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Aid Volatility: Is It a Problem in Tuvalu?

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Abstract

Empirical evidence on aid volatility shows that it adversely impacts recipient countries. For instance, high aid volatility results in uncompleted projects, affects fiscal planning, and decreases the economic and social value of aid. Given these impacts of aid volatility, this study seeks to find out whether aid volatility is a problem in Tuvalu – a small country in the Pacific that is highly dependent on foreign aid. The study, the first of its type in Tuvalu, looks at the volatility of aid relative to other government revenues, and aid volatility by donor, type, and sector in the country. Furthermore, the study tries to identify the causes and costs of aid volatility and how to deal with it. The findings reveal that although aid volatility, at the coefficient of variation (CV) of 0.49, is lower than the volatility of most revenue sources to the government of Tuvalu (fisheries licence, dot TV, TTF), it is much higher than domestic (tax) revenue which has a CV of 0.20 and aid volatility of other aid dependent countries. Moreover, by breaking down aid by donor, type, and sector; it is found that aid from donors funding projects (including capital projects) is more volatile than aid from donors whose aid goes more into budget support and routine programs such as scholarships. Accordingly, volatility is higher in project aid than budget support and program aid. Moreover, it is revealed that multilateral aid is less volatile than bilateral aid. The main causes of aid volatility in the country relate to the lack of effective aid agreements between Tuvalu and its donor partners, late disbursements in committed aid from donors, the focus of aid on individual projects instead of programs, and administrative problems in Tuvalu. The major costs of aid volatility in the country link to uncompleted projects, high transaction costs, 'Dutch disease', and fiscal planning problems. The study therefore argues that aid volatility is a problem in Tuvalu. Thus, to deal with the aid volatility problem, Tuvalu needs to strengthen 'reserve funds' such as the Tuvalu Trust Fund (Account B) to buffer for any disruptions in aid disbursements, provide sound policy and institutional climate in the country, target aid to budget support and programs instead of specific projects, and implement large infrastructural projects in phases.

Keywords

Aid volatility; donor; development, foreign aid; Tuvalu

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Aid volatility: Is It a Problem in Tuvalu?

by

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Abstract

Empirical evidence on aid volatility shows that it adversely impacts recipient countries. For instance, high aid volatility results in uncompleted projects, affects fiscal planning, and decreases the economic and social value of aid. Given these impacts of aid volatility, this study seeks to find out whether aid volatility is a problem in Tuvalu – a small country in the Pacific that is highly dependent on foreign aid. The study, the first of its type in Tuvalu, looks at the volatility of aid relative to other government revenues, and aid volatility by donor, type, and sector in the country. Furthermore, the study tries to identify the causes and costs of aid volatility and how to deal with it. The findings reveal that although aid volatility, at the coefficient of variation (CV) of 0.49, is lower than the volatility of most revenue sources to the government of Tuvalu (fisheries licence, dot TV, TTF), it is much higher than domestic (tax) revenue which has a CV of 0.20 and aid volatility of other aid dependent countries. Moreover, by breaking down aid by donor, type, and sector; it is found that aid from donors funding projects (including capital projects) is more volatile than aid from donors whose aid goes more into budget support and routine programs such as scholarships. Accordingly, volatility is higher in project aid than budget support and program aid. Moreover, it is revealed that multilateral aid is less volatile than bilateral aid. The main causes of aid volatility in the country relate to the lack of effective aid agreements between Tuvalu and its donor partners, late disbursements in committed aid from donors, the focus of aid on individual projects instead of programs, and administrative problems in Tuvalu. The major costs of aid volatility in the country link to uncompleted projects, high transaction costs, ‘Dutch disease’, and fiscal planning problems. The study therefore argues that aid volatility is a problem in Tuvalu. Thus, to deal with the aid volatility problem, Tuvalu needs to strengthen ‘reserve funds’ such as the Tuvalu Trust Fund (Account B) to buffer for any disruptions in aid disbursements, provide sound policy and institutional climate in the country, target aid to budget support and programs instead of specific projects, and implement large infrastructural projects in phases.

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List of Abbreviations/Acronyms

ADB	Asian Development Bank
AusAID	Australian Agency for International Development
Aus\$	Australian dollar
CFC	Community Fishing Centres
CIF	Consolidated Investment Fund (TTF B Account)
CPI	Consumer Price Index
CSD	Central Statistics Division
CV	Coefficient of Variation
DAC	Development Assistance Committee
EEZ	Exclusive Economic Zone
EU	European Union
FFA	Forum Fisheries Agency
FTF	Falekaupule Trust Fund
GDP	Gross Domestic Production
GNI	Gross National Income
GoT	Government of Tuvalu
ILO	International Labour Organisation
MIRAB	Migration, Remittances, Aid, Bureaucracy
NZAID	New Zealand Agency for International Development
ODA	Overseas Development Assistance
OECD	Organisation for Economic Cooperation and Development
PBD	Planning and Budget Department
PIFS	Pacific Islands Forum Secretariat
ROC	Republic of China (Taiwan)
RTM	Round Table Meeting
STD	Standard Deviation
TA	Technical Assistance
TLD	Top Level Domain
TMTI	Tuvalu Maritime Training Institute
TTF	Tuvalu Trust Fund
UN	United Nations

UNDP United Nations Development Fund
US United States
WHO World Health Organisation

1 Introduction

The purpose of this paper is to examine the volatility of aid relative to other government revenues in Tuvalu, particularly tax revenue. The study will also look into the volatility of aid by donor, type, and sector, and seek to identify the causes and costs of aid volatility. These analyses will determine whether aid volatility is at a problematic level in the country. Options for dealing with aid volatility in Tuvalu, drawn from the literature and Tuvalu's experience, will also be examined and considered.

The issue of aid volatility is lightly covered in the aid literature. Studies on foreign aid have often been dominated by the aid and economic growth link. However, aid volatility is an equally important issue because of its various implications for and impacts on recipient countries. For instance, empirical evidence on aid volatility shows that it has harmful effects on economies, governments, and livelihoods of people of recipient and aid-dependent countries (Lensink & Morrissey 2001; Bulir & Hamann 2008; Hudson & Mosley 2008). For example, Lensink and Morrissey (2001) observe that highly volatile aid, rather than achieving the intended effect of encouraging economic growth, actually impedes it as recipient countries limit future investment activities fearing that aid disbursements may be not forthcoming from donors.

Moreover, the problem of aid volatility in impeding the effectiveness of aid is so well recognised by both donors and recipient countries that, in 2005, they adopted the *Paris Declaration on Aid Effectiveness*, which among other requirements, demands less volatile aid.

The thin literature on foreign aid in small island economies in the South Pacific suggests that aid is highly volatile in these economies (Clarke et al. 2008). The problem is compounded because economies of these island economies heavily depend on foreign aid (Knapman 1986; Laplagne et al. 2001; Hughes 2003; Feeny & McGillivray 2003; Sugden & Pavlov 2006; Connell 2010). Therefore, significant fluctuations in aid flows can significantly harm these small economies because of their reliance on foreign aid.

The cross-country study by Clarke et al. (2008) on aid volatility in Pacific island countries observed that aid volatility in Tuvalu is significant at the coefficient of variation (CV) of 0.67 relative to other countries in other regions. Moreover, according to the *Tuvalu 2006 Economic Report*, Tuvalu faces a high degree of volatility in its revenue, which includes foreign aid. However, there has never been any detailed study done specifically on Tuvalu to determine the volatility of aid relative to other incomes and aid volatility by donor, type and sector. Past studies on aid volatility have primarily focussed on cross-country analyses with little attention to specific individual recipients and various components of aid. However, examining the volatility of aid in individual countries and components of aid is important because it helps in identifying the actual causes and consequences of aid volatility from the recipients' perspective, and accordingly, to find appropriate options to deal with it. Therefore, there is still a huge gap in previous research regarding the volatility of aid from the perspective of individual aid recipient countries and various components of aid.

The remainder of the paper is as follows. The next section provides overviews of the economy of and foreign aid in Tuvalu. It discusses the economic challenges facing Tuvalu and the rationale for and significance of foreign aid in the country. Section 3 reviews the relevant literature on the significance, causes and consequences of aid volatility. The literature on dealing with and various methods of measuring aid volatility is also reviewed. Section 4 examines aid volatility relative to government revenues, and aid volatility by donor, type and sector in Tuvalu. Section 5 provides policy implications of causes and costs of aid volatility as well as dealing with aid volatility in Tuvalu. Section 6 concludes by arguing that aid volatility is a problem in Tuvalu and can be dealt with by building and strengthening 'buffer funds', encouraging budget support and program aid rather than project aid, providing sound policy and institutional climate for aid mobilisation in the country, and implementing large capital projects in phases.

2 Overview

2.1 Economic overview

Tuvalu is a tiny atoll nation in the South Pacific. It is made up of nine small scattered islands totalling 26 square kilometres of land. The population is just above 10,000 people. With these characteristics, Tuvalu is the fourth smallest nation in the world.

Tuvalu is also remote and isolated. According to a recent United Nations (UN) report, Tuvalu is arguably the world's most remote country, as measured by access, distance, transport costs, and other factors (UN 2009). The distance to the nearest metropolitan country, Australia, with whom Tuvalu has very close economic ties, is about 4000 kilometres (IMF 2010).

Like most other small Pacific Island countries, Tuvalu has a dual economy consisting mainly of a large traditional sector based largely on fishing and harvesting of few agricultural crops and a smaller modern and cash oriented sector. However, the modern sector is progressing quickly (GOT 2006b).

Tuvalu is also a MIRAB¹ nation. This is because the majority of government revenues and private incomes are received from abroad through distributions from the Tuvalu Trust Fund (TTF)², proceeds from fishing licences granted to foreign fishing vessels to fish in Tuvalu waters, revenues from the dot tv³, remittances, and foreign aid. Yearly inflows from these sources have noted significant fluctuations over the years because of their proneness to external factors (economic and environmental). Among the many challenges to develop the micro economy of Tuvalu, dealing with the volatility of overseas-sourced incomes (including foreign aid) is a key challenge facing the country as each of these incomes cannot be internally controlled. The volatility of these

¹ A model explaining the economies of small island nations which is characterised by and depended on Migration, Remittances, Aid and Bureaucracy (Bertram & Watters 1985; ILO 2010).

² The TTF, initially set up by Australia, New Zealand, United Kingdom, and Tuvalu in 1987, is a capital fund invested overseas, with distributions paid back to the Government of Tuvalu to support its annual budget (GOT 2007a).

³ internet country code top-level domain (TLD) for Tuvalu operated by VeriSign Company in the US

incomes makes macroeconomic planning of investment projects and government services difficult in Tuvalu (GOT 2006b; UN 2009).

2.2 Overview of foreign aid in Tuvalu

As discussed in section 2.1, foreign aid is an important component of the economy of Tuvalu through its contribution to government revenue and investment. Therefore, it is important to also understand the overall situation of foreign aid in Tuvalu before analysing its volatility.

2.2.1 Objectives of foreign aid in Tuvalu

Tuvalu, as a low income country under UN classifications, is entitled to overseas development assistance (ODA) or foreign aid earmarked for this category of countries (OECD 2008). The main purpose of ODA is to stimulate economic development through supporting and strengthening infrastructure, agriculture, education, environmental and political systems, and bringing new ideas and technologies (Perkins et al. 2006).

Objectives of foreign aid in Tuvalu are tied to the promotion of Tuvalu's national development strategy's (*Te Kakeega II: National Strategies for Sustainable Development, 2005–2015*) eight strategic areas: good governance; economic growth and stability; social development; outer island development; employment and private sector development; human resource development; development of supportive infrastructure and utilities; and natural resource management for agriculture, fisheries, tourism, and the environment (GOT 2006a). Tuvalu relies on foreign aid to develop these areas because it does not have enough financial and technical resources to do it on its own.

2.2.2 Tuvalu's development partners

According to the recent *Tuvalu Aid Statistical Report 2009* produced by the Planning and Budget Department (PBD) of Tuvalu, Tuvalu's major development partners (over the period 2001-2008) were the Asian Development Bank (ADB), Australia, European Union (EU), Japan, New Zealand, and the Republic of China (ROC-Taiwan). Table 1

demonstrates aid contributions of Tuvalu’s development partners to Tuvalu from 2001 to 2008.

Table 1 Aid by donor, 2001-2008 (Aus\$’000)

Donor	Aid Disbursements (Aus\$’000) (a)	% of Total Aid
Japan	36,990	30
ROC	30,312	25
AusAID	21,553	17
NZAID	15,033	12
EU	8,493	7
ADB	3,325	3
Others	7,487	6
Total	123,193	

Note: (a) Real value adjusted to 2001 prices using the Tuvalu CPI

Source: *Tuvalu Aid Statistical Report 2009*

Donors in Table 1 have different aid focuses on Tuvalu, except Australia and New Zealand which have some similar interests in the education sector (scholarships). For instance, Japan targets mostly large capital projects in the fisheries sector in Tuvalu. ROC contributes directly to the government national budget (both for recurrent and capital). Australia’s aid to Tuvalu is tied to human resource development and governance, as well as contributing directly to the TTF. New Zealand priority areas in the country are human resource development, outer island development, and economic development. The EU focuses on infrastructural projects (including water and sanitation); with the ADB targeting fiscal management, education, skills development and health care.

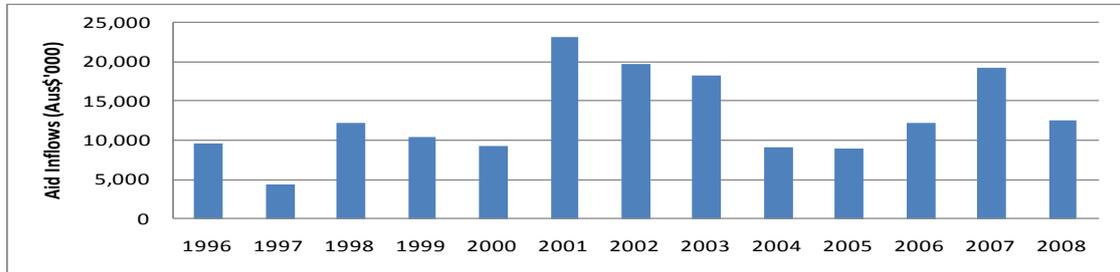
Other important donors to Tuvalu include the WHO, UNDP and FFA (See Appendix 1 for full details of Tuvalu’s development partners and their aid contributions from 2001 to 2008).

2.2.3 Aid flows and significance

Foreign aid flows to Tuvalu have been significant considering the small population of the country. Figure 1 shows annual aid flows, adjusted to 2001 Australian dollars using the Tuvalu CPI, to Tuvalu from 1996 to 2008. The graph shows that annual aid flow

ranges from \$4.3 million in 1997 to around \$20 million in 2001, 2002, 2003, and 2007. On average, the country's aid per capita for that period is fairly high at around \$1,300⁴.

Figure 1 Aid flows, 1996-2008 (Aus\$'000)

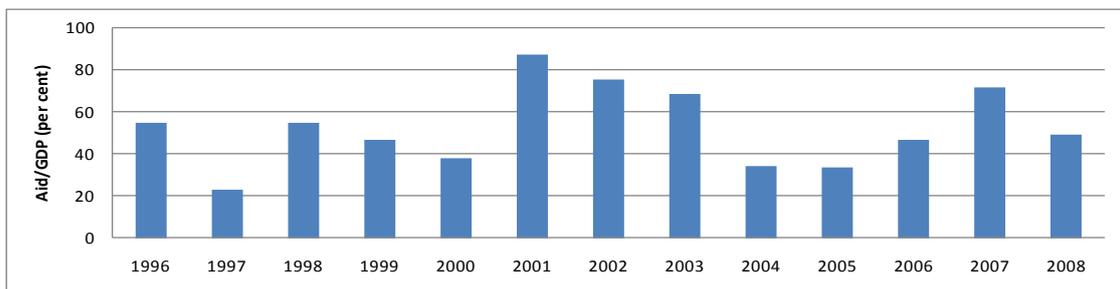


Note: Real value adjusted to 2001 prices using the Tuvalu CPI

Source: Author's calculation based from Tuvalu National Budgets, ADB Statistical Database, and the *Tuvalu Aid Statistical Report 2009*

Another key indicator to show the significance of foreign aid in a country is its (foreign aid) yearly ratio to GDP (Chowdhury & Sugema 2005). Figure 2 illustrates the significant of foreign aid in Tuvalu's economy as shown by its high ratio to GDP. Specifically, Figure 2 shows high ratios ranging from 23 per cent to 88 per cent in 1997 and 2001 respectively. Moreover, the large yearly swings in the ratio of aid to GDP (for instance, 55 per cent in 1996, then 23 per cent in 1997, then 55 per cent in 1998, 88 per cent in 2001, and 34 per cent in 2005) suggests that foreign aid has been quite unstable in Tuvalu since 1996.

Figure 2 Ratio of foreign aid to GDP, 1996-2008 (per cent)



Note: Real value adjusted to 2001 prices using the Tuvalu CPI

Source: Author's calculation based from Tuvalu National Budgets, ADB Statistical Database, and the *Tuvalu Aid Statistical Report 2009*

⁴ All dollar (\$) amounts expressed in this report are in Australian dollars unless otherwise indicated.

2.2.4 Aid allocations

This subsection shows the distribution of aid disbursement from 2001 to 2008 to various aid types, major sectors, and sub-sectors. First, Table 2 illustrates that the distribution of foreign aid is dominated equally by project (including capital) and program (including budget support) which received 47 and 45 per cents respectively of total aid receipts from 2001 to 2008. Aid allocation to technical assistance (TA) although constituting only 8 per cent of total aid disbursement from 2001 to 2008, is still substantial considering that total real aid disbursement to Tuvalu for the period was around \$123 million dollars. This means that close to \$10 million of total aid from 2001 to 2008 went into financing TA.

Table 2 Aid distributions by type, 2001-2008

Aid Type	Aus\$'000(a)	% Total Aid
Project (including Capital)	57,689	47
Program (including Budget Support)	55,270	45
Technical Assistance	10,234	8
Total	123,193	

Note: (a) Real value adjusted to 2001 prices using the Tuvalu CPI

Source: *Tuvalu Aid Statistical Report 2009*

Second, Table 3 portrays that most aid disbursements (almost 71 per cent of total aid disbursement for 2001-2008) were consumed by economic infrastructure projects and programs. These include projects and programs related to communications, transport, energy, finance (direct budget support), and other economic related projects and programs. Social infrastructure projects and programs which include projects and programs related to health, education, water and sanitation, environment, and other social projects consumed around 28 per cent of total aid disbursements to Tuvalu from 2001 to 2008. Production infrastructure projects and programs (i.e. projects related to agriculture, fisheries, and trade) consumed the least amount of aid, 1 per cent of total aid for the period.

Table 3 Aid allocations to major sectors, 2001-2008

Sector	Sub-Sector	Aus\$'000	% of Total Aid
Economic Infrastructure	Communications	94	0.08
	Energy	10,754	8.73
	Finance	48,619	39.47
	Transport	17,526	14.23
	Other Economic	9,966	8.09
Subtotal			70.59
Production Infrastructure	Agriculture	162	0.13
	Fisheries	825	0.67
	Trade	44	0.04
	Other Productions	189	0.15
Subtotal			0.99
Social Infrastructure	Education	16,295	13.23
	Environment	1,623	1.32
	Health	13,665	11.09
	Water & Sanitation	997	0.81
	Other Social	2,434	1.98
Subtotal			28.42
Total		123,193	

Note: Real value adjusted to 2001 prices using the Tuvalu CPI

Source: *Tuvalu Aid Statistical Report 2009*

This overview section shows that foreign aid is an important and significant part of Tuvalu's economy as demonstrated by the MIRAB model and the high ratio of aid to GDP in the country. Moreover, foreign aid has been significant to the country totalling more than \$123 million in real value from 2001 to 2008, thus average annual real aid per capita for this period was more than \$1,300, which is extremely high compared to other similar countries in other regions⁵. Furthermore, foreign aid has contributed a lot to many sectors in Tuvalu, particularly, economic infrastructure (physical infrastructures and budget support) and social infrastructure (health & education). Therefore, it is important to evaluate whether fluctuations in aid disbursements into the country and these sectors are at problematic levels. However, before analysing fluctuations in aid disbursements (aid volatility) to Tuvalu, the next section will

⁵ Maldives in the Indian Ocean and St Vincent in the Caribbean have aid per capita of US\$89 and US40 respectively in 2002 (Jayaraman & Choong 2006)

examine the literature on aid volatility to see how past studies on this issue see its significance, causes, and costs, as well as how to deal with it.

3 Aid volatility

This section reviews the literature on aid volatility. It will examine the significance of aid volatility, the causes and costs of it, and how to deal with it. This will provide the theoretical framework for my analysis on aid volatility in Tuvalu as well as identifying the gaps in the literature that my research will endeavour to fill.

3.1 Significance of aid volatility

‘Volatility’ according to the *Oxford Dictionary of Economics* is defined as ‘liability to fluctuate over time in economic variables’ (Black 2003). Aid volatility refers to a high fluctuation in aid flows compared to the aid volumes concerned (Bulir & Hamann 2001).

Bulir and Hamann (2003) argue that aid is substantially more volatile than domestic revenue. Their argument is consistent with findings of Gemmell and McGillivray (1998), and Hudson and Mosley (2008) which also contend that aid is more volatile than domestic revenue. Moreover, Bulir and Hamann (2003) observe that those countries which are more dependent on aid also experienced higher aid volatility.

The problem is that, as briefly discussed in the Introduction section, high aid volatility has adverse implications for and impacts on the economy, government, and people of an aid recipient country. For instance, Rajan and Subramanian (2008) note that shortfalls in foreign aid funding capital projects in poor countries may stall the implementation process unless there are other funding sources available. Similarly, Hudson and Mosley (2008) observe that aid volatility increases the number of uncompleted projects in recipients. Such situations do not help recipients because they result in job losses and lowers projects’ benefits and rate of return in those countries.

Moreover, Rodrik (1990) suggests that volatile aid would result in unstable expenditure disbursements. He argues that this creates an unpredictable policy environment, which deters both domestic and foreign investment. This situation according to Heller et al. (2006), makes macro-economic planning difficult in recipient countries.

On aid volatility in small island economies, Clarke et al. (2008) observe, after investigating the variations in sector and program aid allocated to 44 small island states in the period 1973–2004, that small island countries have experienced a significant degree of aid instability (i.e. aid in small island economies is much more unstable than aid in countries in other regions) in the past three decades. Moreover, they find that aid is more ineffective if its flows are unstable.

Chowdhury and Vidyattama (2008) also suggest that the instability of aid disbursements and the divergence between donors' commitments and their disbursements result in diminishing returns to aid and lack of aid effectiveness in small island economies. They further argue that aid volatility can cause significant problems for project implementation and the government budget.

The literature therefore is clear and robust that aid volatility is a significant issue because of its implications for and impacts on the economy, government, and people of aid recipient countries, particularly on aid dependent and small island economies.

3.2 Causes of aid volatility

There are two main causes of aid volatility identified in the literature. First, donors may not be prepared to pay what they have committed. Second, poor administration of aid programs delays disbursements.

First, Arellano et al. (2008) observe that aid commitments⁶ are often shaped by the different relative bargaining capabilities of both donors and recipients and the different promises that donors and recipients use against each other. For instance, they argue that donors (especially multilaterals) that still have substantial portfolios outstanding to recipient countries may be swayed for additional commitments by recipients – additional commitments which they are not prepared to pay.

Second, ineffective administration of aid programs also causes aid volatility. For instance, Arellano et al. (2008) contend that 'bad donor planning, unexpected delays in implementing programs, and a slower-than-anticipated speed of disbursement are possible reasons for aid shortfalls'. For example, according to Celasun and Walliser

⁶ which are negotiated agreements between donors and recipients

(2008), between 1990 and 2005, annual aid disbursements in sub-Saharan Africa deviated from aid commitments by 3.4 percent of GDP. They further observe that other regions have disbursements and commitments diverging by 1.7 to 2.4 percent of GDP. These observations were also shared by Easterly (2002).

While the two contentions on causes of aid volatility above are credible, they are unfairly biased towards blaming donors. Therefore, it is also important to find if recipient countries are also contributing to the causes of aid volatility. The analysis in the following section on aid volatility in Tuvalu will examine the contribution of an aid recipient country to the causes of aid volatility.

3.3 Consequences of aid volatility

There are four major consequences of aid volatility in recipient countries in the literature. First, aid volatility raises the costs of public financial management. Second, it worsens the composition of investment thus reduces welfare. Third, it amplifies the fiscal effects of business cycles. Fourth, it causes ‘Dutch disease’.

First, according to Kharas (2008), aid volatility raises the costs of financial management because of weak aid coordination systems in recipient countries. Therefore, aid is uncoordinated and fragmented. This can result in donors supporting one sector this year and then moving towards a different sector next year. He argues that donors are unaware of each others’ operations and often duplicate analytical work. The whole system according to Kharas produces volatility, waste and overlap of activities because of an inability to predict and plan resource flows over the medium term.

Second, Aghion et al. (2005) argue that aid volatility adversely affects investment thus reducing welfare in recipient countries. For instance, they suggest that volatility in domestic liquidity changes the composition of domestic financing away from growth enhancing long-term investment toward short-term investment and consumption. They further argue that this effect is largest when domestic financial markets are less developed (a characteristic of most aid-dependent countries). Furthermore, they contend that sub-optimal decisions are being made in the composition of investment due to risk aversion by investors can contribute to a large portion of deadweight losses

due to aid volatility Moreover, they observe that aid shortfalls force governments to reduce investment, while aid windfalls typically lead to increases in government consumption, which, unlike investment spending, can be adjusted quickly.

Third, volatile aid flows may affect growth through their implications on the design of inter-temporal fiscal policies by recipient governments. For instance, volatile aid may deter recipient countries from formulating ambitious domestic investment and consumption plans. Pessimistic plans adversely affect growth. Additionally, volatile aid may also be harmful to the business climate and thereby slow down private investment (Fatas & Mihov 2005; Tressel & Prati 2006; Schnabel 2007).

Fourth, volatile aid flows which give rise to windfalls of funds may impact on the competitiveness of the receiving economy and cause the exchange rate to appreciate, a phenomenon called ‘Dutch disease’. Tressel and Prati (2006) sees that ‘Dutch disease’ problems mostly arise when windfall gains are temporary, so volatile aid flows are more likely to be damaging through this channel than stable aid flows. They argue that in this case, the competitiveness of the country is often harmed.

The four main consequences of aid volatility discussed above are serious and require addressing otherwise foreign aid would not be effective in and beneficial to recipient countries.

3.4 Dealing with aid volatility

Most recommendations in the literature for dealing with aid volatility refer to donor behaviour, on the assumption that aid shortfalls (or windfalls) are primarily due to the inability or unwillingness of donors to make long-term commitments to recipients (Desai 2010). Thus, Eifert and Gelb (2005; 2008) propose that donors should move away from fragmented, conditionality-based funding and make multi-year pre-commitments, with safeguards, to ensure a longer time horizon. Moreover, donors should promote harmonization and alignment, which contributes to high correlations among their aid flows (Desai & Kharas 2010).

On the other hand, recipient countries can also help themselves deal with aid volatility. Tressel and Prati (2006) suggest that ‘recipients can protect themselves from fickle donors by developing a range of ‘cushioning’ devices such as reserves and/or

stabilization funds. This suggestion is also supported by Eifert and Gelb (2008) who argue that recipients could cushion expenditure against exogenous fluctuations in disbursements by using active reserve management. They argue that a moderate reserve buffer can help to cushion a good deal of exogenous volatility in aid.

Furthermore, Levin and Dollar (2005), and Collier (2002) suggest that recipient countries can reduce aid volatility by improving their institutional and policy environments. They argue that ‘donors react to improvements or deteriorations in recipient countries’ policy climate and...by increasing or decreasing aid’ (p. 23). Similarly, Bulir and Hamann (2003) and Clarke et al. (2008) argue that aid volatility could be reduced if donors and recipients comply with objectives of programs, improve program design, and enhance cooperation and coordination.

These suggestions for dealing with aid volatility are well acknowledged by donors and recipients as evident in their various commitments under the *Paris Declaration on Aid Effectiveness* agenda to reduce aid volatility. For instance, paragraph 49 of the agenda requires donors to ‘provide timely, transparent and comprehensive information on aid flows so as to enable partner authorities to present comprehensive budget reports to their legislatures and citizens’ (OECD/DAC 2005).

3.5 Measuring aid volatility

There are five main methods of measuring aid volatility in the aid literature. First, aid volatility is measured by calculating the ratio of aid volatility relative to volatility of domestic revenue (Bulir & Hamann 2003). Bulir and Haman express the aid and revenue sequences in per cent of GDP first. The variances of these series are then calculated to compute the relative volatility measure. Gabriele et al. (2000) also uses the same method. Second, aid volatility can be measured by calculating the standard deviation as a percentage of the mean value of the series; or the standard deviation around a simple time trend; or the standard deviation around a forecast trend (Osei et al. 2002). Third, aid volatility can be measured by a variance-based measure using a symmetric distribution of the aid series in per cent of gross national income (GNI) (Fielding & Mavrotas 2005). Fourth, aid volatility is determined by computing the coefficient of variation (CV) (Levin & Dollar 2005; Vargas-Hill 2005; Clarke et al. 2008). The CV method requires calculating the standard deviation of aid and divides it

by the mean of the absolute aid data. Fifth, Clarke et al. (2008) use the simple year-on-year variations in aid receipts to determine aid volatility in the Pacific Islands.

The method of CV has been the most popular in past aid volatility studies due to its ability to determine the degree of variation in actual aid disbursements, even if the means are considerably different from one another. Moreover, the year-on-year aid variations method is a useful measure especially for analytical research and in situations where aid data is problematic.

In summary, the literature contends that aid volatility has adverse implications for and impacts on aid recipients. Its causes are mainly tied to donors' behaviour as past studies on the issue argue. Moreover, aid volatility affects fiscal planning, causes 'Dutch disease', and decreases the overall economic and social value of aid in recipients. There are also options to deal with aid volatility suggested by past studies. These include establishing 'cushioning funds' to cater for late disbursements or non-paid aid commitments from donors, and improving institutional and policy environments in recipient countries. However, past studies on aid volatility have been mostly cross-national, with little attention to individual recipients and the volatility of various aid components. Therefore, this study believes that there are important gaps to fill in the literature on aid volatility, particularly identifying the contributions of recipients to the causes of aid volatility. This study sees the two methods of CV and year-on-year variations most applicable in analysing aid volatility in Tuvalu.

4 Aid volatility in Tuvalu

The main purpose of this study is to examine aid volatility in Tuvalu by looking at the fluctuations in its yearly receipts as well as by comparing its (aid) volatility to the volatility of other government revenue sources, and aid volatility in other countries. The volatility of aid by donor, type, and sector will also be examined to identify which donors give unstable aid, which types of aid are volatile, and which sectors receive volatile aid. These examinations will enable the study to identify if aid volatility is significant and problematic in Tuvalu, what are its causes and consequences, and how can Tuvalu deal with it.

4.1 Methodology

Due to time constraint for data collection, data used for examining aid volatility relative to other major government revenues is limited to 1996 to 2008 obtained from Tuvalu National Budget documents, the ADB's Statistical Database System, and the *Tuvalu Aid Statistical Report 2009*. Data used for analysing aid volatility by donor, type, and sector is restricted to 2001 to 2009 aid data, obtained solely from the *Tuvalu Aid Statistical Report 2009*. Clarke et al. (2008) suggest that 'four to five years of unstable aid can potentially have significant impacts on a country's growth and development' (p. 190). Therefore, this study believes that a timeframe of 8 years of aid flows (2001 to 2008) is sufficient for analysing aid volatility by donor, type, and sector in Tuvalu. Data from the OECD database were also used to supplement and cross-check aid data from Tuvalu National Budgets, ADB database, and the *Tuvalu Aid Statistical Report 2009*.

This study uses the simple year-on-year variations method and the coefficient of variation (CV) method to determine and examine the degree of aid volatility in Tuvalu. Yearly aid receipts by donor, type and sector will determine year-on-year fluctuations in aid allocations to the country. The CV will be calculated by computing the standard deviation of the data and divide it by the mean of its absolute value (Black 2003; Frot & Santiso 2008).

The simple year-on-year variations method was used in Clarke et al. (2008) while the CV method is often used to measure volatility (Black 2003) and has been used in many

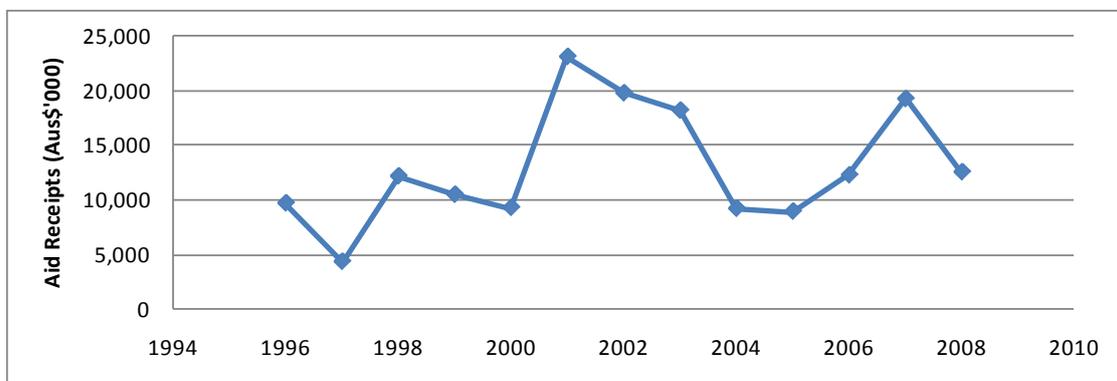
aid volatility studies, including studies by Levin and Dollar (2005), Vargas-Hill (2005), and Clarke et al. (2008).

4.2 Aid volatility analysis

4.2.1 Analytical narrative of year-on-year aid variations in Tuvalu

Figure 3 (which is drawn from Figure 1 in Section 3) describes a simple year-on-year variation of foreign aid receipts to Tuvalu from 1996 to 2008. As argued by Clarke et al. (2008), there is some value in analysing aid volatility using this method, especially for analytical research and if there is a problem with data.

Figure 3 Year-on-year aid receipts, 1996-2008



Note: Real value adjusted to 2001 prices using the Tuvalu CPI

Source: Author's calculation based from Tuvalu National Budgets, ADB Statistical Database, and the *Tuvalu Aid Statistical Report 2009*

Figure 3 illustrates that aid disbursement to Tuvalu has fluctuated a lot since 1996. For instance, from 1996 to 1997, actual aid dropped by around 55 per cent from \$9.6 million to \$4.3 million, then increased from 1996 to 1997 by 182 per cent to \$12.2 million. Period 1998 to 2001 observed more stable aid flows, then from 2001 to 2002, aid receipts increased by 150 per cent from \$9.2 million to \$23 million. From 2003 to 2004, there was another big drop of 50 per cent when aid declined from \$18.2 million to \$9 million. Between 2006 and 2007, there was a big increase of 57 per cent when aid receipts rose to \$19.2 million from \$12.2 million. Then from 2007 to 2008, aid again dropped by 35 per cent to \$12.5 million. Therefore, it is apparent from this

narrative analysis of simple year-on-year variations that aid in Tuvalu has been fluctuated a lot.

4.2.2 Aid volatility relative to major government revenue

There are four main sources of government revenue in Tuvalu: foreign aid, tax revenue, proceeds from fish licences, distributions from the Tuvalu Trust Fund, and payments from the dot TV (GOT 2006a). As mentioned previously in this paper, all these revenues are generated from offshore except tax revenue.

Table 4 shows the significance of foreign aid in Tuvalu through its share in government revenue from 1996 to 2007. For instance, the table shows that aid is a significant and important component of government revenue with its contribution ranging from the lowest of 18 per cent in 2001 to the highest of 76 per cent in 2007. Moreover, the different yearly percentages of aid share in government revenue show the instability of foreign aid contributions to government revenue in the country.

Table 4 Foreign aid contributions to government revenue, 1996-2008

Year	Aid (Aus\$'000)	Gov Rev (Aus\$'000)	Aid/GovRev (%)
1996	9,676	25,834	37
1997	4,312	24,301	18
1998	12,153	22,020	55
1999	10,463	22,267	47
2000	9,264	33,639	28
2001	23,115	64,234	36
2002	19,776	32,398	61
2003	18,182	39,925	46
2004	9,177	26,646	34
2005	8,916	18,290	49
2006	12,247	25,488	48
2007	19,247	25,410	76
2008	12,533	24,799	51
Total	169,061	385,251	

Note: Real value adjusted to 2001 prices using the Tuvalu CPI

Source: Author's calculation based from Tuvalu National Budgets, ADB Statistical Database, and the *Tuvalu Aid Statistical Report 2009*

Table 5 shows the actual degree of aid volatility relative to the volatility of other sources of government revenue. It shows that, at the CV of 0.49, aid volatility is just below the volatility of other major government revenue sources (fisheries licences, TTF, and dot TV) for period 1996-2008, save for tax revenue.

The findings are not surprising because revenues from fisheries licences, TTF, and dot TV – like aid – are also generated from offshore and are highly prone to external factors (economic and environment) which are beyond the control of the government of Tuvalu. For example, revenues from fisheries licences depend on the catches of foreign fishing companies who have been granted licence to fish in Tuvalu waters. Changing temperatures in Tuvalu's exclusive economic zone (EEZ) due to impact of climate change usually affect movement of fish to or from Tuvalu's EEZ. This affects fish catches and accordingly affects revenues from fisheries licences. Revenues from TTF are also affected by fluctuations in global capital markets because the TTF is also invested offshore. For instance, the recent global financial crisis resulted in the TTF not making any distributions or returns since 2009 and will continue on until 2011 given the current outlook. Therefore, just like aid, revenues from these sources are expected to be highly volatile as well.

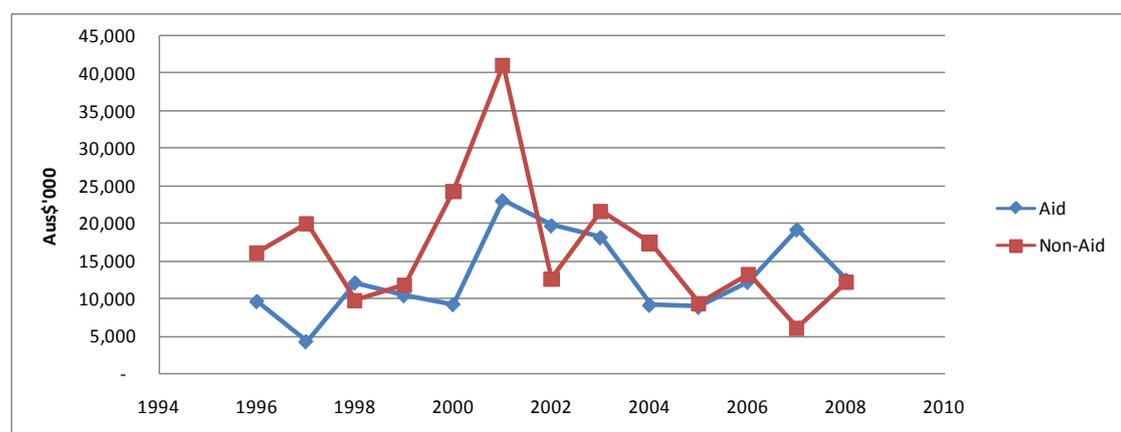
On the other hand, aid volatility is much higher than the volatility of domestic revenue (tax) which has a CV of 0.20. This is because tax revenue can be controlled by the government as they are internally generated. This finding on aid volatility being higher than domestic revenue is consistent with findings of Gemmell and McGillivray (1998), Bulir and Lane (2002; 2003), and Hudson and Mosley (2008). Nevertheless, while the volatility of aid is below the volatility of other revenues (excluding tax), at the CV of 0.49, it is still significant relative to aid-dependent countries in other regions. For instance, Kharas (2006) notes that the volatility of aid in aid-dependent countries is at the CV of 0.389. Moreover, a UN report observes that the volatility of aid from 1994 to 2005 in developing countries stands at the CV of 0.12, Africa at the CV of 0.23, sub-Saharan Africa at the CV of 0.29, America at the CV of 0.44, and Asia at the CV of 0.40 (UN 2006). Therefore, it is apparent that the volatility of aid in Tuvalu at the CV of 0.49 is significant relative to domestic revenue and the volatility of aid in other aid-dependent countries and regions.

Table 5 Aid volatility relative to other major government revenues, 1996-2008

	Revenue Source				
	Aid	Tax	Fish Licence	TTF	dot TV
CV	0.49	0.20	0.74	0.96	1.41

Source: Author's calculation based from Tuvalu National Budgets, ADB Database, and the *Tuvalu Aid Statistical Report 2009*

Figure 4 Correlation between aid and non-aid revenues, 1996-2008 (Aus\$'000)



Note: Real value adjusted to 2001 prices using the Tuvalu CPI

Source: Author's calculation based from Tuvalu National Budgets, ADB Statistical Database, and the *Tuvalu Aid Statistical Report 2009*

Therefore, although aid volatility is below the volatility of other major revenues of government, at the CV of 0.49, it is still significant in Tuvalu relative to domestic (tax) revenue (CV 0.20) and the volatility of aid in other aid-dependent countries and regions. Moreover, this contention is also supported through the year-on-year aid variations method which observed significant swings in yearly disbursements. Thus, aid volatility is significant and an issue in Tuvalu.

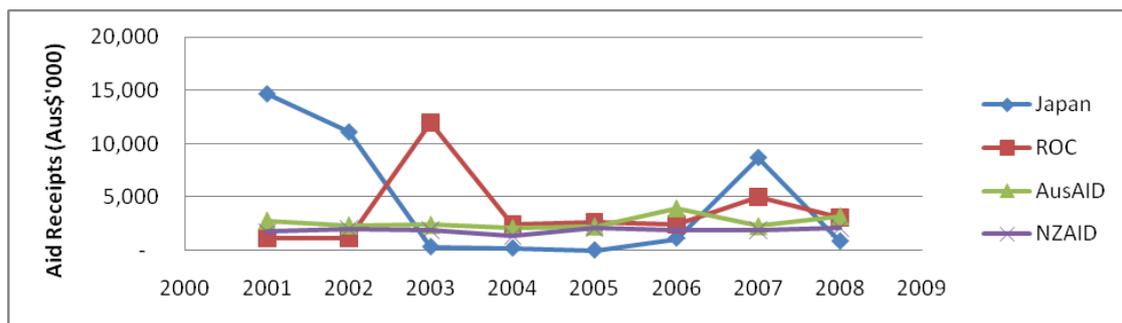
In trying to find if aid volatility is countercyclical to fluctuations in non-aid revenue, it is seen from Figure 4 that this occurs only on two occasions when aid decreased when non-aid revenue increased in 1997 and increased when non-aid revenue decreased in 2007. Otherwise, there seems to be no countercyclical effect of fluctuations in aid on non-aid revenue and vice-versa. Therefore, it is plausible to argue that aid volatility is not

affected by fluctuations in non-aid revenue in Tuvalu. This observation is consistent with findings of Pallage and Robe (2003), Gemmel and McGivillray (1998), and Bulir and Hamman (2003) that aid is not countercyclical but follows recipients' business cycles.

4.2.2 Aid volatility by donor

Figure 4 shows Tuvalu major bilateral donors' year-on-year aid variations in the country from 2001 to 2008. It is observed that New Zealand and Australia have more stable aid disbursements to Tuvalu than Japan and ROC. For instance, from 2002 to 2003, Japan's aid allocation to Tuvalu dropped by 97 per cent from \$11 million to \$0.3 million while ROC increased its aid allocation by almost 900 per cent from \$1.2 million to \$12 million for the same period. Australia and New Zealand on the other hand observed more stable aid allocations for the same period. From 2003 to 2004, aid allocation from ROC dropped by 79 per cent to \$2.5 million while there were stable aid inflows from Australia, Japan and New Zealand. Period 2004 to 2006 observed more stable aid inflows from the four bilateral donors. From 2005 to 2006, Japan increased its aid by almost 4000 per cent from \$.03 million to \$1.4 million. It was again increased by 660 per cent to \$8.6 million in 2007 before dropping by 90 per cent in 2008. The other donors on the other hand observed moderate fluctuations in their aid allocations. Further discussions of bilateral donors' aid volatility are under Table 6.

Figure 5 Bilateral donors' year-on-year variations in Tuvalu, 2001-2008 (Aus\$'000)



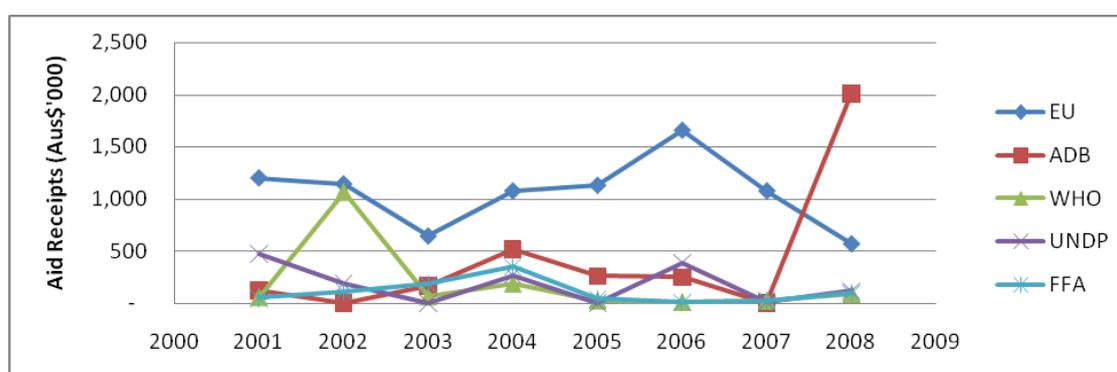
Note: Real value adjusted to 2001 prices using the Tuvalu CPI

Source: Author's calculations based from the *Tuvalu Aid Statistical Report 2009*

Figure 5 shows Tuvalu's major multilateral donors' year-on-year aid variations from 2001 to 2008. Generally, it shows that all major multilateral donors to Tuvalu pose

yearly fluctuations in their aid allocations to Tuvalu. For instance, ADB although did have more stable aid disbursements to Tuvalu from 2001 to 2005, suddenly increased its aid allocation by more 200 per cent from 2003 to 2004. It then decreased its aid allocation by 50 per cent in 2005. In 2007, there was no aid allocation recorded from the Bank, and then in 2008, there was a large aid disbursement of \$2 million received from the Bank. The same also applies to other multilateral donors such as the increase of 1550 per cent (\$0.06 million to \$1 million) in aid disbursement from the WHO from 2001 to 2002 which then followed by a decrease of 94 per cent (\$1 million to \$0.06 million) as can be seen on Figure 5. More discussions of multilateral donors' aid volatility are in the discussions for Table 6 below.

Figure 6 Multilateral donors' year-on-year variations in Tuvalu, 2001-2008 (Aus\$'000)



Notes: (a) Real value adjusted to 2001 prices using the Tuvalu CPI

(b) the three loans from the ADB to Tuvalu totalling US\$7.82 million have not been accounted for in this table as they were not in the *Tuvalu Aid Statistical Report 2009*

Source: Author's calculations based from the *Tuvalu Aid Statistical Report 2009*

Table 6 shows that aid volatility by donors vary considerably. For instance, the CVs for aid flows for period 2001 to 2008 from Japan, ROC, ADB, WHO, UNDP and FFA, at above 0.90 are fairly high relative to aid flows from Australia, New Zealand, and the EU which have CVs under 0.50.

Table 6 Coefficient of variations by donor, 2001-2008

Donor	Mean (Aus\$'000)	STD	CV
NZAID	1,879	386	0.2054
AusAID	2,694	754	0.2798
EU	1,062	372	0.3507
ROC	3,789	3,564	0.9406
UNDP	183	186	1.0161
FFA	108	113	1.0450
Japan	4,624	5,914	1.2789
WHO	195	357	1.8343
ADB	416	834	2.0060
Multilateral	2,265	734	0.3239
Bilateral	13,136	5,607	0.4268

Notes: (a) Real value adjusted to 2001 prices using the Tuvalu CPI

(b) the three loans from the ADB to Tuvalu totalling US\$7.82 million have not been accounted for in this table as they were not in the *Tuvalu Aid Statistical Report 2009*

Source: Author's calculations based from the *Tuvalu Aid Statistical Report 2009*

There are a number of reasons why aid flows from Tuvalu's major development partners vary significantly between years. In the case of Japan, as discussed in Section 2, most of its aid to Tuvalu is for large infrastructure projects with costs ranging from just a few hundred thousand dollars to tens of millions of dollars (see Appendix 1). For example, in 2001, Japan provided Tuvalu with an inter-island vessel that cost more than \$14 million. In 2002, Japan also provided funding of more than \$11 million for the new hospital on Funafuti. Moreover, another major project (\$7 million), the Funafuti Power Station implemented and completed in 2007 was also funded by Japan. However, in between these years, Japan also funded smaller projects like the Community Fishing Centres (CFC) Upgrading Project in 2003 which had a cost of \$160,000 and the Fuel Grant Project of more than \$1 million in 2006, 2007, and 2008 (PBD 2009).

The significant CV for aid flows from ROC is attributed mainly to the significant increase in aid from ROC in 2003 when it provided funding of more than \$9 million for the construction of the new Government building. Otherwise, yearly aid flows from

ROC have been fairly stable from 2001 to 2008 as they have been basically direct financial support to the government's national budget.

Aid flows from Australia, New Zealand and EU have been fairly stable since 2001 scoring CVs of 0.2798, 0.2054, and 0.3507 respectively, compared to other donors such as Japan, WHO and ADB which have CVs of 1.2789, 1.8343, and 2.0060 respectively. These donors (Australia, New Zealand and EU) have bilateral partnership agreements with Tuvalu specifying their commitments over the medium term. For instance, in August 2009, the then Prime Minister of Australia, Kevin Rudd and Tuvalu's Prime Minister, signed the '*Partnership for Development between the Government of Australia and the Government of Tuvalu*' outlining Australia's commitments to assist Tuvalu achieve the Millennium Development Goals (MDGs) (AusAID 2010). This is a continuation from the previous bilateral agreement between the two countries. Moreover, current New Zealand assistance to Tuvalu is guided by the '*New Zealand-Tuvalu Development Programme Framework 2002-2007*' (NZAID 2010). Assistance from EU is guided by the '*Tuvalu – European Community EDF 10 Country Strategy Paper and National Indicative Programme 2008-2013*' (EC 2010). Furthermore, areas of assistance from these three donors are mostly routine in nature. For instance, Australia and New Zealand have been providing yearly scholarship assistance and training programs to Tuvalu. The EU provides funding assistance for water and sanitation (including waste management) programs which are considered recurrent in the national budget. Moreover, unspent funds in yearly aid allocations by Australia and New Zealand are usually paid to the TTF at the end of their financial years.

On the other hand, while ADB's aid to Tuvalu is also guided by '*Tuvalu-ADB Country Partnership Strategy 2008–2012*', there is still a significant degree of aid volatility from ADB as shown by the coefficient of variation of 2.0060 relative to other donors. This is because, first, a huge number of ADB's assistance goes into TA from 2001 to 2005 which had been relatively stable. Then, from 2007 and 2008, aid disbursements from ADB increased dramatically by almost 300 per cent when Tuvalu received a one-off grant of \$2 million from the Bank to assist paying off government outstanding debts with public corporations (GOT 2008). On the other hand, the three loans from

the ADB to Tuvalu totalling US\$7.82 million have not been accounted for in the actuals in Table 6, otherwise they would have contributed in one way or the other to the volatility of aid from ADB. Therefore, the volatility of aid from ADB is significant at the CV of 2.0060 because of the big increase in disbursements from 2007 to 2008 when it provided a one-off grant to the country. Otherwise, ADB's aid allocation to Tuvalu would have been fairly stable without this one-off financial payment in 2008 – but noting as well that the three loans from the Bank have not been factored in the analysis.

Aid disbursements from WHO, UNDP and FFA had also been highly volatile from 2001 to 2009 as reflected in their high CVs in Table 6.

Therefore, the analysis of aid volatility by donor suggests that aid is more volatile in project aid than program and budget support aid. Accordingly, aid from donors who support more of project aid is more volatile than donors focussing on program and budget support aid. Moreover, the analysis shows that aid from multilateral organisations have been less volatile (CV 0.3239) than aid from bilateral donors (CV 0.4268). This finding is consistent with McGillivray (2006) findings which show that multilateral aid has been much more stable than bilateral donors.

4.2.3 Aid volatility by aid type

Table 7 shows that foreign aid is more volatile in project aid (including capital) compare to budget support aid (including program aid) and TA for the period 2001 to 2008. The main reason for the high volatility of capital aid is because capital projects are one-off in nature compared to recurrent and routine programs under budget support and program aid. The low volatility of TA aid is surprising, however, after looking at the breakdown of aid flows under TA from 2001 to 2008, it is observed that most TAs have medium to long-term engagements in Tuvalu (PBD 2009). For example, the TTFAC Advisor, Budget Advisor, and In-country Training TA have been assisting Tuvalu since 2001 (see Appendix 3).

Table 7 Coefficient of variations by aid type, 2001-2008

Aid Type	CV
Project (including Capital)	0.82
Program (including Budget Support)	0.20
TA	0.17

Source: Author's calculations based from the *Tuvalu Aid Statistical Report 2009*

4.2.4 Aid volatility by sector

Table 8 shows aid volatility by sector. It can be noted from the table that yearly aid disbursements have been highly volatile to all sectors (at CVs of more than 0.90) except the education sector (CV 0.1917).

Table 8 Coefficient of variations by sector, 2001-2008

Sub-Sector	CV
Education	0.1917
Water & Sanitation	0.9397
Environment	0.9404
Other Social Infrastructure	0.9428
Fisheries	0.9503
Agriculture	0.9526
Communications	0.9532
Energy	0.9750
Transport	0.9788
Health	0.9824
Other Economic Infrastructure	0.9839

Source: Author's calculations based from the *Tuvalu Aid Statistical Report 2009*

One plausible reason for stable yearly disbursements to the education sector is because most programs in this sector, particularly scholarships, in addition to being routine programs (not one-off), are largely financed by Australia and New Zealand which posted stable aid disbursements as shown in Table 6 earlier. On the other hand, aid going to other sectors is mostly for one-off capital projects such as the Power Station Project from Japan under Energy in 2007.

Again, this analysis, like the analysis on aid volatility by donor observes that program aid (e.g. scholarships and training under the education section which are supported by Australia and New Zealand) are less volatile than project aid such as those under the fisheries sector which are mostly financed by Japan.

This analysis also, interestingly, shows that aid to the health sector is highly volatile at the CV of 0.9824. It was initially thought that this was a mistake as the health sector should have more program aid than project aid, just like the education sector, thus, should have low aid volatility. However, after checking aid allocations to this sector (health), it is seen that aid allocations are more for individual one-off projects rather than for medium to long term programs (see Appendix 3). The same also applies to other sectors.

In summary, this section on aid volatility in Tuvalu demonstrates that the volatility of aid, as shown by the significant yearly fluctuations in aid receipts, and the CV of 0.49 relative to the volatility of domestic (tax) revenue – which has a CV of 0.20 – and the volatility of aid in aid-dependent and similar countries like Tuvalu, is significant. Moreover, the analyses on aid volatility by donor, type, and sector show that there are donors, types of aid, and sectors which have significant aid volatilities. For instance, donors funding project (including capital projects) show high volatility in their aid disbursements than donors whose aid targets more of programs and budget support. Accordingly, project aid is more volatile than program and budget support aid in the country. Furthermore, aid is highly volatile in the energy, transport, health, and economic infrastructure sectors compared to aid in the education sector. This is because aid to these sectors are more for projects as oppose to aid to the education sector which are for routine programs such as scholarships and trainings. Therefore, the analysis on aid volatility in Tuvalu concludes that aid volatility is significant and could be a problem in the country. The next section will examine policy implications relating to the causes of aid volatility and its costs to determine how problematic it (aid volatility) is in the country, and how can Tuvalu address or mitigate its impacts.

5 Policy Implications

The findings in Section 4 show that the volatility of aid is significant and may be a problem in Tuvalu. Therefore, it is important to know what causes aid to be this volatile in the country. Moreover, it is also essential to consider the costs of aid. This shall determine whether aid volatility is really a problem in the country. Options to deal with aid volatility, drawn from the relevant literature and findings of this study, will also be considered.

5.1 Causes of aid volatility in Tuvalu

Some of the causes of aid volatility in Tuvalu have been loosely discussed under the different issues under section 4.2 earlier. Nonetheless, aid volatility in Tuvalu is caused by administrative problems in mobilising aid in the country. For example, there was a large ADB project loan in Tuvalu – the Tuvalu Maritime Training Institute (TMTI) Rehabilitation Project – that ran into massive cost overrun and delay because, among other reasons, the Chief Executive Officer (CEO) of TMTI, who had been central in the project, was suddenly terminated by the Government of Tuvalu (GoT) from his position. This termination delayed the whole project as a new CEO had to be recruited to take over from the one who had been previously involved in the project (ADB 2004). This administrative problem in the country subsequently resulted in late disbursements in committed aid from the donor (ADB) to the project. Therefore, administrative problems in Tuvalu with regards to aid projects and programs also contribute to aid volatility.

Furthermore, as discussed under the aid volatility by donor section (section 4.2.2), aid volatility can be caused by lack of agreements or lack of effective agreements between Tuvalu and its development partners. For instance, development partners such as Australia, New Zealand, ADB⁷, and EU usually have effective bilateral and multilateral agreements with Tuvalu where they are often accompanied by good monitoring and evaluation, thus have low aid volatility in their aid allocations. However, this argument may be irrelevant to donors such as Japan who focused more

⁷ note that the high CV for aid from ADB is due mainly to the one-off financial grant that ADB paid Tuvalu in 2008.

of their aid on big infrastructure projects which usually have substantial cost variations – thus should naturally posted high volatility in its aid allocations.

Third, aid is more volatile if they are for project aid instead of budget support and program aid. For instance, aid to the education sector is more for program activities such as human resource development (i.e. scholarships and training) thus had low volatility. Aid to the energy, transport, and infrastructure sectors are more project aid thus had high volatility because they are one-off in nature, not on-going or longer term.

5.2 Consequences of aid volatility in Tuvalu

The literature argues that aid volatility is a significant issue because shortfalls in aid disbursements can result in projects not completed (Hudson & Mosley 2008). In the case of small island countries, Chowdhury and Vidyattama (2008) argue that aid volatility can cause significant problems for project implementation and the government budget.

In Tuvalu, again using the example of the TMTI Rehabilitation Project, the delay in loan disbursement from the ADB almost resulted in TMTI being removed from the International Labour Organisation's (ILO) 'White List' status⁸. For instance, the project loan of US\$1.97 million was approved by ADB in 2002; however, due to administrative problems in Tuvalu⁹, the loan only became effective in 2003 (ADB 2004). This delay resulted in considerable cost overrun which required Tuvalu to seek a supplementary loan to complete the same project. Fortunately, the supplementary loan application was approved otherwise the TMTI Rehabilitation Project would had been left uncompleted. Had the project been left unfinished, TMTI would now been excluded from ILO's 'White List' status. This would result in Tuvalu seafarers becoming unqualified to work on foreign vessels. Ultimately, this would have severely affected the people and the economy of Tuvalu given the huge contribution of remittances to the country from seafarers working on overseas vessels. This is an example of the consequences of aid volatility although there are many similar happenings in other smaller projects funded by donors in the country.

⁸ Arellano et al 2008 argue that unexpected delays in implementing programs is a cause of aid volatility.

⁹ termination of TMTI CEO's contract by the Government of Tuvalu in 2003.

Moreover, volatile aid flows which give rise to windfalls of income may cause ‘Dutch disease’ (Van Winbergen 1984; Caballero 2007). Such situations can be easily observed in a small country like Tuvalu when receiving big infrastructural projects. For instance, Tuvalu in 2002 received a large infrastructure project from Japan (the new Princess Margaret Hospital on Funafuti). The project was a year-long project and had to be completed by December of the same year. Given the magnitude of it, workers were also recruited from the outer islands in addition to those on Funafuti (capital). According to information from the National Bank of Tuvalu (where salaries of workers in the project were deposited), workers working under this project received much higher wages than those working elsewhere in country. This was because of the project’s demand for workers. Accordingly, there was a significant increase in inflation from 1.6 per cent in 2001 to 5.2 per cent 2002 accompanied by an increased in prices of non-tradeables in the country such as housing rents due to the increased demand for housing (CSD 2005).

Furthermore, aid volatility can affect fiscal planning in Tuvalu, which was also observed in the literature. For instance, late disbursements of committed aid would result in Tuvalu re-prioritizing its projects and activities so that less prioritised projects can be put on hold in order to get savings from them to finance priority projects affected by late disbursements in aid funds. Similarly, according to a PIFS (2008) report, the PDB in Tuvalu observed that during round table meetings (RTMs) with donors, donors willingly committed assistance to areas of interest, only to be followed by significant difficulties or delays faced in following-up on those promises.

Overall, aid volatility can have harmful effects on economic growth, macroeconomic stability, fiscal management, and livelihoods of people of Tuvalu, through its various implications as discussed above. Therefore, although the overall aid volatility is not as high as the volatility of other major government revenues, aid is still much volatile than domestic revenue (tax) and significantly high in project aid and certain sectors when disaggregated. Thus, Tuvalu has to find ways to deal with aid volatility.

5.3 Dealing with aid volatility in Tuvalu

The above discussions suggest that aid volatility is bad for Tuvalu. Therefore, Tuvalu has to deal with the aid volatility problem. According to the literature and Tuvalu’s

experience with aid volatility discussed above, Tuvalu can protect itself from aid volatility and its impacts by developing or strengthening an inventory of ‘cushioning’ devices such as reserves or stabilization funds. Second, Tuvalu needs to work more cooperatively with its development partners and abide to objectives of programs to reduce aid volatility. Third, Tuvalu can arrange and encourage for aid to be targeted more on budget support and programs rather than on individual projects.

First, having a solid ‘reserve fund’ is important because in cases where there are problems with the disbursement of aid from donors, projects can continue to be implemented as there are funds available from the ‘reserve fund’ to cover for late aid disbursements (Prati & Tressel 2006; Eifert & Gelb 2008). The economic and social value of those projects will not be affected as their implementation will not be stalled due to late aid disbursements. Moreover, there will be no more uncompleted projects because of the availability of funds to cover for problems in aid disbursements. Furthermore, a ‘reserve fund’ could provide for stability in fiscal management, which is also a cost of aid volatility, as there will be no dramatic need to reprioritise government fiscal spending if there is a problem with aid disbursements. This is because, as explained earlier, the ‘reserve fund’ can cover for projects which are affected through late aid disbursements.

Currently, Tuvalu can use the TTF (Account B) as a buffer against aid volatility. The TTF (Account B) is a separate fund from the main TTF. It is where distributions or returns from the main TTF are deposited into. From there, the government of Tuvalu can use savings in the account (TTF – Account B) to finance the national budget. However, as this study understands, the fund has never been used to cater for projects which had been affected by aid volatility. Moreover, as gathered from evidence in national budget documents, although there are efforts to sustain and strengthen the value of the TTF (Account B)¹⁰, most of the time, the account had been almost drawn to zero balance by the government. Therefore, the GoT could use the TTF (Account B) as a buffer for aid volatility, and at the same time, it also needs to strengthen it to enable it cater for problems with aid volatility.

¹⁰ For instance, Tuvalu agreed, in consultation with Australia, New Zealand, and ADB to set the Target Minimum Balance (TMB) of the TTF (Account B) at 16 per cent of the TTF.

Second, Tuvalu should strengthen and improve its policy and institutional environment as donors often react to improvements or deteriorations in policy and institutional climate by increasing or decreasing aid disbursements respectively. Related to this argument is the need for Tuvalu to comply with the objectives of program aid and enhance coordination and cooperation with donors. These are policy suggestions by Levin and Dollar (2005) and Bulir and Hamann (2003) which this paper believes can assist in minimising the problem of aid volatility and its impact in the country. This means that Tuvalu has to oblige with its commitments towards and make use of International and Regional Agreements such as the *Paris Declaration on Aid Effectiveness*, the *Accra Agenda for Aid Effectiveness* and the *Cairns Compact on Strengthening Development Coordination in the Pacific*.

Third, Tuvalu could arrange and negotiate with its development partners for aid to be targeted more on budget support and programs rather than on specific projects. As shown from findings in the aid volatility analysis section, aid is more volatile in project aid than budget support and program. Therefore, to lessen aid volatility in the country, it is advisable that aid focuses more on budget support and programs. This suggestion is also consistent with demands of the *Paris Declaration on Aid Effectiveness* which support and encourage budget support and program aid. Moreover, in cases when there are large infrastructural projects, it is sensible that such projects be implemented in phases. Not only this arrangement will lower aid volatility, it also addresses issues relating to absorptive capacity, resource constraints (e.g. labour), and 'Dutch disease'.

6 Conclusion

This study finds that aid disbursements to Tuvalu as analysed through the year-on-year variations method has been fairly unstable. Moreover, the degree of volatility of aid in the country at the CV of 0.49, although below the volatility of most major revenue sources (which are also sourced from overseas), is still significant relative to domestic (tax) revenue which has a CV of 0.20, and the volatility of aid in other aid-dependent countries. The observation on aid volatility relative to domestic revenue is consistent with findings of Gemmell and McGillivray (1998), Bulir and Lane (2002), Bulir and Hamann (2003), and Hudson and Mosley (2008) that show that aid is more volatile than domestic revenue in recipient and aid-dependent countries.

Moreover, when disaggregating aid by donor, sector, and type, the degree of the volatility of these various aid components vary significantly. For instance, aid is more volatile in donors funding project aid (including capital) relative to donors whose aid goes more into supporting the budget and routine programs such as scholarships. Accordingly, project and capital aid is more volatile than budget support and program aid. Moreover, sectors that received more capital and project aid such as the energy, transport, communications, health, and economic infrastructure sectors show higher volatility than those receiving budget support and program aid such as the education sector. Furthermore, aid from multilateral organisations has been less volatile than aid from bilateral donors.

Thus, this study concludes that, aid volatility is significant in Tuvalu as analysed through the year-on-year variations method and the CV method. Moreover, aid volatility varies significantly when disaggregating to donor, type and sector as discussed above. From the analyses, aid volatility is caused by poor administrative arrangements in Tuvalu, lack of effective bilateral and multilateral aid agreements between Tuvalu and its development partners, and the targeting of aid on projects rather than on programs and budget support. The consequences of aid volatility include uncompleted and high cost overrun of projects, problems in fiscal planning, 'Dutch disease', and lowered economic and social value of aid. Therefore, aid volatility is a problem in Tuvalu and the country needs to deal with it.

There are viable options suggested in the literature and lessons learned from Tuvalu's own experience as discussed in this study that Tuvalu could consider in dealing with the problem of aid volatility. First, Tuvalu could consider strengthening its foreign reserves, particularly the TTF (Account B). 'Reserve funds' like the TTF (Account B) enables Tuvalu to cover for problems such as delay in aid disbursements from donors without needing to stall the implementation of aid projects and programs. Moreover, Tuvalu should provide a sound policy and institutional climate in the country as donors are often reactive to policy and institutional conditions in recipient countries. Accordingly, Tuvalu should strengthen cooperation with its development partners and also abide to objectives of aid programs. Furthermore, Tuvalu should arrange with its development partners for aid to be targeted for budget support and programs instead of specific projects since aid is more volatile in project aid than budget support and program aid. Additionally, as large infrastructural projects contribute significantly to aid volatility, implementing them in phases would help lessen aid volatility and at the same time also helps mitigate issues such as absorptive capacity, limited labour, and 'Dutch disease' in Tuvalu.

In closing, due to time constraint to complete this study, this paper acknowledges that the time-frame included in this study could be expanded from 1978 when Tuvalu became a sovereign state, to 2009. Therefore, this is something that can be considered for further research in the future. Nonetheless, this study is confident that given that four to five years of volatile aid can impact economic development in recipient countries (Clarke et al. 2008), the timeframes – 13 years used to analyse aid volatility relative to other major government revenues, and 8 years for examining aid volatility by donor, type, and sector – are reliable to conclude that aid volatility is a problem in Tuvalu. Moreover, there are still unanswered questions in this study related to political motivations, particularly bilateral donors, which may contribute to different year-on-year swings in their aid disbursements to Tuvalu. For instance, Tuvalu has strong diplomatic relations with ROC and has also been supporting Japan's controversial whaling. Thus, questions can be asked whether these factors could have been important determinants of aid volatility in the country. Furthermore, if Tuvalu endeavour to depend less on foreign to lessen the impacts of aid volatility in the country as conventional thinking suggests, what would be the impact of decreasing aid

on the country, and how can Tuvalu cope with these impacts. These are interesting questions remained unanswered in this study which can be considered for future research on aid volatility in Tuvalu.

Appendix 1 Aid by donor, 2001–2008 (Aus\$)

Donor	Year								Total
	2001	2002	2003	2004	2005	2006	2007	2008	
Japan	14,641,489	11,077,333	336,914	215,579	30,405	1,142,580	8,680,617	865,416	36,990,334
ROC	1,200,000	1,237,489	11,956,006	2,509,110	2,691,250	2,508,261	5,050,233	3,159,488	30,311,837
AusAID	2,825,000	2,374,869	2,431,730	2,150,411	2,300,585	3,924,592	2,315,014	3,230,490	21,552,691
NZAID	1,761,769	2,031,155	1,871,726	1,376,884	2,084,238	1,898,450	1,874,463	2,133,902	15,032,586
EU	1,200,000	1,142,298	644,777	1,075,333	1,128,589	1,655,452	1,076,380	569,959	8,492,788
ADB	120,000	-	165,800	519,744	260,444	250,826	-	2,008,683	3,325,497
WHO	64,650	1,066,977	67,819	190,601	30,703	15,775	28,139	92,995	1,557,659
UNDP	478,266	189,869	-	272,104	-	394,844	14,730	117,120	1,466,932
FFA	48,651	113,460	182,289	347,620	41,161	10,420	23,332	97,516	864,449
Canada Fund	248,072	103,819	245,282	91,990	38,689	-	-	-	727,851
SPREP	190,425	378,889	-	89,611	-	-	-	-	658,925
UNESCO	-	-	179,815	17,922	140,512	25,074	-	-	363,324
France	320,000	-	-	20,048	-	27,468	-	-	367,516
UNEP	-	-	-	-	-	295,139	-	-	295,139
USP	12,165	-	-	9,354	-	-	64,110	155,359	240,988
UNON	-	-	-	-	71,258	93,806	79,891	-	244,955
GEF	-	-	-	103,053	-	-	-	74,094	177,147
PIFS	-	5,711	30,543	61,508	-	-	-	-	97,762
UNICEF	4,091	-	38,646	-	-	-	40,152	-	82,889
UNFPA	-	-	-	75,273	-	-	-	-	75,273
India	-	-	-	-	52,722	-	-	-	52,722
Di Loretto	-	-	26,157	-	27,780	-	-	-	53,936
WTO	-	-	-	-	-	-	-	28,156	28,156
SOPAC	237	29,902	2,680	-	-	1,572	-	-	34,391
Greece	-	-	-	26,883	-	-	-	-	26,883
Germany	-	20,193	-	7,119	-	-	-	-	27,311
TANGO	-	-	-	17,059	-	-	-	-	17,059
Allen & Clarke	-	-	-	-	7,032	1,698	-	-	8,730
SPC	-	-	-	-	8,328	-	-	-	8,328
ASIA	-	4,035	-	-	-	-	-	-	4,035
UNIFEM	-	-	-	-	1,902	-	-	-	1,902
Airway Corp	-	-	1,621	-	-	-	-	-	1,621
IAEA	-	-	-	-	-	1,377	-	-	1,377
Total	23,116,816	19,778,000	18,183,808	9,179,209	8,917,601	12,249,340	19,249,068	12,535,186	123,192,991

Note: Adjusted to 2001 dollars using the Tuvalu CPI

Source: PBD 2009, Ministry of Finance and Economic Planning, Government of Tuvalu

Appendix 2 Aid by type, 2001–2008 (Aus\$)

Aid Type	Year								Total
	2001	2002	2003	2004	2005	2006	2007	2008	
Project (including Capital)	16,168,189	12,817,311	10,294,273	1,058,597	2,181,489	2,975,283	10,415,446	1,778,251	57,688,840
Program (including Budget Support)	5,669,623	5,360,422	6,656,574	6,640,065	5,851,203	7,940,165	7,708,068	9,443,502	55,269,621
TA	1,277,002	1,598,265	1,230,958	1,478,543	882,904	1,331,887	1,123,547	1,311,425	10,234,531
Total	23,114,815	19,775,998	18,181,805	9,177,205	8,915,596	12,247,334	19,247,061	12,533,178	123,192,991

Note: Adjusted to 2001 dollars using the Tuvalu CPI

Source: PBD 2009, Ministry of Finance and Economic Planning, Government of Tuvalu

Appendix 3 Aid by sector, 2001–2008 (Aus\$)

Sub-Sector	Programme/ Project	Year								Total
		2001	2002	2003	2004	2005	2006	2007	2008	
Education	ARDS Scholarships	600,000	571,149	552,666	537,666	520,887	510,013	499,172	466,791	4,258,345
	NZ Regional Development Scholarships	450,000	447,400	442,133	412,211	416,710	384,600	400,975	370,469	3,324,497
	Support Incountry Training	400,000	380,766	368,444	358,444	-	346,976	339,601	-	2,194,231
	ADS Scholarships	250,000	228,460	230,277	197,144	190,992	167,217	163,663	259,328	1,687,082
	NZ Development Scholarships	230,000	171,345	184,222	268,833	127,617	171,500	167,854	222,281	1,543,653
	Short term Training in NZ & the region	150,000	142,787	184,222	161,300	111,123	135,222	132,348	133,369	1,150,370
	Support to Secondary Education	-	-	-	268,833	-	-	-	-	268,833
	TMTI Training	-	-	202,644	9,875	28,839	-	-	-	241,358
	TAESP	40,000	19,038	27,633	35,844	17,363	16,722	-	-	156,601
	Medical Treatment Scheme	-	-	138,166	-	-	-	-	-	138,166
	Education Sector Plan	-	-	-	20,611	7,115	47,019	46,020	-	120,764
	Early Childhood Education	-	-	-	-	-	47,854	46,837	-	94,691
	SDA Primary School	-	105,755	-	-	-	-	-	-	105,755
	National Education Forum	-	105,002	-	-	-	-	-	-	105,002
	Teacher In-service Training Workshop (Class 7 & 8)	-	-	-	-	-	-	64,110	-	64,110
	IMP & ASSESSMENT OF LEARNING	-	-	-	-	-	-	-	48,350	48,350
	Motufoua High School Library	-	-	-	-	-	-	-	46,322	46,322
	Trainers Training Resources Mobilization	32,058	26,654	-	-	-	-	-	-	58,712
	TMTI Life Boat	-	-	-	53,767	-	-	-	-	53,767
	Mid Term Review- Tuvalu Edu Strategic Plan	-	-	-	-	-	-	-	43,516	43,516
	TMTI Supreindent Salary	-	-	42,727	-	-	-	-	-	42,727
	Youth Health Education Drama (Tufha)	-	-	38,116	-	-	-	-	-	38,116
	Island Magistrate Workshop	-	38,483	-	-	-	-	-	-	38,483
	Upgrading AOG Pre-school	-	-	-	30,349	-	-	-	-	30,349
	Free and Open Source Software Training (FOSS)	-	-	29,318	-	-	1,122	-	-	30,440
	Pacific Star Lifeskills	-	-	27,633	-	-	-	-	-	27,633
	Summer School for Pre-School Teachers	-	-	-	-	21,929	-	-	-	21,929
	Modified Computer Room for Nauti Primary School	-	-	21,186	-	-	-	-	-	21,186
	Office Equipment & Training Attachment	-	21,340	-	-	-	-	-	-	21,340
	Computer Room for Nauti Pri. Sch	-	-	19,752	-	-	-	-	-	19,752
NZ Training Needs Assesment - Mataili Charter	-	-	-	18,779	-	-	-	-	18,779	
Tuvalu Children Conference	-	-	-	-	17,530	-	-	-	17,530	
In-Service Training Course for Pre-School Teachers	-	-	-	-	16,286	-	-	-	16,286	

	Pre School Teachers Summer School	-	-	16,945	-	-	-	-	-	16,945
	Computer Fellowship Attachment	-	16,803	-	-	-	-	-	-	16,803
	Fire Safety Awareness Campaign	14,962	-	-	-	-	-	-	-	14,962
	Lofeagai Pre School	14,700	-	-	-	-	-	-	-	14,700
	Extension of Pacific stars life skill training	-	-	-	-	11,963	-	-	-	11,963
	Nukufetau Pre School	13,000	-	-	-	-	-	-	-	13,000
	Nanumaga Pre School	-	-	11,700	-	-	-	-	-	11,700
	Nanumea Pre School (1st phase)	-	12,089	-	-	-	-	-	-	12,089
	Nui Pre School	-	12,089	-	-	-	-	-	-	12,089
	Nukulaelae Pre School	-	-	11,698	-	-	-	-	-	11,698
	Island Magistrate Workshop Phase 1	12,350	-	-	-	-	-	-	-	12,350
	Pride Monitoring & Evaluation Framework wshop	-	-	-	-	-	-	-	8,756	8,756
	Development National Curriculum	-	-	-	-	-	-	-	8,416	8,416
	Nanumea Pre-School 2nd Phase	-	-	9,211	-	-	-	-	-	9,211
	Vaitupu Pre School	-	9,519	-	-	-	-	-	-	9,519
	Education Equipment for Primary School	-	-	-	7,370	-	-	-	-	7,370
	Overhead Projectors for Primary Schools	-	-	-	7,119	-	-	-	-	7,119
	Equipment for Primary Schools	-	-	-	7,114	-	-	-	-	7,114
	Outer Islands Training Fund	-	6,749	-	-	-	-	-	-	6,749
	Early Childhood Education Policy	-	-	-	-	5,850	-	-	-	5,850
	Nui Training Centre-Women & Youth	6,400	-	-	-	-	-	-	-	6,400
	Grass Cutter for Primary School	-	-	5,202	-	-	-	-	-	5,202
	The Guardian - Legal Rights Training Newsletter	-	-	5,066	-	-	-	-	-	5,066
	Kaumaile Primary School Photocopier	-	-	-	-	3,581	-	-	-	3,581
	Workshop on NCD Strategic Plan	-	-	-	-	-	-	2,755	-	2,755
	Youth Leadership Training Project - TANGO	-	-	-	-	2,848	-	-	-	2,848
	Home Certificate Modules	-	2,705	-	-	-	-	-	-	2,705
Environment	National Adaptation Programme	-	-	-	338,416	-	-	-	-	338,416
	IWP Coordinator Salary and expenses	-	303,847	-	-	-	-	-	-	303,847
	Persistent Organic Pollutance Project	-	-	-	-	71,258	93,806	79,891	-	244,955
	PICCAP 2nd Quarter 2000	129,726	-	-	-	-	-	-	-	129,726
	GEF Grant	-	-	-	-	-	-	-	74,094	74,094
	International Waters Programme	-	-	-	89,611	-	-	-	-	89,611
	POPs	-	-	-	-	-	83,609	-	-	83,609
	UNEP Grant	-	-	-	-	-	66,887	-	-	66,887
	PICCAP	-	59,568	-	-	-	-	-	-	59,568
	SLM	-	-	-	-	-	-	-	39,188	39,188
	National Biodiversity Strategic Action Plan	-	-	-	-	-	-	-	23,464	23,464

	Global Environmental Facility	23,379	-	-	-	-	-	-	-	23,379
	A Research Documentation on the Ecological knowle	-	-	-	-	16,286	-	-	-	16,286
	Tuvalu Solid Waste Education & Awareness Project (S	16,257	-	-	-	-	-	-	-	16,257
	Tuvalu Waste Education & Awareness Project	-	15,474	-	-	-	-	-	-	15,474
	Ozone Depleting Substance	-	-	-	13,442	-	-	-	-	13,442
	International Environmental Advisor	14,944	-	-	-	-	-	-	-	14,944
	Mangrove Restoration & Coconut Replanting	13,494	-	-	-	-	-	-	-	13,494
	Coral Reef Monitoring (Phase 1)	12,165	-	-	-	-	-	-	-	12,165
	Environment Capacity Self Assessment Program	-	-	-	10,753	-	-	-	-	10,753
	Coral Reef Monitoring (Phase 2)	-	11,234	-	-	-	-	-	-	11,234
	Coral Reef Monitoring (Phase 3)	-	-	-	9,354	-	-	-	-	9,354
	Coconut Replanting	-	-	7,360	-	-	-	-	-	7,360
	Coconut & Pandanus Replanting Scheme- Funafuti	-	-	-	-	1,932	-	-	-	1,932
	Regional Workshop on Liability for Nuclear Damage	-	-	-	-	-	1,377	-	-	1,377
	4th Environment Ministers Meeting in Samoa	-	-	1,075	-	-	-	-	-	1,075
	Island Care Establishment	1,000	-	-	-	-	-	-	-	1,000
Health	New Hospital	-	10,683,912	-	-	-	-	-	-	10,683,912
	Medical Treatment Scheme	150,000	123,749	-	89,611	73,792	101,426	99,270	111,141	748,989
	WHO Health Support	-	237,979	230,277	224,028	-	-	-	-	692,284
	WHO Support	-	647,302	-	50,182	-	-	-	-	697,484
	Health Master Plan	-	-	-	-	-	-	-	88,913	88,913
	Vaitupu Clinic	-	-	-	-	-	-	82,978	-	82,978
	UNFPA	-	-	-	75,273	-	-	-	-	75,273
	Medical Eligibility Criteria on Family Planning	-	-	40,632	-	-	-	-	-	40,632
	Helminthiasis Control	-	-	-	37,368	-	-	-	-	37,368
	ARH Workshop & Drama Training	-	38,932	-	-	-	-	-	-	38,932
	Deposit from UNICEF	-	-	-	-	-	-	31,729	-	31,729
	Caring for Disabilities (Red Cross)	-	-	29,318	-	-	-	-	-	29,318
	Medical Officer's Training	30,000	-	-	-	-	-	-	-	30,000
	Health's Report & Printing	-	26,126	-	-	-	-	-	-	26,126
	Healthy & Safety Storage-Nukulaelae	-	-	-	-	20,547	-	-	-	20,547
	Filarisis Control & MDA Survey	23,650	-	-	-	-	-	-	-	23,650
	Seminar on Women's Health	-	21,133	-	-	-	-	-	-	21,133
	Diabetes Workshop 2	-	20,676	-	-	-	-	-	-	20,676
	HIV Counselling	-	-	-	17,915	-	-	-	-	17,915
	Refresher Training RH/FP/SH for Nurses	-	17,182	-	-	-	-	-	-	17,182
	Workshop on STI survey	-	-	-	15,377	-	-	-	-	15,377
	Attendance at UN Special Session on Children THR	-	13,496	-	-	-	-	-	-	13,496

Nurses Filariasis Training	-	-	-	12,416	-	-	-	-	12,416
De- Worming Program in Tuvalu	-	-	-	-	-	11,287	-	-	11,287
Youth Lifeskills & HIV/AIDS Training (2ndphase)	-	-	11,013	-	-	-	-	-	11,013
Workshop on behavioral Survey	-	-	-	10,252	-	-	-	-	10,252
Maternal and Child Health aides on Health villages (1	-	-	-	9,932	-	-	-	-	9,932
Nurse Training	11,000	-	-	-	-	-	-	-	11,000
Lymphatic Filariasis Mass Screening & Treatment in T	-	-	-	-	-	-	8,955	-	8,955
Breastfeeding Training of Trainers Workshop	-	-	-	-	-	-	8,423	-	8,423
Workshop on Diabetes	-	-	-	-	8,777	-	-	-	8,777
Nurses Training on Filarisis	-	8,424	-	-	-	-	-	-	8,424
Workshop on HIV surveys	-	-	-	7,689	-	-	-	-	7,689
MDA Operational Support	-	-	7,599	-	-	-	-	-	7,599
World TB Day Public Awareness 2004	-	-	-	7,009	-	-	-	-	7,009
Seminar on STD's	-	7,235	-	-	-	-	-	-	7,235
HIV-Care and support for PLWHA	-	-	-	-	6,421	-	-	-	6,421
Rubella Vaccine Introduction	-	-	-	-	5,730	-	-	-	5,730
Health Symposium in Kuala Lumpar	-	6,266	-	-	-	-	-	-	6,266
Filarisis Program (MDA)	-	-	-	-	5,408	-	-	-	5,408
Mens Involvement in Reproductive Health(1st Insta	-	-	-	-	5,209	-	-	-	5,209
Primary Eye Care Training Course	-	-	-	-	-	4,488	-	-	4,488
STEPS Survey	-	-	-	-	-	-	4,294	-	4,294
Nutrition Plan of Action (NPAN)	-	-	-	-	4,446	-	-	-	4,446
WHO Assembly 2001	4,966	-	-	-	-	-	-	-	4,966
Smoking Cessation Training	-	-	-	-	4,103	-	-	-	4,103
Youth Involvement in promoting rational use of drug	-	-	-	-	-	-	-	3,305	3,305
Mass Measles Campaign	4,091	-	-	-	-	-	-	-	4,091
Sundry	-	3,617	-	-	-	-	-	-	3,617
Pandemic Influenza Workshop	-	-	-	-	-	-	2,493	-	2,493
HIV- Counselling Training	-	-	-	-	2,604	-	-	-	2,604
World Health Day 2004	-	-	-	2,277	-	-	-	-	2,277
World Tobbaco Day	-	-	2,238	-	-	-	-	-	2,238
Sexually Transmitted Infection HIV/ AIDS	-	-	-	-	1,763	-	-	-	1,763
No Tobacco Day	-	-	-	-	1,631	-	-	-	1,631
Tobacco Control	-	-	-	-	1,298	-	-	-	1,298
World Health Day 2003	-	-	1,000	-	-	-	-	-	1,000
Data analysis for Pharmacy Dpt	-	-	-	-	-	-	-	778	778
Funds for the Tobacco Workshop	-	-	-	-	-	867	-	-	867
Tobacco Control Media Costs	-	-	-	-	-	831	-	-	831

Water & Sanitation	Water, Sanitation and Waste Management	-	-	-	-	260,444	-	-	-	260,444
	Community Water Cistern	133,376	102,397	-	-	-	-	-	-	235,773
	Technical Assistance - waste management	-	-	-	161,300	-	-	-	-	161,300
	Desalination Plant	-	-	-	-	-	99,866	-	-	99,866
	Water Supply for Nukulaelae	-	-	102,375	-	-	-	-	-	102,375
	Drought Backup System	-	-	47,051	-	-	-	-	-	47,051
	Waste Improvement & Composing NKL Kaupule Com	-	-	31,460	-	-	-	-	-	31,460
	SDA School Water Cistern	18,664	-	-	-	-	-	-	-	18,664
	Environmental Management for Sanitation Aides	-	-	-	9,932	-	-	-	-	9,932
	Support Water supply & Food safety	-	-	-	-	-	-	7,345	-	7,345
	Environmental Management Workshop for Sanitation	-	-	8,198	-	-	-	-	-	8,198
	School Fence & Water Tanks (Nauti Primary School)	-	-	-	6,721	-	-	-	-	6,721
	Magatai Clan Water Cistern	-	5,225	-	-	-	-	-	-	5,225
Unity Pre School Toilet	-	2,224	-	-	-	-	-	-	2,224	
Other Social Inf	Tuvalu Social Welfare Project	355,888	66,600	-	12,546	-	-	-	-	435,033
	Strengthening Local Governance	-	-	-	-	-	208,186	-	-	208,186
	Social Development Policy Project	-	-	-	-	-	186,658	-	-	186,658
	Advisor to the Auditor General	-	-	-	-	-	100,330	-	57,793	158,124
	NBSAP	-	-	-	-	-	144,643	-	-	144,643
	Funafuti Youth Centre	164,194	-	-	-	-	-	-	-	164,194
	Demographic and Health Survey 2007	-	-	-	-	-	-	122,747	-	122,747
	Advisor to the Attorney General	-	-	-	-	-	-	-	93,358	93,358
	TA Falekaupule	120,000	-	-	-	-	-	-	-	120,000
	Niutao Community Hall	-	-	-	-	-	87,066	-	-	87,066
	Attendance of the Tuvalu delegations to the UNGA in	-	-	-	-	51,507	-	-	-	51,507
	Local Governance - Phase 2	-	-	-	-	-	-	-	37,047	37,047
	Renovation of Women's Centre	-	-	-	-	30,405	-	-	-	30,405
	Leaders Seminar, Travel & Perdiem to outer island	-	32,106	-	-	-	-	-	-	32,106
	Governor General's Airfare to France - Oceania Sum	-	-	-	-	-	27,468	-	-	27,468
	Tuvalu Pacific Arts Festival Team	-	-	29,318	-	-	-	-	-	29,318
	Police Training	31,769	-	-	-	-	-	-	-	31,769
	CBEMP	29,499	-	-	-	-	-	-	-	29,499
	Basic Gender Workshop-TNCW	-	-	-	-	-	23,952	-	-	23,952
	Montreal Protocol Activities	-	-	25,533	-	-	-	-	-	25,533
Development of Tuvalu Cultural Policy	-	-	-	-	21,201	-	-	-	21,201	
Nanumea Island Kitchen	24,130	-	-	-	-	-	-	-	24,130	
Consultancy for MPs	-	-	-	20,766	-	-	-	-	20,766	
Island Consultation	-	-	-	-	19,967	-	-	-	19,967	

Nui Community Hall	-	-	-	20,048	-	-	-	-	20,048
Australia CPA Education	-	-	-	-	-	-	-	14,819	14,819
Lands Records Microfilming	-	-	-	17,922	-	-	-	-	17,922
PISP	-	-	-	-	-	-	-	14,819	14,819
Tuvalu Sports Development	-	-	-	-	-	16,722	-	-	16,722
Social Welfare Policy	-	-	-	17,059	-	-	-	-	17,059
Use of Disaggregated Data	-	-	-	-	-	-	14,730	-	14,730
8th Multipartite Review Meeting in Apia	-	16,663	-	-	-	-	-	-	16,663
Writing of Heritage Sites Oral Tradition & Indigeonou	-	-	13,988	-	-	-	-	-	13,988
Skills Training for Women (TNCW)	-	-	13,384	-	-	-	-	-	13,384
Disaster Management Workshop	-	11,613	-	-	-	-	-	-	11,613
Extension and Renovation of the Matagai Clan Social	-	-	10,981	-	-	-	-	-	10,981
Workshop on behavioral Survey	-	-	-	10,252	-	-	-	-	10,252
Support to TANGO Newsletter	-	-	-	-	8,760	-	-	-	8,760
Healthy Villagers Workshop for MC Aides	-	-	8,152	-	-	-	-	-	8,152
Implementation of CEDAW	5,200	2,856	-	-	-	-	-	-	8,056
Tuvalu Delegation to CPA Mtng in London 2002	-	6,817	-	-	-	-	-	-	6,817
Tuvalu Delegation Women Conference in Nadi	-	-	-	6,340	-	-	-	-	6,340
GG Protocol Officer	-	6,706	-	-	-	-	-	-	6,706
SFA Travel to Kiribati and Tarawa	-	-	6,229	-	-	-	-	-	6,229
Preservation of Niutao Traditional Culture	-	-	6,022	-	-	-	-	-	6,022
INTOSAI Meeting (South Africa)	-	5,975	-	-	-	-	-	-	5,975
Women 8th Tiennial Meeting	-	5,037	-	-	-	-	-	-	5,037
Moeaki Sewing Group	-	-	-	-	4,573	-	-	-	4,573
International Disaster Reduction Day	-	4,913	-	-	-	-	-	-	4,913
Participation SPC Forum Apia	-	-	-	4,484	-	-	-	-	4,484
Kaupule Multipurpose Fax Machine	-	4,622	-	-	-	-	-	-	4,622
Gender Support Facility (1st Installment)	-	-	-	-	3,882	-	-	-	3,882
Nanumea Introduction of Disaster Management	-	4,035	-	-	-	-	-	-	4,035
Upgrading Womens Canteen-Nukufetau	-	-	3,257	-	-	-	-	-	3,257
Printing of Bench Books for Magistrate	-	-	2,924	-	-	-	-	-	2,924
National Day for Disaster Reduction 2003	-	-	2,680	-	-	-	-	-	2,680
Workshop on data Analysis	-	-	-	-	-	-	2,296	-	2,296
Computers for Ministry	-	-	2,169	-	-	-	-	-	2,169
National Disaster Reduction Day	-	2,141	-	-	-	-	-	-	2,141
Cedaw Workshop	-	-	-	-	1,902	-	-	-	1,902
5th INTOSAI Meeting	-	-	-	1,871	-	-	-	-	1,871
Disaster Reduction Activities for 2005 - 2006	-	-	-	-	-	1,572	-	-	1,572

	Commonwealth Day Celebration	1,000	-	-	-	-	-	-	-	1,000
	Cost of Traditional Dress	300	-	-	-	-	-	-	-	300
Communication	Motufoua School Hih Speed Satellite Internet Link (V	-	-	-	-	28,650	-	-	-	28,650
	LDC Information Technology Support	-	24,401	-	-	-	-	-	-	24,401
	Communication Equipment & Distress Signal	-	-	10,660	10,234	-	-	-	-	20,893
	Upgrading IT for Outer Islands	-	-	-	-	19,835	-	-	-	19,835
Energy	Funafuti Power Station	-	-	-	-	-	-	7,682,958	-	7,682,958
	Fuel Support - Phase 3	-	-	-	-	-	-	-	865,416	865,416
	Fuel Support - Phase 1	-	-	-	-	-	955,647	-	-	955,647
	Fuel Support - Phase 2	-	-	-	-	-	-	830,590	-	830,590
	TMTI Power House	320,000	-	-	-	-	-	-	-	320,000
	Funafuti Solar Power	-	-	-	-	-	-	84,091	-	84,091
	Motufoua Gas Oven	12,000	-	-	-	-	-	-	-	12,000
	Tuvalu Sustainable Energy	-	-	-	-	-	-	-	2,603	2,603
	Energy Awareness Poster Competition	237	-	-	-	-	-	-	-	237
Finance	ROC Grant	1,200,000	1,237,489	3,315,995	2,509,110	2,604,436	2,508,261	3,659,097	3,159,488	20,193,876
	TTF Account A	1,150,000	1,047,106	736,888	716,888	1,823,105	2,495,720	887,872	1,111,407	9,968,986
	EU DSP	1,200,000	1,142,298	644,777	1,075,333	1,128,589	1,655,452	1,076,380	569,959	8,492,788
	FTF Contribution	-	632,828	377,655	-	303,851	292,630	286,410	666,844	2,560,219
	ADB Grant	-	-	-	-	-	-	-	1,823,449	1,823,449
	TTFAC Advisor	160,000	161,826	147,378	152,339	170,156	298,483	292,139	140,778	1,523,098
	Budget Management Advisor	-	-	-	-	173,629	209,858	266,771	93,358	743,616
	Program Administration & Aid Coordination	100,000	95,191	92,111	89,611	86,815	83,609	81,832	88,913	718,081
	AusAID Transfer to CIF	-	-	-	-	-	-	-	444,563	444,563
	TTF Account B	-	-	-	-	-	-	-	444,563	444,563
	FTF Capacity Building	-	-	-	-	130,222	125,413	122,747	-	378,382
	TTFAC Board Member	50,000	42,836	46,055	44,806	43,407	41,804	32,733	37,047	338,688
	Asset Management and Statistics Project	300,000	-	-	-	-	-	-	-	300,000
	Technical Assistance - Financial Management	-	-	165,800	89,611	-	-	-	-	255,411
	Modernization of Customs	-	-	-	-	-	-	-	185,235	185,235
	Tuvalu Support Unit (PSU)	20,000	19,038	18,422	17,922	17,363	16,722	16,366	14,819	140,652
	NZAID Small Grant Fund	-	-	32,239	-	-	-	-	-	32,239
	Aid Coordination	25,000	-	-	-	-	-	-	-	25,000
	Tuvalu Delegation MHLC 7	18,537	-	-	-	-	-	-	-	18,537
	Budget Equipment	16,300	-	-	-	-	-	-	-	16,300
	In-country coordinator	-	-	13,817	-	-	-	-	-	13,817
	FTF Island Leaders Forum	-	-	-	-	1,215	-	-	-	1,215
Transport	Manufolau	14,343,920	-	-	-	-	-	-	-	14,343,920

	ROC Grant to repair Nivaga II	-	-	-	-	-	-	1,391,136	-	1,391,136
	Ship to Shore - Design & Implementation	-	-	-	-	18,231	112,872	110,473	518,657	760,232
	Reef Channel Upgrading	280,000	-	-	-	-	-	-	-	280,000
	Cargo Handling Equipment	-	-	168,563	-	-	-	-	-	168,563
	Crane Truck for Niutao and Nanumaga	-	-	-	148,949	-	-	-	-	148,949
	Reef Channel Review	-	-	138,166	-	-	-	-	-	138,166
	Crane Trucks - Nukufetau & Nui	-	117,086	-	-	-	-	-	-	117,086
	Crane Trucks - Nanumea	-	68,183	-	-	-	-	-	-	68,183
	Crane Trucks - Nukulaelae	-	-	65,976	-	-	-	-	-	65,976
	Niutao Enviroramp	-	-	-	27,990	-	-	-	-	27,990
	Sub-Regional Air Services meetings	8,848	-	-	-	-	-	-	-	8,848
	Telecom & Air Transport Meeting	-	5,884	-	-	-	-	-	-	5,884
	Improvement of Aerodome Siren	-	-	1,621	-	-	-	-	-	1,621
Other Economic	Government Building	-	-	8,640,010	-	-	-	-	-	8,640,010
	Mataili Fuel (Australian Naval Programme)	100,000	95,191	92,111	89,611	86,815	100,330	73,648	74,094	711,801
	Improvement Government State Owned Enterprises	-	-	-	-	-	250,826	-	-	250,826
	PACTAF	100,000	-	-	-	-	-	-	-	100,000
	PWD Complex Maintenance	-	60,576	-	-	-	-	-	-	60,576
	Support to NSSD	-	-	-	50,668	-	-	-	-	50,668
	Niutao Enviroramp	43,811	-	-	-	-	-	-	-	43,811
	NZAID Small Grant Fund	-	-	-	10,337	16,824	-	-	-	27,160
	Development Projects	-	-	-	26,883	-	-	-	-	26,883
	PWD Training Centre	-	20,193	-	-	-	-	-	-	20,193
	Office Equipment for TNC,CO,SO	-	-	14,654	-	-	-	-	-	14,654
	Allowances for Civil society to NSSD	-	-	9,626	-	-	-	-	-	9,626
	Computer & Accessories	-	-	5,527	-	-	-	-	-	5,527
	Photocopy Machine for Parliament Office	-	-	4,436	-	-	-	-	-	4,436
Agriculture	OITA Hatchery at Vaitupu	28,058	26,709	-	-	-	-	-	-	54,767
	Construction of 18 chicken sheds for Teava Youth Ni	-	-	20,719	-	-	-	-	-	20,719
	Vaitupu Island Food Market	20,109	-	-	-	-	-	-	-	20,109
	Construction of 30 pigpens for Tafemai Association	-	-	17,823	-	-	-	-	-	17,823
	Nanumaga Island Piggery	14,666	-	-	-	-	-	-	-	14,666
	Nanumaga Piggery	-	13,828	-	-	-	-	-	-	13,828
	Pulamilo Home Garden	-	-	7,366	-	-	-	-	-	7,366
	Nukulaelae Women Vegetable Garden	5,209	-	-	-	-	-	-	-	5,209
	Food Security and Income Generation - Niulakita	-	-	4,595	-	-	-	-	-	4,595
	Public Awareness Tree Preservation	3,166	-	-	-	-	-	-	-	3,166
Fisheries	Support for Naficot	-	-	-	277,626	-	-	-	-	277,626

	CFC Upgrading & Monitoring	-	-	147,283	-	-	-	-	-	147,283
	Deposit from FFA	-	-	-	-	-	10,420	23,332	71,765	105,517
	Fisheries Seamount	-	-	-	-	86,815	-	-	-	86,815
	Sustainable Tafua Pond	-	-	-	61,508	-	-	-	-	61,508
	Engine for Fisheries Boat	-	-	-	36,282	-	-	-	-	36,282
	CFC Upgrading(US Treaty Meeting in Funafuti)	-	-	-	34,660	-	-	-	-	34,660
	Contribution to CFC	-	-	-	-	30,342	-	-	-	30,342
	Ref Observer fee for Albacora UNO	-	-	-	-	-	-	-	18,377	18,377
	Vessel Monitoring System Operation (VMS-Operatio	-	-	-	-	10,819	-	-	-	10,819
	Feasibility Study-Pearl Farm	-	-	-	-	-	-	-	7,374	7,374
	Tuvalu Fishermen Association Meeting	-	-	3,594	-	-	-	-	-	3,594
	US Treaty 2nd Round Meeting Nadi	-	3,080	-	-	-	-	-	-	3,080
	Refreshment for the US Treaty Meeting	-	-	-	1,434	-	-	-	-	1,434
Trade	IF DTIS	-	-	-	-	-	-	-	28,156	28,156
	14th WTO Assembly	-	9,549	-	-	-	-	-	-	9,549
	Tourism Desktop Computers	-	6,854	-	-	-	-	-	-	6,854
Other Producti	Sus.Livelihoods through Promotion of Small Busines	60,441	48,019	-	-	-	-	-	-	108,460
	TNCW Credit Scheme	-	47,906	-	-	-	-	-	-	47,906
	Carving Workshop (TNCW)	-	-	11,721	-	-	-	-	-	11,721
	The Law and Business Information Project	-	-	8,885	-	-	-	-	-	8,885
	TA for TAFEMAI Credit Scheme	-	5,711	-	-	-	-	-	-	5,711
	Pandanus Pounder for Niutao Women	-	-	4,135	-	-	-	-	-	4,135
	Nanumea Women Market Canteen-2nd Phase	2,352	-	-	-	-	-	-	-	2,352
	Total	23,114,815	19,775,998	18,181,805	9,177,205	8,915,596	12,247,334	19,247,061	12,533,178	123,192,991

Note: Adjusted to 2001 dollars using the Tuvalu CPI

Source: PBD 2009, Ministry of Finance and Economic Planning, Government of Tuvalu

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