b>1997</b>	<b>1998</b>
8. Finance and Real Estate	1,730.7	1,936.3	2,376.0
Market Production	994.6	1,143.5	1,501.3
8.1 Finance	983.4	1,127.3	1,483.5
8.2 Real Estate	11.2	16.2	17.9
Non-market Production	736.1	792.8	874.7
8.2 Real Estate	736.1	792.8	874.7
9. General Government	3,248.2	3,315.1	4,805.7
Non-market Production	3,248.2	3,315.1	4,805.7
10. Community and Personal Services	1,167.2	1,188.6	1,207.4
Market Production	738.1	754.6	770.6
Non-market Production	429.2	434.0	436.8
11. less: Imputed bank service charges	555.2	511.6	501.0
<b>All Economic Activities</b>	<b>16,445.7</b>	<b>17,442.4</b>	<b>20,769.4</b>
<b>Market Production</b>	<b>8,667.4</b>	<b>9,215.9</b>	<b>10,696.1</b>
<b>Non-market Production</b>	<b>7,778.4</b>	<b>8,226.5</b>	<b>10,073.3</b>
- Household	4,530.2	4,911.4	5,267.6
- General Government	3,248.2	3,315.1	4,805.7

**Table 4 Gross Domestic Product at factor cost, at constant prices, by kind of economic activity, principle component and type of production.**

Economic Activity	(A\$'000)		
	1996	1997	1998
	<u>At 1988 prices</u>		
1. Agriculture, Forestry and Fishing	1,974.3	2,088.4	2,103.8
Market Production	114.4	135.2	135.7
1.1 Crop Husbandry	16.1	17.2	17.7
1.2 Animal Husbandry	82.0	82.0	82.0
1.3 Forestry	-	-	-
1.4 Fishing	16.3	36.0	36.0
Non-market Production	1,860.0	1,953.2	1,968.1
1.1 Crop Husbandry	523.5	559.1	548.4
1.2 Animal Husbandry	430.3	430.3	430.3
1.3 Forestry	117.4	119.6	120.5
1.4 Fishing	788.8	844.2	868.9
2. Mining and Quarrying	398.9	410.7	524.0
Market Production	386.5	396.8	507.1
2.1 Public Works	384.5	393.4	505.6
2.2 Private Activities	2.0	3.5	1.5
Non-market Production	12.4	13.9	16.8
2.1 Public Works	12.4	13.9	16.8
3. Manufacturing	281.3	364.5	414.3
Market Production	191.1	247.9	286.1
3.1 Manufacturing Concerns	23.7	42.3	62.1
3.2 Cottage Industries	76.3	77.2	80.7
3.3 Local Cigarettes	91.2	128.4	143.4
Non-market Production	90.2	116.6	128.1
3.2 Cottage Industries	29.4	31.0	32.5
3.3 Local Cigarettes	60.8	85.6	95.6
4. Electricity, Gas and Water	512.9	450.6	486.6
Market Production	512.9	450.6	486.6
5. Construction	1,851.4	1,941.6	2,423.1
Market Production	1,633.6	1,698.1	2,127.3
5.1 Public Construction	1,596.5	1,633.3	2,099.3
5.3 Private Enterprises	37.1	64.9	28.0
Non-market Production	217.8	243.4	295.8
5.2 Own Account Construction	217.8	243.4	295.8
6. Trade, Hotels and Restaurants	2,227.9	2,014.4	2,284.7
Market Production	2,227.9	2,014.4	2,284.7
7. Transport and Communications	993.3	1,251.5	1,039.1
Market Production	993.3	1,251.5	1,039.1

**Table 4 (continued)**  
**Gross Domestic Product at factor cost, at constant prices, by kind of economic activity, principle component and type of production**

		(A\$'000)		
<b>Economic Activity</b>		<b>1996</b>	<b>1997</b>	<b>1998</b>
8.	Finance and Real Estate	1,443.0	1,588.3	1,877.0
	Market Production	786.4	890.9	1,159.1
	8.1 Finance	776.4	876.7	1,144.4
	8.2 Real Estate	10.0	14.2	14.7
	Non-market Production	656.5	697.4	717.9
	8.2 Real Estate	656.5	697.4	717.9
9.	General Government	3,002.6	2,988.3	3,962.9
	Non-market Production	3,002.6	2,988.3	3,962.9
10.	Community and Personal Services	921.4	924.2	931.3
	Market Production	582.6	586.7	594.4
	Non-market Production	338.8	337.5	336.9
11.	less: Imputed bank service charges	438.4	397.9	386.5
	<b>All Economic Activities</b>	<b>13,168.6</b>	<b>13,624.5</b>	<b>15,660.1</b>

**Table 5 Capital formation by type of asset by sector**

Type of Asset	(A\$'000)		
	1996	1997	1998
	<u>At Current Prices</u>		
Public Sector	9,018.3	7,634.4	2,882.5
Fixed Capital	9,018.3	7,634.4	2,882.5
- Capital Construction	5,776.8	6,431.0	1,295.3
- Capital Purchases	3,241.5	1,203.3	1,587.2
Change in Stocks	Not available	Not available	Not available
Private Sector	2,335.3	2,515.9	2,293.1
Fixed Capital	2,335.3	2,515.9	2,293.1
- Construction	Not available	Not available	Not available
- Equipment	Not available	Not available	Not available
Changes in stocks	Not available	Not available	Not available
Gross Capital Formation	11,353.6	10,150.3	5,175.6
	<u>At 1988 Prices</u>		
Public Sector	8,041.0	6,717.1	2,366.2
Fixed Capital	8,041.0	6,717.1	2,366.2
- Capital Construction	5,150.8	5,658.4	1,063.3
- Capital Purchases	2,890.2	1,058.8	1,302.9
Changes in stocks	Not available	Not available	Not available
Private Sector	2,082.2	2,213.7	1,882.4
Fixed Capital	2,082.2	2,213.7	1,882.4
- Construction	Not available	Not available	Not available
- Equipment	Not available	Not available	Not available
Changes in stocks	Not available	Not available	Not available
Gross Capital Formation	10,123.2	8,930.8	4,248.7

## **Sources and Methods.**

A full description of the methods is given in a separate technical report.<sup>2</sup> That technical report, together with the Microsoft EXCEL workbooks held in the Central Statistics Division, provides a detailed explanation of source data and estimation methods.

The following paragraphs provide a summary of the sources and methods.

### **Concepts**

The National Accounts estimates in this report have their conceptual basis in the United Nations 1968 System of National Accounts<sup>3</sup>. This provides the definitions and the guide to the industry and institutional sector analysis.

Some differences occur so as to allow for the nature of the Tuvalu economy and the way the economy is governed. In particular there is an emphasis in these accounts on the subsistence economy which still accounts for some 50 percent of economic activity.

The other significant difference is in the choice of industry groups used to show the industry contribution to Value Added. These are designed to identify the major groups in the Tuvalu economy.

The estimates, methods and presentation used in these National Accounts follow the methods used in previous estimates. Differences do occur between the estimates for 1996 in this report and those previously published for 1996. These differences occur in part because more information has come available since the first estimates were prepared. In particular the financial accounts of some major enterprises. In some cases a review of the current situation has led to changes in assumptions. Some apparent errors in the previous estimates have been corrected.

### **General Approach**

The national accounts are, conceptually, the sum of the accounts of all the businesses and government agencies plus a record of the subsistence activity. Hence the estimation of the National Accounts aggregates presented in this report involves the following process:

The collection of all available accounts of business:

These come either directly from the enterprises or via the administrative taxation records held by government.

The analysis of each account into a form suitable and relevant to the National Accounts.

The imputation of values for those enterprises known to have been active but for which accounts are not available

The allocation of each enterprises account to one of the industry groups recognised in the National Accounts.

The summarising of the government accounts.

The analysis of these into National Accounting format and allocation of each section of government to the relevant industry group.

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<sup>2</sup> Tuvalu National Accounts 1996 to 1998, Technical Report, Central Statistics Division, Ministry of Finance and Economic Planning, Government of Tuvalu, September 1999.

<sup>3</sup> A System of National Accounts, Studies in Methods, Series F No 2 Rev 3, United Nations, New York, 1968.

The estimation of subsistence activity for the main products (Fish, coconuts, pigs and housing being the main ones)

These estimates use measures of the population, the estimated consumption or production and an estimate of the unit price.

The remainder of this section first describes the general procedures used too obtain population estimates and financial accounts. This is followed by a summary of the estimation procedure for each industry group.

Significant difference between the estimates in this report and those made previously are described in the Technical Report.

### **Population and Households**

The estimates of the value added by several subsistence activities use a count of households or of the de facto population. The previous National Accounts used predictions of the population based on the 1991 Population Census and expected rates of migration and natural increase.

The estimation of the National Accounts presented in this report use a population estimate based on the 1991 census adjusted quarter by quarter for migration, births and deaths. Some missing migration data for 1992 and 1993 has been estimated so as to complete the series.

### **Use of Accounts, Taxation and other Administrative Records**

For the cash economy every effort has been made to obtain the financial accounts of each enterprise.

All Central Government and Island Council accounts have been obtained for all years. For large enterprises, such as the government corporations, direct approach has provided full accounts for the 1996 and 1997 years. Accounts for 1998 have also been obtained for most large enterprises although in some cases these have not been audited.

For smaller enterprises some accounting information has been obtained from accounts submitted for tax purposes. This is not comprehensive, particularly for 1997 and 1998. As a last resort value added for smaller enterprises has been estimated using historic information supplemented by information on the employer contributions to the Tuvalu National Provident Fund and on local knowledge.

Hence it is likely that 1998 National Accounts will be revised in a years time whilst it is possible that smaller revisions will occur for earlier years.

### **Deflation**

The current price values are converted to 1988 prices to give the constant price National Account aggregates. Deflators for this use the appropriate Consumers Price Index subgroup index series.

The CPI indexes are supplemented by information on wage rates drawn from the Central Government pay scales. For 1998 these pay scales have been adjusted upwards to include the 13 percent taxable housing allowance introduced in that year.

Numbers employed by the central government is used as the constant price mover for the government non-market activity

## **AGRICULTURE**

In Tuvalu the household that produces it normally consumes agricultural output. Hence the product, such as coconuts, bananas, breadfruit, pigs, and locally produced eggs is not generally traded for cash and there is no direct measure of the volume produced.

A money value of the consumption of locally agriculture products has been calculated based on information collected in household studies at the beginning of this decade. For subsequent years these values have been adjusted for changes in the population and price and, to a lesser extent, in change in consumption patterns.

Estimates have been made for the following products:

### Coconuts

Estimates of coconut production are based on the average household coconut consumption. Coconuts fed to pigs are excluded from the value added attributed to coconuts because the "output" from this is counted in the value of pigs.

### Copra

Value of copra purchases by the Tuvalu Copra Trading Co-operative (TCTC) has been taken as total output of copra for those years when the TCTC was trading.

### Pulaka

The method of estimating pulaka production is based on the household consumption patterns. These are adjusted for population and price change

### Sweet Potatoes

Valuation of total production of sweet potatoes is based on the estimated household production per hectare.

### Toddy

Information on toddy production/consumption, contained in the "Livestock Census with Coconut Survey (1990)" provides the base value. This is adjusted for population and price change.

### Bananas and Plantains

The estimates for the earlier years of this decade for the consumption of bananas were adjusted by population. For recent years the per head consumption has been reduced as pressure on land, in Funafuti particularly, appears to have reduced per head production.

### Breadfruit

Breadfruit production, like coconuts, is assumed to move with population changes.

### Other Crops

Other crops, such as pawpaw, taro, sugar cane, pumpkin etc. are also grown throughout the islands of Tuvalu. The contribution of these crops to GDP is taken as a percentage of the total output of coconut, copra, pulaka, sweet potatoes, toddy and breadfruit.

### By Products of Coconuts

There are various by-products that can be obtained from the coconut tree in Tuvalu. These include the use of the trunk as construction materials, leaves as thatching materials for houses, and husks as a source of fuel. An estimate for the contribution of these by-products is derived from the value added of coconuts.

### Pigs

The production of pigs for slaughter is based on the assumption that, on average, each household slaughters 3 pigs per year. Hence the value added moves by the change in population and any change in price.

#### Chicken and Ducks

The value added estimate for poultry follows the movement in population with and adjustment for price. Some downward adjustment has been made to allow for the apparent decline in the number of ducks in recent years.

#### Eggs

The production of eggs is assumed to move with the numbers of chicken.

### **FISHING**

Information on total catch has been obtained from NAFICOT. Total output from this activity is sold through the market.

Subsistence fishing was estimated on the basis of household consumption and has subsequently been moved by changes in population and the "street" price of fish.

An estimate of the value added from other marine products is derived from the value added of both private fishing and the fishing activities of the Government.

Fish curing is an activity carried out on the outer islands due to the lack of storage facilities and the excess supply of fish. But on Funafuti, most of the fish caught is consumed fresh. Therefore estimation of this activity is considered to be around 15% of total fish caught by private fishermen.

### **FORESTRY**

Estimation of forestry products is based on the output of agricultural products. It includes pandanus, flowers and garlands with an allowance for other minor production.

### **MINING AND QUARRYING**

All construction works on buildings, roads, boat ramps, sports grounds, etc. depend on the availability of sand, gravel and stones. There is no direct measure of the quantity extracted. The estimation of this Sector's contribution to Tuvalu's GDP is based on the output of the Construction Industry. This includes the activities of the Public Works Department, household dwelling construction and the private enterprise construction business.

### **MANUFACTURING**

Most of the manufacturing or processing activities in Tuvalu are undertaken on a household basis. However, there are a number of formally registered businesses engaged in the production of goods for the market. Accordingly, the Manufacturing Sector has been split into two sub-groups; Manufacturing Enterprises and Household Industries.

The annual accounts of small businesses have been made available by the Department of Customs and Taxation Control. These have been analysed to estimate the contribution of this sector to Tuvalu's GDP.

Estimates of household business activities are based on the changes in the number of households. There are two main activities considered under this sub-group. One is the

manufacture of handcraft products such as mats, strings, baskets, fans, carvings, fishing gears, shell necklaces, etc., and the other is the manufacture of local cigarettes.

Local cigarettes, “sului”, are made from imported tobacco. Subsequently, the value of output for sului has been estimated from imports of the relevant tobacco. A three-year moving average of tobacco imports is used to smooth the series.

### **ELECTRICITY, GAS AND WATER**

The generation of electricity in Tuvalu is carried out by the Tuvalu Electricity Corporation (TEC) and the Tuvalu Solar Electricity Cooperative Society (TSECS). The annual accounts of these organisations were analysed to extract the relevant information for National Accounts.

### **CONSTRUCTION**

The domestic construction industry is growing steadily in Tuvalu.

In addition there are major construction projects funded by oversea donors and carried out by external contractors. Such construction is included in the measure of capital formation but otherwise makes little contribution to Gross Domestic Product. Such projects directly import materials and skilled labour. Hence the only contribution to value added is in the form of local wages.

Estimation of the Construction Sector’s contribution to Tuvalu’s GDP is based on three sub-divisions of construction works, namely Public Construction, Own-Account Construction and Private Construction. The estimates include new construction and repair and maintenance works.

Public covers new construction activities of the General Government and the repair and maintenance works carried out by the PWD. Construction recorded in the “X Budget” is generally funded directly by overseas donors and, as explained above, contributes little to value added.

Output for Own-Account Construction has been valued on the basis of costs because of the difficulty in making direct valuation of construction projects that are not for sale. Further, the construction projects (houses in particular) are either made from traditional materials or non-traditional materials, which are mainly imported.

The National Bank of Tuvalu provides information on housing loans and these have been used to estimate the output of non-traditional construction activities. Intermediate consumption has been valued at 55% of total output.

Traditional construction activities are assumed to move at a slightly slower rate than the non-traditional housing construction.

Construction works is also undertaken by private enterprises who enter into contracts with individuals, communities, public corporations and the Central Government. Their annual accounts, from the Department of Customs and Tax Control, have been analysed to provide the estimates.

### **TRADE, HOTELS AND RESTAURANTS**

Public enterprises include the Tuvalu Co-operative Society (TCS) with an annual turnover of almost A\$4.0 million, the National Fishing Corporation of Tuvalu (NAFICOT), Tuvalu

Coconut Traders Co-operative (TCTC), Tuvalu Women's Craft Centre (TWCC) and the Tuvalu Philatelic Bureau (TPB). A large number of private enterprises are also involved in trading goods.

The annual accounts of the both public and private trading enterprises have been analysed to provide estimates of this sector's contribution to GDP.

### **TRANSPORT AND COMMUNICATIONS**

The government departmental enterprises included in this sector are Postal, Shipping, Civil Aviation and Ports and Harbours. The Tuvalu Telecom Company is also included, together with private bus and truck hire operations.

The annual accounts have been analysed to provide the measure of value added in this industry

### **FINANCE**

The gross output of the National Bank of Tuvalu (NBT) includes an imputed bank service charge based on the difference between interest paid and received. Hence there is a profit element (operating surplus) included in the measure of value added for the NBT.

The Development Band of Tuvalu and the Tuvalu National Provident Fund are treated as non-profit organisations and hence value added is the sum of salaries and other labour remuneration and depreciation. These two organisations are reported under Government non-market activity.

### **REAL ESTATE**

Estimates of Real Estate represent rentals payable on buildings and these are treated as purchases of services.

Valuation of the real estate estimates is based on imputed rental values of owner-occupied dwellings and community buildings.

### **GENERAL GOVERNMENT NON-MARKET ACTIVITY**

The General Government Sector includes the Central Government and the Island Councils. Also included is the value added attributed to the Development Bank of Tuvalu and the Tuvalu National Provident Fund.

Data on recurrent and "X Budget" revenue and expenditure were taken from the Government and Island Councils' annual accounts. Estimation of general government's contribution to GDP comprised of compensation of employees paid to residents (salaries, wages, housing and other taxable allowances) and consumption of fixed capital where this recorded in the accounts.

A housing allowance of 13 percent of wages was introduced for government employees in 1968. This, and some restructuring of salary scales, has resulted in a marked increase in the current price value added of Government non-market activity.

The remuneration received by visiting consultants, technicians and tradesmen employed and generally paid directly by aid donors is not included.

The value added by the market enterprises of Government and the Government owned corporations are included in the relevant industry group.

## **COMMUNITY AND PERSONAL SERVICES**

This sector consists of market enterprises providing personal and business services, non-profit institutions serving households, and some “near market “ activity such as domestic services to households.

The marketed personal services sub-sector consists of the hiring of video cassettes, VCRs and TV screens, and a laundry service. The agencies in Tuvalu that arrange the employment of Tuvalu seamen with non-resident shipping companies make a significant contribution to this industry group.

An analysis of financial accounts provides the estimates of value added.

Data from the main church groups and the major non-government organisations (NGOs) were obtained from accounting records and derived from contributions to the National Provident Fund. The value added of these voluntary organisations is taken to be the salaries and wages paid.

An estimate for domestic services and unorganised personal services was imputed from the 1991 Census of Population and Housing. This has been estimated for subsequent years based on the change in population and wage rates.

## **SUBSIDIES AND INDIRECT TAXES**

These are required to adjust GDP at factor cost to GDP at market value. The information comes from the account of the central Government and the Island Councils. Included is a value of imputed subsidies equivalent to the losses made by government trading enterprises.

## **CAPITAL FORMATION AND STOCK CHANGE**

Capital formation includes buildings, roads and boat ramps, communication facilities, plant, equipment and vehicles and office machinery including computers.

For the public sector measures have been obtained from the trial balance of the recurrent budget. To this is added the assessed value of capital formation included in each project included in the “X Budget”.

For the private sector information is fragmented. That for the larger enterprises has been taken from financial accounts. To this has been added the own account house building, a proportion of the value of gross output of enterprises in the construction industry and an allowance for the capital formation of smaller enterprises.

Information on stock change is not readily available from the many smaller organisations. It will need a concerted effort to establish the existing level of stocks. Stock change has not been estimated in this report.