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**PARTICIPATION as a HUMAN RIGHT:  
IS KEY  
TO SOLVING  
WATER PROBLEMS  
IN TONGA**

A thesis  
submitted in partial fulfilment  
of the requirements for the degree  
of  
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in  
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at  
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## PREFACE AND ACKNOWLEDGEMENTS

In acknowledging the contributions made by all those who participated in this research, I decided to use both the Tongan and the English language. This would enable both nationalities to read and understand the deep feelings in my acknowledgement of their contributions. I, therefore, commence with my own mother tongue.

*'Okapau 'oku 'iai ha fakamalo ke fai pea 'oku fai ia Kiate Ia 'oku ne foaki 'a e Poto moe Ilo 'aia koe Taha'i 'Otua 'ihe Toko Tolu 'oku Toputapu, koe Tamai, moe 'Alo moe Laumalie Ma'oni'oni koe'uhi koe foaki 'ae fakahinohino hoku 'atamai, loto mo hoku ongo nima keu lava 'o 'ilo ai Ia he'eku fakakaukau, lea moe tohi. Fakamalo ki he Ki'i Famili Faka'ofa'ofa mo Ma'oni'oni 'o Nasaleti moe hufaki 'oku nau fai ma'a Tonga mo Mamani.*

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The Glory and Honour of this thesis is devoted to God, who is the Giver of Wisdom. Let His Name be glorified for evermore.

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## **ABSTRACT**

The aim of this study was to identify the equity issues that hinder the participation of the people in the management and the maintenance of the rural water systems in Tonga. Five villages in Tongatapu were selected for the study as well as the appropriate Tongan Government Departments and donors. Participatory observation and interviews were techniques used for collecting information from the participants. Published and unpublished materials on water and other related materials were referred to in this study as well.

Despite the need for water supply systems in rural areas of Tonga and the increasing demands for water, it was found that many systems, which were delivered in a very top-down manner, were not working effectively. The major finding was that economic, social and political structures in Tonga impeded the participation of grassroots people in the management of water systems. Although modern technologies are being introduced to solve water problems in Tonga, their successes are partial. Previous studies that were carried out in Tonga in trying to find ways of solving water management problems in Tonga also have had partial successes. This study concludes that unless participation is considered a human right, water management problems in Tonga can not be solved.

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## GLOSSARY

CLD	Crown Law Department
CPD	Central Planning Department
DCC	Development Co-ordination Committee
FAO	Food and Agricultural Organisation
H.M. Cabinet	His Majesty's Cabinet
MIRAB	Migration, Immigration, Remittances, Aid and Bureaucracy
MLSNR	Ministry of Land, Survey and Natural Resources
MOH	Ministry of Health
MOF	Ministry of Finance
MOW	Ministry of Works
NGO	Non-Government Organisation
PHS	Public Health Section
RBDF	Rural Business Development Fund
RDU	Rural Development Unit
SCDF	Small Community Development Fund
SPF	Small Project Fund
TWB	Tonga Water Board
UNICEF	United Nations Children's Fund
VWCs	Village Water Committees
WHO	World Health Organisation
WRC	Water Resource Committee

## TONGAN WORDS

<i>'apo</i>	traditional respect paid by relatives and friends to the deceased before burial in Tonga
<i>faka'apa'apa</i>	respect
<i>fahu</i>	a system whereby women are higher in rank than men in Tonga
<i>fatongia</i>	obligation
<i>ha'a</i>	means lines of ancestry with <i>Ha'a Tu'i</i> for the Kings' line, <i>Ha'a 'Eiki</i> refers to the middle class, and <i>Ha'a Me'avale</i> for commoners
<i>hou'eiki</i>	noble or chiefly class
<i>kainga</i>	people who are related as in extended family
<i>kalapu</i>	form of fund-raising in Tonga using <i>kava</i>
<i>kavenga</i>	another term used for obligations
<i>kava</i>	pounded roots of <i>kava</i> plants for drinking in social and traditional events- <i>Taumafa kava</i> is for the king, <i>'Ilo kava</i> is for the nobles and the middle class, <i>Faikava</i> or <i>mamakava</i> is for the commoners
<i>lapila</i>	fresh water fish
<i>mana</i>	spiritual or supernatural power
<i>mateaki</i>	loyalty
<i>me'avale</i>	commoners
<i>pule</i>	the authorities
<i>Pulotu</i>	pre-Christian concept for heaven or paradise where ancient Tongan gods and goddesses were residing
<i>ta'ovala</i>	wrap around waist mat (customary dress)
<i>tapa</i>	cloth made from bark of <i>hiapo</i> (mulberry tree)
<i>Tu'i</i>	Tongan word for King
<i>tukituki</i>	<i>kava</i> drinking of commoners especially in a funeral

*uiaki*

when the town officer is walking around the village calling out  
to inform the people that there will be a village

*fono*, where and when the *fono* will be and the purpose of it.

*'ulumotu'a*

head of the extended family

# CHAPTER ONE

## INTRODUCTION

### *1.1 AIMS OF THIS THESIS*

This thesis examines equity issues that affect the participation of people in managing rural water supply systems in Tonga. Tonga has numerous development needs and one which touches on everyone's lives on a daily basis is the need for water. From household to commercial uses, water is vital for the present and future development of Tonga. While many donors have assisted in bringing water supply systems to villages in recent years, their efforts have not yet assured a constant, reliable water supply for all.

A bilateral study carried out by the Australian and Tongan Governments in 1992 (PPK Consultant Report 1992) reported numerous problems regarding the rural water supply system in Tonga. These ranged from technological problems to institutional, structural and attitudinal problems. Since I have lived in a Tongan village all my life except for the time I went overseas to study, I know that these problems are real. Among their recommendations was for all people in the community to participate in the management of the rural water supply system in Tonga.

My aim is, therefore, to identify equity issues that need to be addressed so that people are encouraged to participate in the management of the rural water supply system in Tonga and benefit from this participation.

However, participation is a complex issue and in the past initiatives in the name of participatory development have not always succeeded in assisting those who need help the most. Mayoux (1995), for example, criticised participatory development approaches for failing to address inequities in terms of gender, time and resources. As well as looking at the actual water management systems in Tonga, therefore, this thesis will also consider theories of participation.

## ***1.2 LIMITS AND BENEFITS OF THIS STUDY***

This study is limited to examining the rural water supply systems in Tongatapu, one of the four island groups in Tonga, (Figure 1.2) for the following reason. Tongatapu includes the main administration centre for Tonga, Nuku'alofa, where there is greatest access to communication systems, technical experts, donor assistance and other resources that are scarcer in the outer islands. We can thus conclude that if water supply problems in Tongatapu are serious, then problems in the outer islands will be even worse.

This study hopes to benefit everyone in Tonga and also the donor countries by showing them how they can plan the management of water effectively. Donor countries have assisted Tonga in upgrading their water supply system in the rural areas, thus they need to understand how they can overcome problems which have arisen. Similarly, most people in Tongan villages have had water systems planned for them, and not always effectively, so they need to understand how they could assist in improving the water delivery system.

## ***1.3 TONGAN CONTEXT***

This section looks at physical, social, economic and political structures in Tonga in order to demonstrate how people's participation in development is either hindered or promoted in Tongan society as a whole. It aims to identify equity issues that need to be addressed for achieving equal participation of people in the development in general in Tonga and in the maintenance and management of rural water supply systems in particular.

### **1.3.1 Physical Structures**

Tonga is located in the South Pacific region in the world as shown in Figure 1.1. Tonga consists of 172 small islands spread across 700,000 square kilometers of the Pacific Ocean and together they comprise only 688 square kilometers of land area (Buchan and Connell 1991; Prime Minister's Office 1995). Of the 172 islands, there are only 36

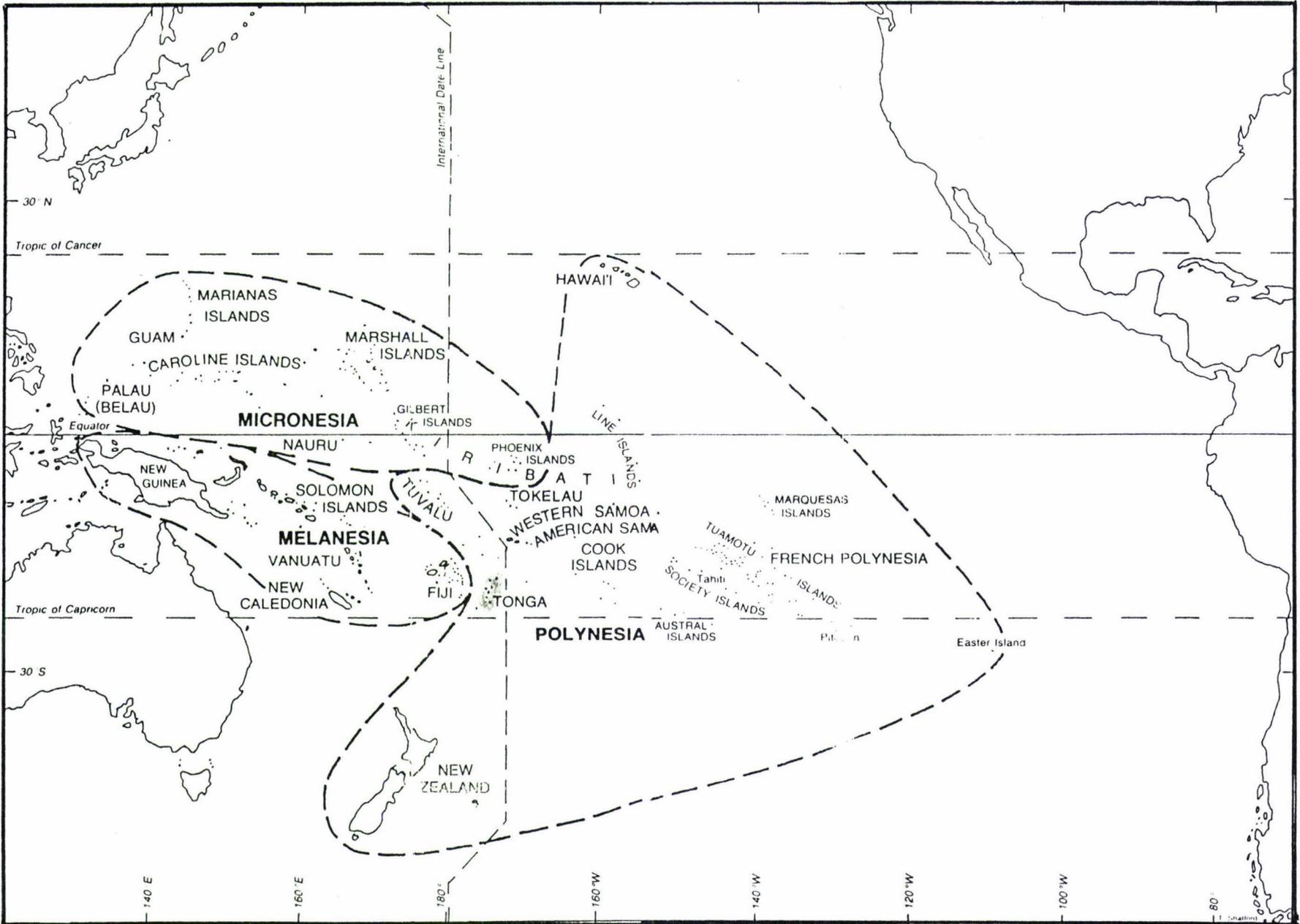
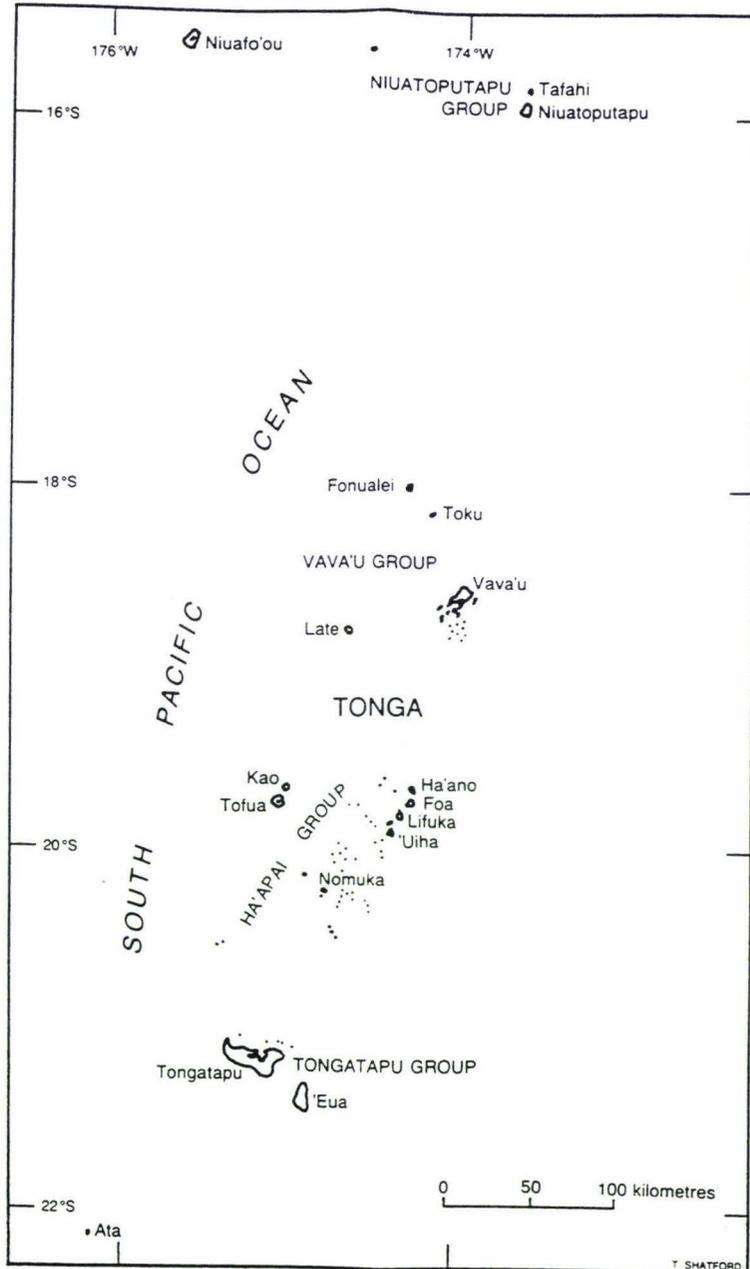


Figure 1.1: World Map with Tonga (Source: Campbell 1992)

islands that are inhabited. Tonga is very vulnerable to natural disasters for it is located in the middle of the ocean. Tonga consists of four main island groups as shown in Figure 1.2: Tongatapu, Vava'u, Ha'apai and the Niua's in the North.

**Figure 1.2: The Four Main Island Groups in Tonga**



Source: Campbell (1992)

According to Tonga's Sixth Development Plan 1991-1995, Tonga's population is about 95,000. For administration purposes, 'Eua is divided off from Tongatapu making it five

island groups. Table 1.1. shows the distribution of people in these five groups. Table 1.1 also shows the districts and villages of each Tongan island group.

**Table 1.1: Districts, Villages and Population Distributions in the Four Main Island Groups of Tonga**

<b>Tongatapu (63,600)</b>	<b>Vava'u (15,200)</b>	<b>Ha'apai (9,000)</b>	<b>Eua (4,400)</b>	<b>Niuas (2,4000)</b>
Districts:# of villages	Districts:# of villages	Districts:# of villages	Districts:# of villages	Districts:# of villages
<b>Kolofo'ou: 4</b>	<b>Neiafu: 7</b>	<b>Pangai: 4</b>	<b>Eua: 5</b>	
<b>Kolomotu'a: 6</b>			<b>Eua Fo'ou: 9</b>	
Vaini: 9	Pangaimotu: 4	Foa: 5		Niuatoputapu: 4
Tatakamotonga:9	Hahake: 8	Lulunga: 6		Niuafu'ou: 8
Lapaha: 12	Leimatu'a: 4	Mu'omu'a: 3		
Nukunuku: 10	Hihifo: 5	Ha'ano: 5		
Kolovai: 12	Motu: 5	Uiha: 4		

**Source:** Tonga Sixth Development Plan 1991 - 1995.

**Note:** Districts and villages that are **bold** are regarded as urban areas by the Tonga Water Board. Note also, 'Eua has only one village with a village water committee.

As seen in Table 1.1, Tongatapu has the greatest population, land area and the highest number of villages as compared with the other island groups. According to a South Pacific Commission Report (1983), about 76 percent of Tonga's population reside in the rural villages.

The climate is tropical with temperature ranging from 17-33 degrees celcius. Tonga lies within the Trade Wind zone of the South Pacific. Strong winds are not common except during the tropical cyclones and on average just over one tropical cyclone strikes Tonga each year (Buchan and Connell 1991; South Pacific Commission 1983). The rainfall follows a pronounced wet season from November to April when about 67 percent of the annual rainfall occurs. Average annual rainfall at Nuku'alofa is 1,900mm, Vava'u is 2,300mm and Ha'apai is 1,700mm (Thompson 1988 (5) in Buchan and Connell 1991). Thus while Tongatapu has the highest population and land area, Vava'u has the highest annual rainfall.

In terms of natural resources, Tonga lacks industrial resources such as minerals and crude oil and land and forests but is rich in sea resources. According to Hau'ofa (1977), however, Tonga's greatest richness is based on the good nature of the people.

Overall, Tonga is small, lacks natural resources, and is vulnerable to natural disasters. Increasing pressure is being put on the natural resource base, however, because of population increases and increasing expectations of people in terms of their demands for a higher standard of living (Hau'ofa 1977). This makes Tonga's resources vulnerable to destruction, over-exploitation, extinction and pollution for the sake of 'modernisation'. According to Campbell (1992);

*...Tonga's resources are becoming degraded. The population pressure has led to severe deforestation and the over-exploitation of reefs. Some plants, birds and shellfish have become rare or extinct in the last generation. Waster disposal has become a major problem. Swamps have been subdivided for residential use. The quarrying of sand and rock for buildings and roads is leaving noticeable scars and local shortages; the ruin of some beaches is becoming apparent. Conservation legislation has been enacted but is widely ignored...*

Although infrastructural development can bring improvements in the standard of living it also accelerate the destruction of the environment. At the same time, the benefits and costs are not equally distributed. For example, road building materials could be quarried from a remote part of an island, leaving a scar on the landscape, to be used to improve roads in the main town. Thus development often leaves some people poor or disadvantaged despite the efforts made by both governments and donors agencies.

### **1.3.2 Economic Structures**

Tonga is one of the South Pacific Island countries known as a MIRAB economy for they are dependent on migration, remittances, aid and bureaucracy for their development. The South Pacific Commission (1983) noted that;

*By most standards Tonga is one of the poorest countries in the South Pacific, although basic needs are generally satisfied throughout the country, in part by virtue of the extended family system but also because of the flow of remittances into the country.*

Migration to overseas countries is important for keeping Tonga's population at a steady growth rate since Tonga lacks abundant natural resources. If all the Tongans overseas had remained in Tonga, it would now be a crowded place with people competing more for the limited resources. Furthermore, migration is seen by Afeaki (1983) as being good for maintaining peace in Tonga but it does not help in transforming Tonga's conservativeness in terms of the social and economic structures as will be explained later in this chapter. Hau'ofa (1977) noted that frustrations with the Tongan system mean that you either become part of the system or you had better leave the country. This shows the strength of the traditional Tongan system.

The Tongan people who migrated overseas also assist with the economy of Tonga by sending money home to families and friends to meet their social and economic obligations. According to Afeaki (1983) and Campbell (1992), remittances are also vital for dealing with a growing trade deficit in Tonga. In 1976, about US\$500,000 was sent to Tonga as remittances (Afeaki 1983), however, Sturton (1994) reported that in the second quarter of 1993, remittances or private unrequited transfers were T\$15.3<sup>1</sup> million and for the same period of 1994, the remittances were T\$14 million. This shows that remittances play a vital role in the economy of Tonga. Furthermore, it shows that the ties between the Tongans overseas with those in Tonga are still strong. Therefore, although the brain-drain due to migration is seen as a development problem for Tonga, it is also considered good for Tonga that these people have good jobs overseas and they contribute to the economy of the country.

Aid is donated by overseas countries to help build up Tonga's social and economic development. The purpose of aid is to assist the people in achieving a higher standard of living, however, the hierarchical nature of the Tongan society socially, economically,

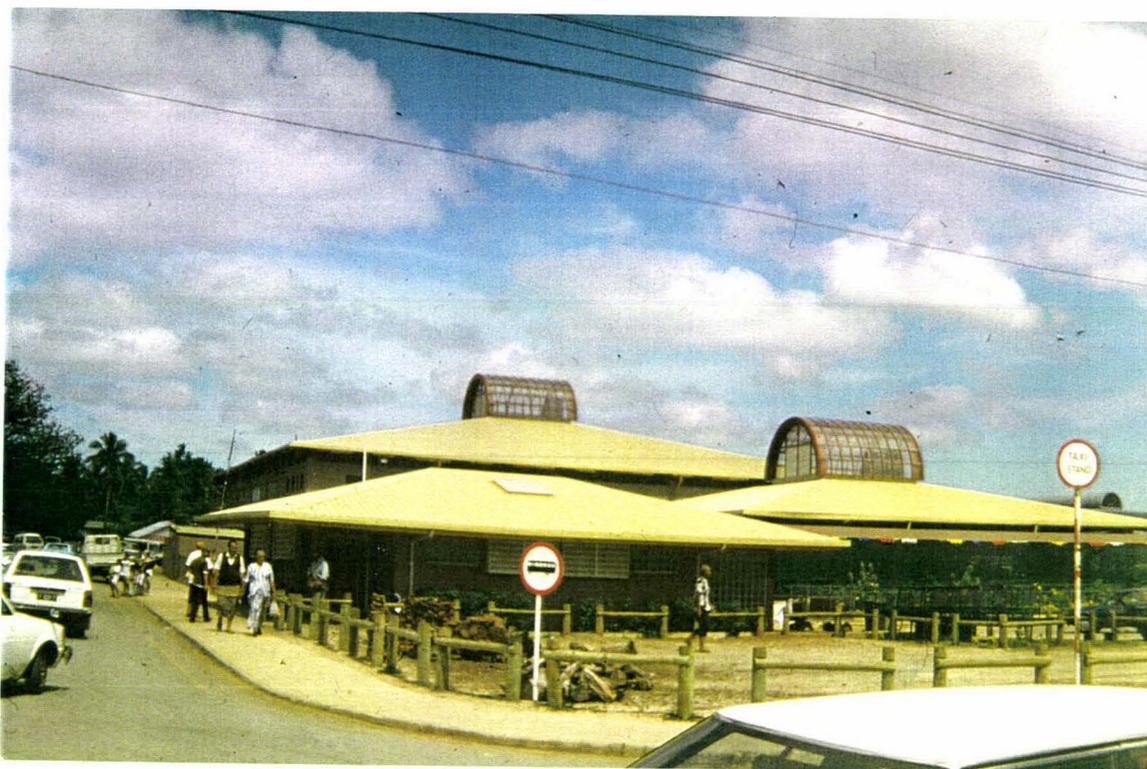
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<sup>1</sup> Exchange rate for May 1996 was T\$0.86 equals NZ\$1.00.

politically, religiously and bureaucratically makes it difficult for aid to be distributed equally and quickly to those who most need aid.

For example, Photo 1.1 shows the new market in Nuku'alofa, Tongatapu which was funded and constructed by the Japanese Government. This is the only national market in Tongatapu where people come to sell and buy local goods and produce. However, the market is located at the center of town which disadvantages many rural people for they still have to meet the costs of transport, time spent and energy to bring their produce to the market.

**Photo 1.1: The New Talamahu Market in Nuku'alofa, Tongatapu**



As prophesied by Hau'ofa (1977), a vast majority of the Tongan people will be landless, but will depend entirely on the bureaucracy and on wealthy and often exploitative economic leaders. Bureaucracy in Tonga is characterised by the power accumulated by the top people in the government who are mostly people who are well educated, rich in comparison with the rest of the people and are holders of traditional status.

Because of these factors, decisions made by these leaders are not to be questioned by the lower staff. For specific favours to be requested from the top traditional leaders, people have to acknowledge their status by wearing traditional formal wear and presenting gifts to them when requesting their favours (Afeaki 1983). When one is an employee, the relatives of the boss are usually feared in the work place. The decisions come down from the top to the people at the bottom. Formal jobs are seen as superior to informal jobs so government officers are reluctant to get down to grassroots level with village people.

Apart from being a MIRAB country, there is another key feature of Tonga's economy. As mentioned earlier, Tonga is not well endowed with natural resources. The land and sea are, however, effective in meeting people's subsistence needs. Many people grow or fish for their own food, and they also collect materials for handicrafts and construction from the natural environment. Land is important for commercial agriculture too yet not all people have access to land (Needs 1988; Hardaker et al 1987). Similarly not everyone has the skills to do commercial fishing or the equipment for deep sea fishing. Poorer people, therefore, have few opportunities to engage in commercial activities.

### ***1.3.2.1 Land Ownership System in Tonga***

According to Tupouniua (1977), the Land Act provides for the division of all land in Tonga into the three categories of that owned by royals, nobles and the government (Tupouniua 1977). Royal lands belong to the King. Noble lands are distributed by the nobles to people residing in their designated areas and government lands are controlled by the Ministry of Lands, Survey and Natural Resources (MLSNR). Men acquire and register land by requesting and applying to the nobles and the MLSNR. It is only men who can acquire land as noted by the Prime Minister's Office Report (1995):

*In accordance with the Constitution and the Laws of Tonga, men and women are equal. In most legislation, there is no discrimination between men and women. It is only in the Land Act and inheritance that there is differentiation of genders.*

Once the lands are legally registered they become hereditary by passing from one generation to another. Under the law, all males aged 16 or over are entitled to land but this is no longer possible in practice. The increasing population and the economic value of land affects how land is managed and distributed today.

Because of the increasing population, Afeaki (1983) noted that this gives the nobility the opportunity to exploit the landless insisting on ‘gift presentation’ before land is allocated. In most cases, families have to take Tongan *tapa*<sup>2</sup>, mats and money to the noble to sign the papers approving that land be given to these families. It is the introduction of a monetary system that has impacted on the way the nobles distribute land with the poor being most disadvantaged.

According to the Prime Minister’s Office Report (1995), the inequality in land rights is balanced by the laws of the land which protect the rights of deserted wives and children. Under these laws, husbands can be ordered by the court to provide for the children’s maintenance until the age of 16. These benefits do not extend to the case of deserted husbands. Furthermore, widows and unmarried daughters have the rights to use their husband’s and father’s estates.

The uses of the land have always been associated with cash crops but not with its importance for growing mulberry and pandanus trees for making *tapa* and mats respectively. *Tapa* and mats are significant not only for sustaining and maintaining the traditional social and ceremonial roles of women but also today for earning money for the use of Tongan families. The making of mats and *tapa* is mostly done in the villages where all classes of women perform these tasks almost daily. Even the poorest of the poor women are good at sharing resources and time to engage in these activities. Some do these tasks collectively and others on their own.

It is obvious from the above explanations that land is distributed unequally with the royals, nobles and officers of the MLSNR having control over land. This hinders the

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<sup>2</sup> *Tapa* is made from mulberry paper plants by the Tongan women. (See Figure 5.2 and 5.3).

participation of the people in their development because it is land that provides the people with their subsistence living and opportunities to earn an income.

### 1.3.3 Social Structures

Now that the inequalities in physical and economic structures, plus the nature of the land tenure system, has been discussed, it is important to see how they are related to social structures in Tonga.

The Tongan people are part of the Polynesian race and are closely related to the other Polynesian countries in the South Pacific region. The Tongan language is spoken uniformly in Tonga with English being the second language. According to Afeaki (1983),

*The Tongans had no written language until the missionaries arrived at the beginning of the nineteenth century but by word of mouth, from father to son, [and mother to daughter], the genealogies and other traditions which were basic to the preservation of that political dynasty, had been preserved.*

It is reported that although there was no written language, the Tongan traditional social class system has been sustained and inherited from the Tongan ancestors through exceedingly complex social and ceremonial patterns such as the *taumafa kava*<sup>3</sup>, weddings, funerals, national feasts and so forth. Tonga is probably the most stratified of all contemporary Polynesian societies (South Pacific Commission Report 1983), with Tonga being organised in a traditional social class structure with great differences in rank and status.

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<sup>3</sup> *Taumafa kava* is the preparation and the drinking of pounded roots of the kava plant. Bott (1982) described it as act of communion and 'it commemorates not only the sacrifice of the people for their king, but also the sympathy and appreciation of the king for his people.'

Traditionally, authority was given to men through the socio-political system while rank was given to women as seen in the *fahu*<sup>4</sup> system, to be explained below (Fleming and Tukuafu 1986). These traditions have been preserved through to today.

### **1.3.3.1 *Tonga's Traditional Social Class System***

Tonga became a constitutional monarchy with a similar model to that of the British monarchy after the royal son Taufa'ahau was baptised as a Christian and named, after the King of Britain at that time, as King George Tupou 1 (Naulivou 1995; Bott 1982; Afeaki 1983). The traditional Tongan society was organised as in Figure 1.3, but this has changed somewhat in recent times.

This system is hierarchical and ascriptive in nature (Latukefu 1966; Bott 1982). Within the class system, men are seen as title holders and are the *pule*<sup>5</sup> (Bott 1982). Bott noted that;

*Men have authority over their younger brothers, and over their children and also over their wives. They control access to land and titles; they control and organise economic affairs.*

Each class had specific responsibilities to perform. The commoners and the slaves were to farm the land, fish in the sea and weave fine mats and present the best of these products to the King and their nobles. The priestly class were those who had the skills to get in touch with the dead spirits of their ancestors. The skilled tradesmen were good with navigation skills which were vital during the times of civil wars and for colonising the neighbouring countries in the Pacific. The royals and the nobles were to redistribute their wealth, protect the people from enemies and to maintain peace among the people. Most of the nobles stayed in the villages with the people while the royals stayed in Nuku'alofa (Afeaki 1983; Latukefu 1980). Some of the nobles were selected to attend to the King because they had been trained in specific skills such as weather, time, and fighting enemies. However, changes in the last century have seen the nobles move to

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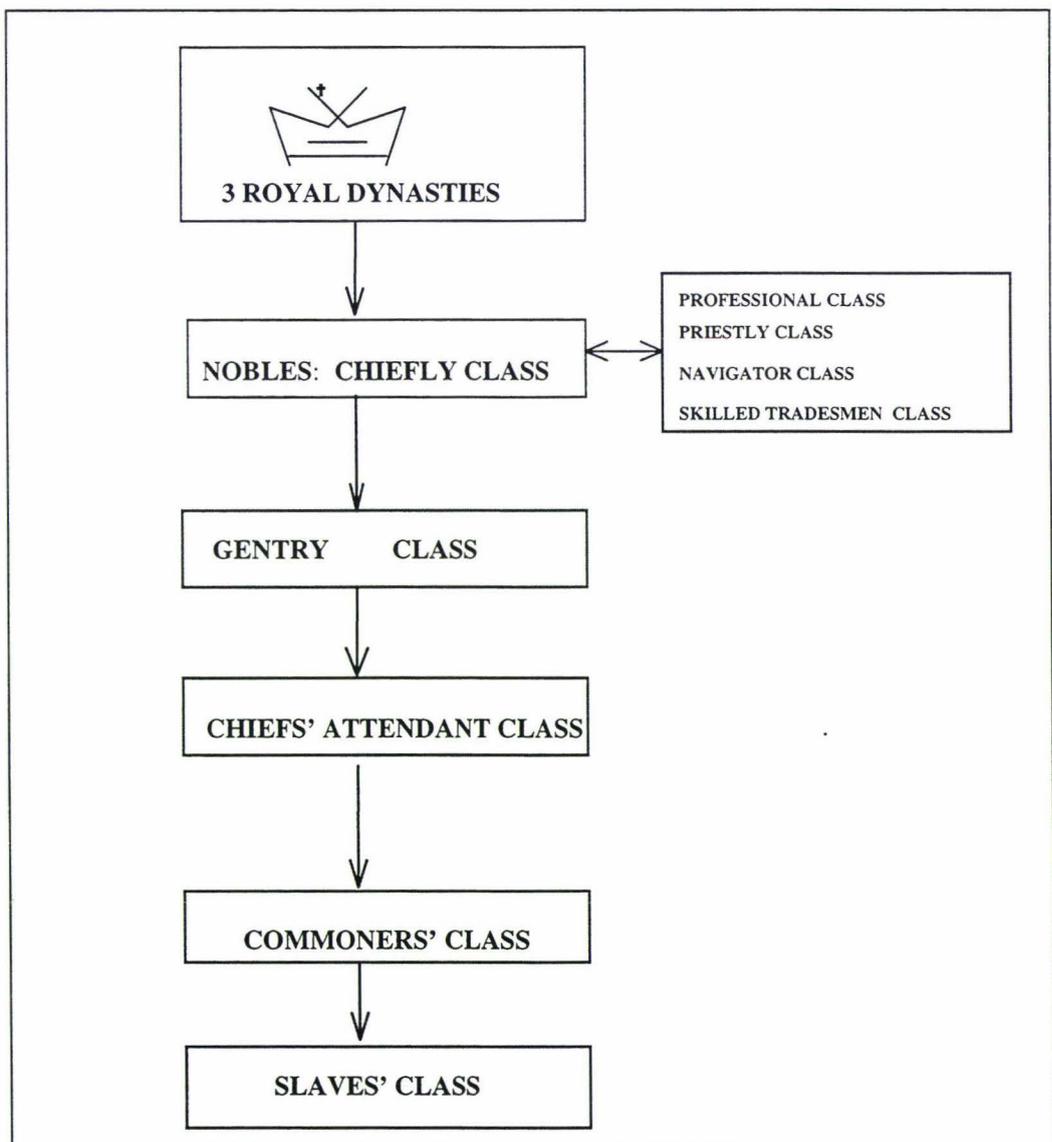
<sup>4</sup> *Fahu* refers to a system whereby women are higher in rank than men in Tonga.

<sup>5</sup> *Pule* means authorities (Bott 1982).

the main centres and their contact with the people is limited to only the things nobles consider important.

This traditional system has changed over time in some ways with the town officers taking the roles of the village chiefs. However, many aspects of this system are still in place such as the three important classes of royals, nobles and commoners. The traditional roles of each class hinders the participation of the people in their own development by prescribing that only some classes of people may have certain privileges and authority, and that others are there to serve them.

**Figure 1.3 Traditional Social Class System in Tonga**



Source: Based on Latukefu (1980)

### 1.3.3.2 *Royalty and Kinship Systems in Tonga*

Each class consists of many *ha'a*. Gifford (1924) defines *ha'a* as a partilineage, that is, a group of people descended through men from a common ancestor. *Ha'a* are organised around titles. Kinship therefore refers to the relationships between the different *ha'a*. There are three main *ha'a* in Tonga. The Kings' *ha'a* known as *Ha'a Tu'i*; Nobles' *Ha'a* as *Ha'a 'Eiki* and the Commoners' *Ha'a* as *Ha'a Me'avale*, meaning that they have no knowledge to lead the country. The other classes as outlined in Figure 1.3 were formed through appointment by the King and the nobles.

The three dynasties refer to the three *Ha'a Tu'i*. There are only 13 *Ha'a 'Eiki* in Tonga and the rest were appointed by the Kings of the *Ha'a 'Eiki*. The Commoners' *Ha'a* are intertwined through intermarriages.

The first King of Tonga was *'Aho'eitu*. According to the history of Tonga, *'Aho'eitu of the Tu'i Tonga Dynasty* descended from heaven with divine power (Moala 1994, Bott 1982; Afeaki 1983; Campbell 1992). During the 18th Century, there were many civil wars in Tonga between the various *Ha'a*. When the missionaries arrived, however, *Taufa'ahau*, the nineteenth *Tu'i Kanokupolu*, was convinced of the value of Christian beliefs and was baptised a Christian in 1834. When he won the last civil war, he united Tonga as one. He was then named after the King of Britain linking Tonga and Britain through Christianity because of the work of the British missionaries (Campbell 1992; Moala 1994; Bott 1982). After his baptism, the King burnt all the battlefields and adopted a constitutional monarchy, thus freeing all people from slavery.

On the 20th of November 1839, He consecrated Tonga, its people and their future to the Christian God in Pouono, Neiafu, Vava'u (Moala 1994) in the presence of the British Missionaries, nobles and both local and overseas people who were there. The National Flag of Tonga was then decided to bear the Cross of Jesus with red and white colours to signify the blood and tears of Jesus. The National Shield bears the words of “*'Otua mo Tonga ko hoku Tofi'a*” which is translated as ‘God and Tonga are my Inheritance’. The National Anthem of Tonga (Moala 1994) signifies the respect given to both God and the Tongan King by the people.

<i>'E 'Otua Mafimafi</i>	<i>O God Almighty</i>
<i>Ko homau 'Eiki Koe</i>	<i>Our only God</i>
<i>Ko Koe, koe falala'anga</i>	<i>You alone, we trust</i>
<i>Moe 'ofa ki Tonga.</i>	<i>And love of Tonga</i>
<i>'Afio hifo 'emau lotu</i>	<i>Receive our prayers</i>
<i>'A ia 'oku mau fai ni</i>	<i>which we are offering</i>
<i>Mo ke tali homau loto</i>	<i>And receive our hearts</i>
<i>'o malu'i 'a Tupou</i>	<i>in protecting our King</i>

The nobles' class is referred to as *Ha'a Hou'eiki* and they are expected to intermarry within their class so as to retain their status.

As stated, the commoners' class, *Ha'a Me'avale*, have no titles but they have the *'ulumotu'a* (head of a *kainga* or extended family) to lead them according to their responsibilities. While Tonga is obviously a highly stratified society, within the commoners' class, while dealing with ones own kin, it is also true that people share their resources, based on the principles of reciprocity and love (Kavaliku 1977). There is no welfare system in Tonga thus commoners depend on kinship to maintain their society. According to Moala (1994), the kinship relationships are governed by love and respect for the parents, elders, brothers, sisters, aunts and uncles and so forth as in the traditional value system.

The hierarchies outlined above have been rooted in the heart of the Tongan people, though with modern education, many now want to reform the government and royalty system (Afeaki 1983).

### **1.3.3.3 Fahu System**

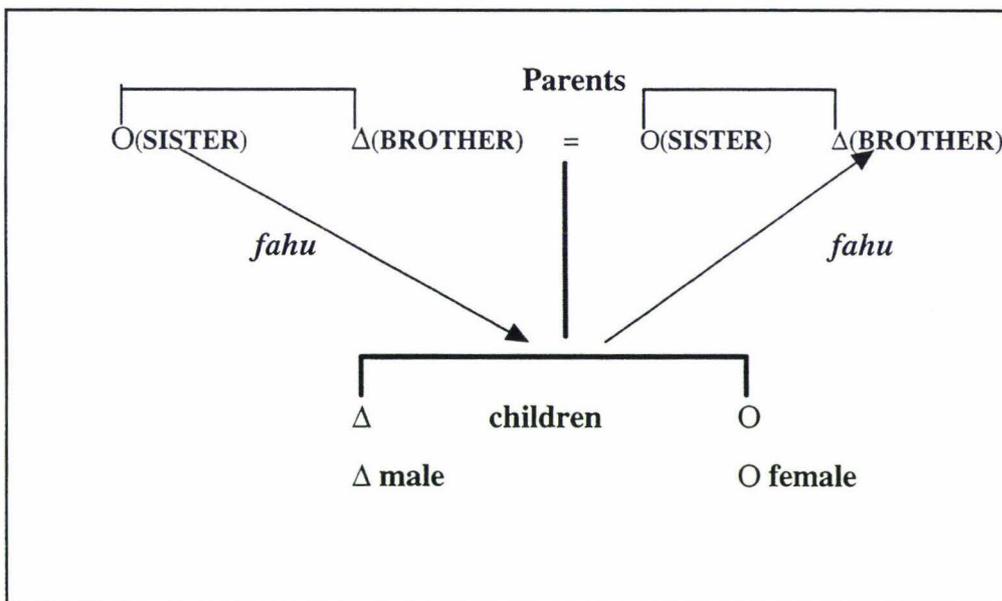
While men are traditionally the *pule*, women are given the highest rank as in the *fahu* system. Figure 1.4 illustrates the *fahu* system in Tonga showing the social superiority of a sister (aunt) over her brother's children.

This means that sisters have certain rights:

*Sisters have a right to be respected by their brothers and the right to ask them for food and support, though they cannot command as a father does. Older siblings have both higher rank and more authority than younger siblings (Bott 1982).*

The social and *fahu* systems form the relationships between men and women within the homes and the extended families and the kinship or *kainga* which are incorporated in Tonga's traditional value system (Kavaliku 1977; Tupouniua 1984; Bott 1982; Naulivou 1995).

**Figure 1.4 Simple Illustration of the *Fahu* System in Tonga**



Source: Adapted from Tupouniua (1977:23)

#### 1.3.3.4 Traditional Value System

The social and *fahu* systems in Tonga are governed by three traditional values (Latukefu 1980): *faka'apa'apa* (respect), *fatognia* (obligations) and *mateaki* (loyalty). Everyone must uphold these values regardless of status, rank or class. However, respect is accorded differently to the King, nobles and the people as seen through the use of

language, traditional wear and decorations put in places where they will sit in traditional ceremonies. Also, the best of food is prepared for the nobles and royalties.

Furthermore, the introduction and acceptance of Christianity by the leaders and the people of Tonga means that Christian values are also expected to apply to everyone, including loving one's neighbours. In practice, traditional respect is also given to the Church leaders just the same as to the traditional leaders for they represent God to the people. As noted by Hau'ofa (1977), a highly respected Tongan scholar;

*We derive joy from exchanging food with our neighbours on Sundays, calling passers-by to share our family meals, drinking kava in an atmosphere of convivial fellowship with our friends, showering hospitality on visitors to our shores, caring for our elders and for those who have fallen on hard times, and offering first fruits to our monarch and thanksgiving feasts to our God.*

The three traditional values combined with Christians principles make it hard for people to question or go against a decision made by the church and traditional leaders. In development, participation of the people is sometimes hindered because of respect, obligation and loyalty of the people to their superiors.

### **1.3.5 Political Structures**

Paralleling the social structures in Tonga, political structures are also strictly hierarchical. They are dominated by both traditional and modern elites. The traditional elites consist of the King and the nobles. The modern elites consist of the well educated people, especially men. Figure 1.5 shows the political system in Tonga.

The positions in the Privy Council and Cabinet are appointed by the King for life unless the ministers wish to resign. These positions include well educated commoners and traditional elites. Commoners elect their own nine representatives of the legislative assembly and the 33 nobles also elect their own nine representatives. Thus compared to other countries Tonga is not very democratic (Afeaki 1983).

The political system is also gender biased. Historically, there has not been any woman in the Privy Council or Cabinet. Only two women have ascended to the throne, *Tupoumoheofo*, the 12th *Tu'i Kanukupolu* and Queen Salote, the 21st *Tu'i Kanukupolu* (1918-1965). Although decisions have always been associated with men, the reigning of the Queens of Tonga has contributed to harmony and peace with men being respectful of them. In the history of the Legislature, only three women have entered Parliament in the last 20 years (Prime Minister's Office Report 1995). For district and town officers, men are always elected to these positions although theoretically, the positions are open to women too. Decisions that are made at the top are passed down to the people through the village *fono* or village meetings.

#### **1.3.5.1 Village Fono**

*Fono* refers to the monthly village meetings carried out by the district and the town officers. The district officer, who is elected by the people, is given a designated area to look after of more than one village. The town officer who is also elected by the people of the village to look after the village for the government. The *fono* was traditionally carried out by the chiefs but the introduction of the formal government system resulted in this role being given to the district and town officers (Tupouniua 1984). The town officers are required to call a village meeting in the first week of each month through a *uiaki*<sup>6</sup> before the *fono*. Although the *fono* may seem like a forum through which commoners can air their views, it is very difficult for them to do so in practice. According to Walsh (1972) 'the *fono* is not a place for discussion or complaints.'

With an increase in population and modernisation, most *fono* are carried out in community halls. District Officers are expected to be present at the first and the last *fono* of the year in their designated villages and to ensure that the town officers are aware of their duties.

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<sup>6</sup> *Uiaki* means that the town officer walks around the village and informs the village people of the time, place and purpose of the *fono* by calling out using his voice. Today some officers use loud speakers.



### 1.3.6 Church Structures

Christianity has introduced a new aspect of culture into the South Pacific, including Tonga. While almost all Tongan people believe in Christianity and its teaching and that there is one God residing in Heaven, the strength and practice of people's faith depends on individuals. In August, 1996, a report was published on a survey that was carried out in Tonga, including the question 'Do you believe that there is a God?' to which 99.94 percent of the 1,700 plus people surveyed said 'yes' ('Ofa Ki Tonga, Vol. IV Number 2). The survey also indicated that Christianity had displaced or weakened the beliefs in the spirits of the dead or *pulotu* (Buchan and Connell 1991; Bott 1983; Tupouniua 1977; Campbell 1992).

There are many churches in Tonga with different practices, however, the teachings of all are based on the principles of Christianity. The churches in Tonga are led by men with only a few women in the top positions in some of the churches (Figure 1.6).

Churches can cause divisions among the village people because of the differences in practices of their Christian faith. Some minority churches do not participate in community work for they feel weak and powerless when working together with people from the major church in their village. Churches also weakened the linkages between extended families. For example, when someone converts from Catholicism to Mormon or vice versa, it is often met with disagreement among families and often resolved with the breaking of family ties.

The daily meetings of church members usually strengthen the ties between church members more than between extended families if family members belong to different churches. However, the promotion of the National March for Jesus on the streets of Nuku'alofa which is part of an international event, is supported by the people of the country regardless of denominations. I was in Tonga when they had the 1996 March and the street was packed with many people with all marching including the King and Queen. This is taken as preparing for celebrating the 2000 years since Jesus's Birth. It also tried to unite people as one despite the divisions in the practices of their Christian faith.

Photo 1.1 below shows the Catholic Basilica in Nuku'alofa. Every village in Tonga has many church buildings depending on the number of different denominations in the village.

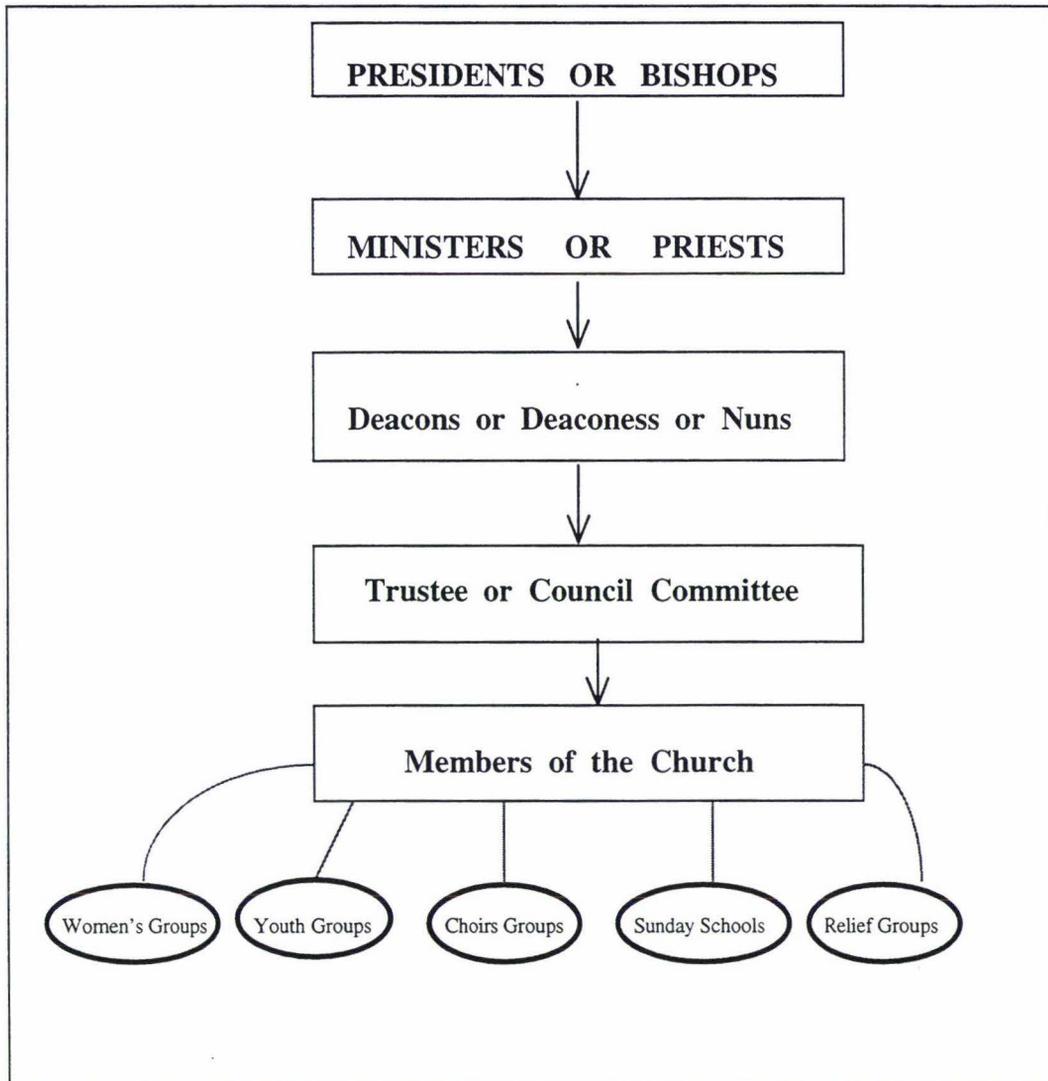
**Photo 1.2: Catholic Basilica Church (St. Anthony of Batua) in Nuku'alofa**



### **1.3.7 Women Organisations' Structures in Tonga**

There are many women's organisations in Tonga ranging from national organisations to church organisations and village organisations. The first national women's organisation in Tonga was established in 1956 as the '*Langa Fonua 'a Fafine Tonga Women's Organisation*' by Queen Salote to encourage women to work together in village development. It was also aimed at encouraging women and men to free their girls to go to school (Campbell 1992; Kupu 1989). This organisation was in 1991 made the umbrella for all national women's organisations in Tonga with the Queen as the Patron of the organisation. Other officer bearers are mostly from the educated elites and wives of nobles and government ministers. This makes it a strong organisation. However, it also means that commoner women would never dream of becoming an office bearer in

**Figure 1.6 Typical Church Structure in Tonga**



such an organisation. They are resigned to accepting the leadership of others, rather than becoming leaders themselves.

Churches have women's organisations and although these organisations call for the active participation of all women in the churches but in reality only those who are free, have resources and are used to participating in such organisations are involved. Furthermore, women with wealth, education and status are mostly the ones being elected to leadership roles because they are seen to have the confidence and respect of the people. Although efforts have been made to distribute leadership roles to other districts and villages still the elites in the villages are elected to the top positions. I was elected as the first secretary of the Tonga's Catholic Women's League in 1992. People see me as

an educated elite who could speak in front of people despite being from a rural village. The women who had no chance of getting such a position lacked what the society considered important such as wealth, status, education and skills. So if there is a need for change, the change must be in attitudes.

Women's organisations in Tonga are not typically feminist in orientation. Instead of empowering women, they focus on making women better wives, mothers and community workers. Any attempt to challenge the structures of these organisations is difficult for many reasons. As noted by the Prime Minister's Report (1995);

*Women find that they tend to fully participate only in those development projects that go in line with their cultural values and beliefs.*

This indicates that equal participation is difficult to achieve because women do not believe or do not have the confidence to challenge the way the economic, political and social systems work in Tonga.

#### **1.4 SUMMARY**

The South Pacific Commission noted, 'that the combined influences of church, monarchical state and relative isolation from outside have given the Tongan society and politics an unusually conservative nature' (1983:1). The social and political structures explained above are hierarchical and largely ascriptive in nature. The respect, loyalty and obligation accorded to those in authority makes it difficult for any individual to complain about unjust or inequitable structures or systems. It is difficult for the people to challenge their own history and culture in order for them to take active roles in their development. Meanwhile, most people believe in the divine power of the King except for a few who have had a formal education and who want reform. Resignation to their status and position in society prevents most people from fully participating in the management of, for example, water projects.

The things that still keep Tonga from real poverty, however, are the traditional principles of reciprocity and love which are strengthened by the teachings of Christianity.

Next an overview of this study is outlined keeping in mind that my aim is to try to find a way of ensuring the equitable participation of people in their development, especially with regards to water projects, as well as ensuring people benefit equally from their participation.

### ***1.5 OVERVIEW OF THE STUDY***

This research thesis consists of six chapters, As we have seen, Chapter One has shown how the social and political structures in place in Tonga preclude or fail to encourage the participation of many Tongans in managing their own development. Chapter Two will look at how nature produced water, the importance of water for life, how water has been managed by humans and the effects of this management on humans and nature. It also looks at the strengths and weaknesses of past water projects which leads to the call for a sustainable model of development for managing water. Chapter Three reviews the development theory literature to find out how equal participation in development can be achieved. Chapter Four explains the methodology adopted in carrying out this study. Chapter Five describes the development and management of the rural water supply system in Tonga. Chapter Six exposes the research findings and analyses the research findings by linking all chapters in trying to ascertain an effective way of managing the rural water supply system in Tonga. My findings will hopefully be applicable in Tonga as well as globally, since water management problems are universal as well as trying to promote participation of people in their development.

## **CHAPTER TWO**

### **GLOBAL CONCERNS FOR WATER**

#### **2.1 INTRODUCTION**

Chapter One provided the context within which this thesis is situated. Now Chapter Two will examine the subject of this thesis: water and its delivery in developing countries. This chapter is divided into three main sections. Section one looks at the natural hydrological cycle of water, its sources and its distribution. Section two discusses how water has been exploited and the impact of this exploitation on humans and nature. It is this exploitation of water which has resulted in calls for an alternative model of development that will sustain water (Third World Guide 93/94 1992; World Bank 1992; Ingham 1995; Winpenny 1992). Section three looks at what we can learn from past water management programmes in the developing countries.

#### **2.2 WATER IN NATURE**

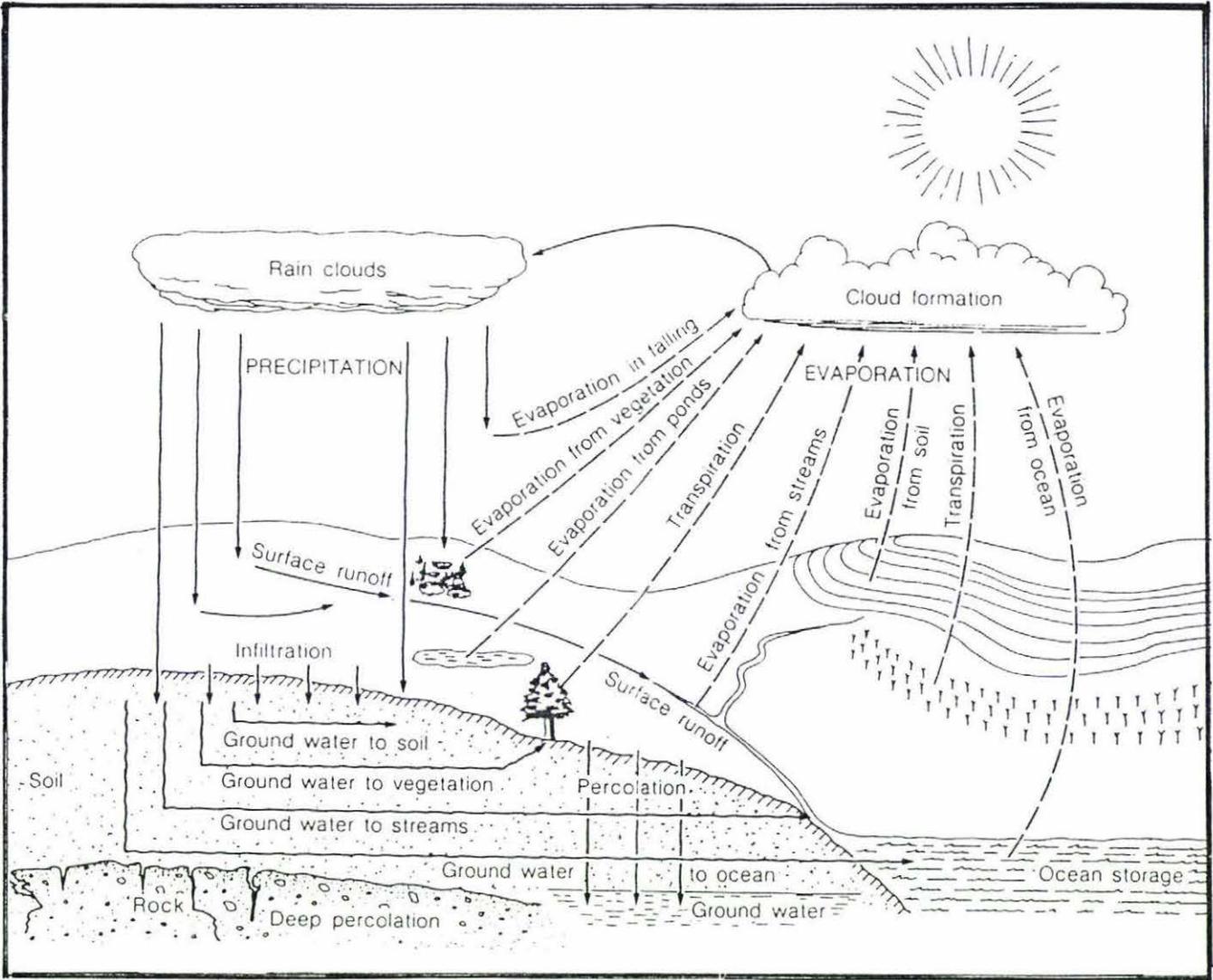
##### **2.2.1 The Natural Hydrological Cycle**

Water is never lost but renews itself for reuse by the ecosystem<sup>7</sup>. The sun, land, sea and atmosphere are nature's water desalination plant and distribution system (Stephenson and Peterson 1991; FAO 1971; Tietenberg 1996). Through the hydrological cycle, water recirculates in its three states of solid, gas and liquid without being lost. Water can be stored in its various forms and in different places at different times either naturally or by human actions for human uses. Figure 2.1 shows the Natural Hydrological Cycle.

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<sup>7</sup> Ecosystem is described by FAO (1971) as the space where the exchange of matter between the living and non-living part of nature takes place, dependent on organic and inorganic mineral substances. This ecosystem is determined by ecological factors which may be divided into abiotic (physico-geographical), biotic (plant and animal life) and anthropogeneous (effects of people's actions on these factors). Provided the factors aggregate and change only to a sufficient extent to permit the continuous adaptation of living organisms, there is ecological balance.

Figure 2.1 Natural Hydrological Cycle



Source: Leeden, F & Troise, L. & Todd, D.K. (1990)

### 2.2.2 Natural Sources of Water

Water is the most abundant resource on earth with approximately 99 percent being trapped in the world's oceans and polar caps. The other one percent is fresh water (Stephenson and Peterson 1991; Thomas 1995; Falkenmark and Lindh 1976). The total water composition and storage on Earth is estimated by the FAO (1971) as shown in Table 2.1.

This table shows that while water is an abundant resource, fresh, accessible water occurs in nature in a limited quantity. At the polar caps, water is trapped as ice so it is not always readily available. Meanwhile, countries that located along or closer to the equator face the problems of drought.

*Table 2.1 Sources of Water*

oceans	1,300,000,000 square km
continental seas and lakes	3,500,000
groundwater	250,000
streams	50,000
atmospheric water	12,300
swamps and marshes	6,000
snow on continents	250
<b>Total</b>	<b>1,304,068,550 square km</b>

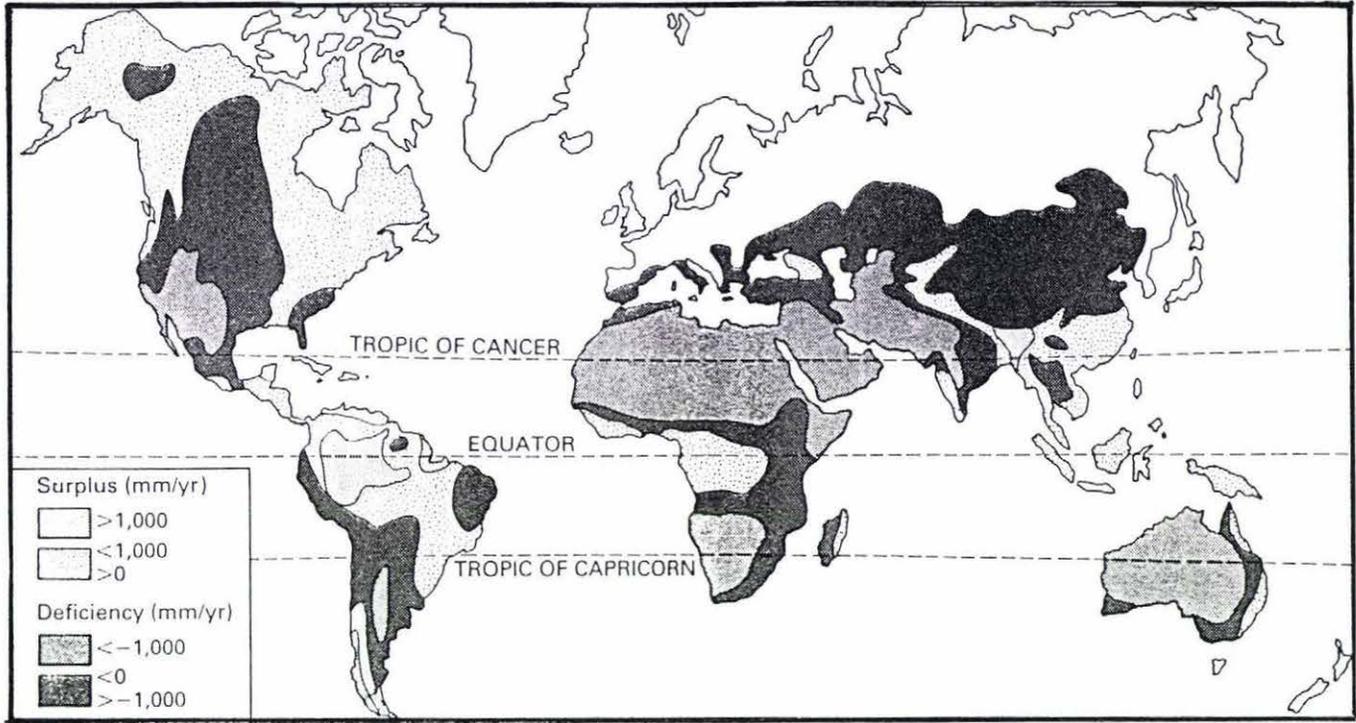
Source: FAO (1971)

### 2.2.3 Natural Distribution of Water Resources

Figure 2.2 shows the natural distribution of the world's water while Figure 2.3 shows the distribution of the world's population. Figures 2.2 and 2.3 reveal the uneven distribution of water in the world with the majority of people residing in the water deficient zones of Africa, India, Latin America, the Arab countries and North Asia. However, there are some developing countries that are located in the water surplus zones, including Bangladesh and other parts of Asia and South America. This shows that although there is enough water in the world for everybody, its natural distribution is not even and thus ensuring adequate water supplies for all people is more of a problem in some countries than in others.

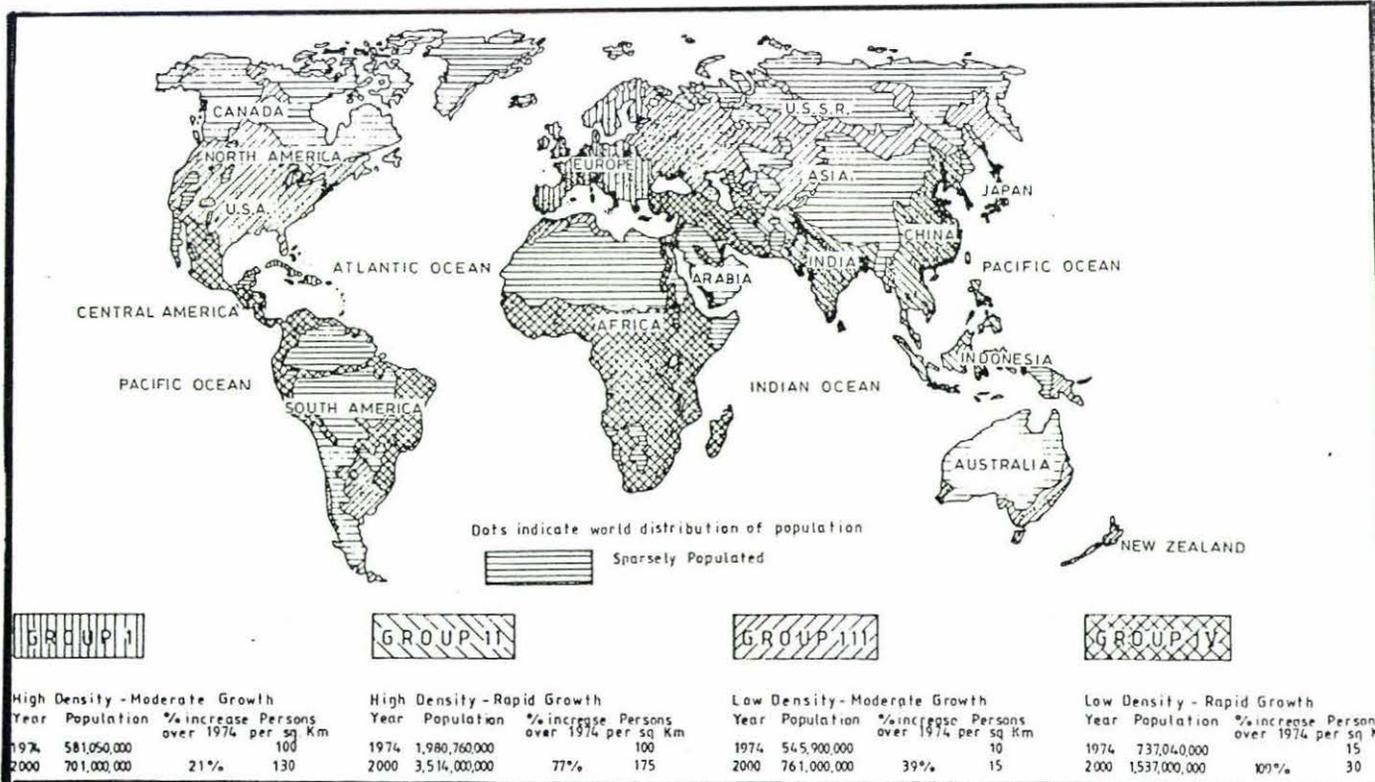
According to Falkenmark (1989), the uneven distribution of water resources effects two thirds of the world's population many of whom live in the developing countries. Such

Figure 2.2: Natural Distributions of Global Water Resources



Source: Thomas, C.J. (1994)

Figure 2.3: Global Population Distributions



Source: Falkenmark and Lindh (1976)

uneven distribution has been affecting the lives of the Somali women, for example, since it is their role to collect water from traditional sources which are far from home. In most developing countries it is women and children who are responsible for collecting water for household needs. This means that women in these countries have to bear the burden of collecting water for all domestic purposes and to keep their families in good health. Thus, for example, as noted by Roark (1984), because availability of water in Somalia is seasonal, women have developed skills to save water in times of plentiful water to be used in times of drought.

While Figures 2.2 and 2.3 show the uneven distribution of water, they do not, however, show the South Pacific countries, including Tonga. These islands are dots on the world map but their water problems are similar to those in other developing countries, with the Pacific Island countries globally being considered as developing countries (Naulivou 1995). Furthermore, many of the Pacific Islands are atolls which face the additional problems of a lack of fresh water resources in the form of streams and lakes to begin with, and sometimes, low rainfall. Water distribution and management within the Pacific Island states like Tonga is, therefore, a serious development issue.

### **2.3 HOW WATER IS BEING EXPLOITED**

Water problems are not only related to the natural unevenness in its distribution. People are also contributing to the water problems. Shiva (1992) noted that many people feel there is a duality of nature and humans which gives humans the right to exploit mother earth. Thus they feel justified in exploiting water to meet their development needs.

The declaration of economic development as the key to addressing poverty and underdevelopment in the developing countries resulted in increasing demands and uses of water not only for basic needs but also for irrigation, for industrial processes, and for meeting the demands of modernisation (Barrow 1987). As noted by White (1993:5):

*The major threats to earth as a home for humans beings are the continued rapid growth of the human population and the proliferation of*

*unwanted 'residuals' (or pollution) from our economic activities - agriculture, mining, manufacturing and transportation, and so on.*

Momsen (1991) noted that the spread of irrigation, usually associated with green revolution crops, has led to a decline in both quantity and quality of drinking water. Water shortages and water pollution resulted in Indian women in Madhya Pradesh walking for many miles to collect water.

Shortages of water in the past due to increasing population and new demands, caused people to move to places where they could find water (Cox 1983). According to Barrow, humans have tried to manipulate the hydrological cycle and the weather to increase precipitation but have had limited successes. He also notes that any future desalination of sea water would be too costly for the people.

The FAO (1971) reported that humans use of water alters the hydrological cycle and influences the environment both positively and negatively. The positive effects are encountered daily while the negative effects usually appear suddenly as problems such as floods or droughts, water logging and health hazards. These negative effects usually caused wide spread damages to both the quality and quantity of water. When humans try to improve their living standards by controlling, developing and using water supplies, they often alter the natural environment and in some cases to their own detriment. According to Falkenmark (1989), Munasinghe (1992), Postle (1989) and Winpenny (1994), these problems are now serious in many developing countries due to poverty and natural hazards. It is reported that the annual renewable supplies from the hydrological cycle fall short of the demands of the increasing population and the mounting developing processes.

Since the hydrological cycle involves the sun, sea, land and atmosphere, any changes in one of these is a change in the water balance and the hydrological cycle. This balance is

hard to measure but the increasing occurrence of natural hazards is evidence of the change in the balance of our ecosystems.

White (1992) noted that the increasing acidity of the atmosphere from industrial pollution is deposited and passed down on terrestrial and aquatic ecosystems through wet and dry deposition through the hydrological cycle. Among the worst acidity is experienced in China because of its own coal-burning activities. Acid rains causes houses to rust and also changes the soil texture. Also it makes rain water unsafe for drinking because its quality is no longer safe. Similarly, Peru is reported to have dropped from being the 'world's number one fishing nation in 1970 to the 14th today' (White 1992:81). This is due to high exploitation of the sea resources and the visible impact of wastes being dumped, washed and deposited into the sea.

The problems of water scarcity are more serious in developing countries because of their lack of technologies for developing and distributing their water resources as well as their lack of resources and relevant skills. Furthermore, people of these countries are vulnerable to diseases because of poor or lack of safe water (Bourne 1984). Because of the seriousness of water problems, water management is seen as vital for ensuring efficient use of water and effective access of people to water.

#### **2.4 THE NEED FOR EFFECTIVE WATER MANAGEMENT**

Water management refers to control over water to prevent its exploitation and misuse. According to Frederick (1993), water demands have increased sharply in the last few decades due to increasing economic development and population growth. The pollution from both economic processes and population growth have threatened not only the quantity of fresh water available but also its quality. Frederick (1984), therefore, calls for a management procedure that ensures a balance of water demands with water supplies.

Winpenny (1994) noted that water should be managed as an economic resource by using a user pay system. But this could only be fair if the administration systems were efficient in carrying out their administration tasks. At the same time, water systems must operate

effectively with spare parts being available locally. Appropriate training must be in place so that people are aware of the consequences and benefits of having a user pays system. Although this is seen as a fair way of dealing with water, Kalbermatten and Listorti (1984) have noted that user pays can mean poor people are paying more for water than the government recommends:

*As a rule of thumb, low income consumers pay a vendor about three times to four times the government basic price for minimum consumption. Moreover, low income groups pay a greater portion of their income for poor service than do higher income groups who get better service (1984:144)*

Turning water into a marketable commodity which the poor cannot afford could lead to the spread of diseases and to some poor people exploiting their environment and other people to get water. Thus user pays may not be the best answer for water management.

According to Kalbermatten and Listorti (1984), the Water and Sanitation Decade (1981-1990) 'calls for the provision of safe water and sanitation facilities by 1990 for more than 2 billion people in the developing world' (1984:135). Donors have thus given their strong support to water projects. Because developed countries are funding most water projects throughout the world, however, they are concerned about efficiency because they have to be accountable to their tax payers. It is clear, therefore, that donors and aid agencies supporting water management programmes, need to plan their programmes carefully and in consultation with the local people as to ensure effective use of their funding. Next we look at case studies of water projects to see if this has been happening.

#### **2.4.1 Case Studies**

An example of a water project is the Vaika Rural Water Supply Project which is located on an island in an independent Melanesian country (IMC). The Vaika Rural Water Supply project, according to Schoeffel (1992) 'aimed to contribute to the achievement of the government of IMC's objective within the framework of the United Nations International Drinking Water Supply and Sanitation Decade.' This typical example of a

water project in the Pacific shows how, despite detailed planning and good intentions, water projects often go badly wrong.

The project started off with a proposal prepared by the national water supply agency of the IMC government. This proposal was sent to aid donors for consideration for funding. A consultant engineer was then employed by the donor agency for project appraisal. The consultant engineer had twenty years of experience working in developing countries in Asia. He inspected the site and planned the project as outlined in the proposal and he recommended to have a micro-hydro generator instead of diesel pumps because it is cheaper for the people. Costing and specifications were then prepared for the new system. He advised the National Water Agency that they would need to train two locals in each district to gain necessary skills for maintaining the project. He drew most of his costing on previous work done by overseas volunteers who were formerly stationed in Vaika. He noted that the maintenance of the water supply would be the responsibility of the Vaika Government. The project beneficiaries were required to make customarily owned land and their labour available as their contribution for the project.

The project design was then submitted to Vaika Government and the donor agency for approval. Once approved, a volunteer engineer was then employed by the National Water Supply Agency to supervise the construction of the micro-hydro generator. The project was announced to the people of Vaika and meetings were held with fifty local leaders. The leaders were asked to form a water users' committee for collecting water fees and mobilising labour. The volunteer engineer stayed with the people in the village. The project work commenced with the Inland District at the beginning of the wet and rainy season. The work started with the construction of the micro-hydro generator. Once the project work started, problems start arising.

As noted above, project work started during the wet season and the road became muddy and unstable from continuous transportation of sand and gravel to the site. Because project costing and planning did not include road works, little was done about it by the Ministry of Works. The construction of the micro-hydro generator was slower than

expected because of a lack of the voluntary labour which it had been assumed was available. At the same time, the owners of the waterfall and land for the main tank site decided that they wanted rent after having initially agreed to offer them freely. The leaders' committee that was established to manage the scheme had political disputes. Meanwhile the potential water users did not have enough money to pay for water fees and women were not part of the decision making process.

Because of the numerous problems at the Inland District, the rural water supply team and the volunteer engineer decided to close down the project. They moved to the Hinterland and Coastal District. Again at the Coastal District, the project was stopped soon after it started for similar reasons as the Inland District. The project was then moved to the Hinterland District which frustrated the people in the Coastal District and they tried to block the road when the trucks came to move the pipes and construction materials to Hinterland District. Because of the numerous problems in the districts, the donor agency funded a sociologist to do a scheme review.

The sociologist found out that the people of the Inland District worked closely with one another at the household level and to some extent as members of the same church or cult. People for years had been asking the government for help to bring water to their villages due to increasing water problems. For example, some people were closer to the traditional sources of water than others. People were supportive of the project but due to political conflicts between two political parties in the districts, people withdrew from offering their services free. To sum up, project problems were social, political and economic. Furthermore, nature also contributed to the difficulties in implementing the project.

It is obvious, from the example above, that everyone wanted this water project to work, however, the implementation of the project differed from what was expected. Costing was too high, project timing was undermined and the performance was poor.

Who loses out when a water project such as this fails? The donor agency lost lots of money while the people lost the chance of having a good water supply and the Vaika

Government lost the support of the people. Failure of water projects thus results in disappointments for all the stakeholders.

Another case study which we can learn from is of a water supply system introduced to a Somali village, as discussed by Roark (1984). This example will show that the water technology that is suitable in the judgment of the project managers and men might not be considered appropriate by the women whose role is to ensure that water is collected daily for household uses. Roark (1984:54), after consulting the village chiefs and women on the impact of the water projects implemented in 1950s and 1960s noted that;

*The technically improved water supply did not always meet community choice in terms of the ideal combinations, from the communities' point of view, of access, quantity, quality, and reliability that a specific water technology could offer. Community assent and support along with the appropriateness and reliability of the technology was inappropriately assumed.*

Water in this Somali village is determined seasonally with water being plentiful during wet seasons and scarce in dry seasons. During the dry seasons, women spent long and painful hours collecting water from long distance hand-dug wells. Because of water scarcity problems, water pumps were introduced to the village with women being treated as beneficiaries. Decisions were made by the top officials and the village chiefs ignoring women's views. However, the failure of these technologies caused women more pain because they have had to readapt their lives to failures of water pumps for while they wait for the hand pumps to be fixed, the daily collection of water does not wait.

There are two lessons we should learn from the two case studies. Firstly, it is essential that water projects are planned and managed carefully in conjunction with members of the local communities, including women. Secondly, the social sciences have a lot to offer development studies. A water project which measures up, in terms of economic and technological criteria, may fall flat on its face if social issues and social structures in the community are ignored.

Because of the many problems of managing water effectively, a call for another model of development was made internationally by Non-Government Organisations.

## **2.5 CALL FOR ANOTHER MODEL OF DEVELOPMENT**

Since water problems in the world are numerous, the Fresh Water Treaty, a document of the International Non-Government Organisations Forum (Third World Guide 1992:109), calls for another model of development that is socially and ecologically sustainable:

*The growing scarcity, misuse and pollution of water resources constitutes an increasingly serious threat to the maintenance of ecosystems and to ecologically and socially sustainable development. Water is one basic element on Earth, and access to water is a basic right of all inhabitants. Given the failure of conventional models of exploitation of water resources, it is necessary to find another model of development which is socially and ecologically sustainable.*

The perception of a duality between humans and nature, as noted by Shiva (1992) with people having dominion over nature and using and abusing it at will, causes many problems. A model of development that is socially and ecologically sustainable needs to involve humans being equal with nature and working with nature rather than against it. The ideas on participation in the following chapter will contribute to establishing a strategy for a socially and ecologically sustainable means of supply and managing water.

## **2.6 SUMMARY**

While water is the most abundant resource on earth, it is scarce quantitatively and qualitatively for the use of humans due to an increasing population and economic development which both increase demands for water and degrade water sources. This scarcity is critical in the developing countries and makes them more dependent on financial and technical assistance from developed countries. While efforts are being made to incorporate local people in the planning and implementing of water projects, many projects failed due to management problems.

# **CHAPTER THREE**

## **PARTICIPATION THEORIES**

### **3.1 WHAT IS DEVELOPMENT?**

Most dictionaries define development as growth or improvement. Development was almost always defined as economic growth until Seers (1969) questioned economic growth for failing to address poverty, unemployment and inequality and he called for another model of development. Many analysed the economic growth model and tried to find the reasons for its failure. Dun (1979) and Schumacher (1973) pointed to technology, recommending that appropriate technology should be used in all development efforts. Chambers (1983) called for development agencies to target the poor, for they had been neglected in all aspects of development. Similarly, Stohr and Taylor (1981), stressed 'development from below' by calling for people at the grassroots to be targeted to participate in development. Adding to this debate, Oakley et al. (1991) concluded that participation is the key to addressing poverty because it provides an equitable way for people to take control of their lives. Other ideas on the value of participation have since been contributed.

The various interpretations of participation mostly see it as beneficial yet Oakley et al. (1991) noted that it is a 'complex phenomenon and can not be presented in universally accepted terms' (Oakley et al. 1991). In this chapter, therefore, I will review the literature to see how the concept of participation has been interpreted in order to gain a better understanding of how people's participation can be promoted or hindered. This will then provide insights into how water in Tonga could be managed more effectively. The first section of this chapter looks at the concept of participation, specifically, Section two then looks at obstacles to putting participation into practice.

### **3.2 DEVELOPMENT AND PARTICIPATION**

Participatory development was seen in the late 1960s as an alternative approach to development (Oakley et al. 1991, Oakley & Marsden 1984 ). According to Oakley et al.

(1991), two schools of thought came to the same conclusion that participation is the answer for tackling poverty in the third world. One school of thought on economic development felt that participation was necessary to ensure that development projects would work. As with Chopra, Kadekodi and Murty (1990), they noted that participation is appropriate for sustainable development in the villages for promoting community participation in maintaining and sharing community resources more effectively. Wignaraja, Hussain and Sethi (1991), meanwhile, noted that participation is a basic human need as people's participation is required for their survival.

Now participation is accepted as part of a much broader development strategy, rather than just an alternative fringe form of development. The aim is for people to have constant access to decision making structures and the power to enable them to partake in wide range of opportunities (Ingham 1995; Bergdall 1993; Friedmann 1992).

According to Oakley et al. (1991), there are as many interpretations of participation as there are participation practices. However, they narrow participation down to three main concepts: participation as contribution, as organisation and as empowerment.

### **3.2.1 Participation as Contribution**

Oakley et al. (1991:8) noted that;

*The dominant interpretation of participation in development projects in the Third World sees participation as implying voluntary or other forms of contributions by rural people to predetermined programmes and projects.*

Participation as contribution here refer to people partaking in the implementation of a predetermined programme and projects. While the focus is on rural people's development, they are called by the decision makers to contribute their labour and skills but they have little control over allocation of resources and funds. Decisions are still with the powerful hands of the government and donor agencies. Furthermore, the

success of the development projects is still judged by the criteria set down by the decision makers and not by the rural people.

Some have argued, however, that the rural poor may not have the necessary skills to make project decisions, and that their decisions may not be respected by the village people anyway. They all say that there may be delays in the time in which a project is completed if the decisions are to be made by the poor as they have so many other pressures on their time. In other words, even if you support the idea of development being for the poor people, resources available, time, skills and culture are factors that would still hinder the participation of the poor people. Under these circumstances, participation could just lead to frustration or exploitation of the participants.

Rahmena (1992:157) noted that participation as a contribution is a recovery of inner freedom for inner freedom gives life to outer freedom, and makes participation possible and meaningful:

*...while outer freedom is often the greatest blessing, and a necessity, to protect from violence and abuse, it remains hollow and subject to decay, in the absence of inner freedom.*

So for participation as a contribution to be practised, the persons must be at peace with themselves first. Peace is defined by the Merriam-Webster Dictionary (1974) 'as freedom from disturbing thoughts and emotions'. To participation theorists, peace means getting rid of any biases within oneself. This peace can not be measured quantitatively but by the quality of an individual's contribution, which can be seen and witnessed by other participants.

Individuals, when they participate in development projects or any organisations, bring along their thoughts, their feelings, their expectations, hopes, problems, values and so forth, hoping that their concerns and their needs will be taken into consideration and be satisfied. But how are these thoughts and feelings dealt with in projects and

organisations? Who makes the decisions? Clearly people must also have leaders who respect the need for full participation of the people.

Liberation theologians, who see God as the liberator (Alfred 1995) are now adding their ideas to theories of participation. Wallis (1995:xv), for example, argues that:

*What we seem to have lost is something as simple as respect for each other, and for the earth, and for the kinds of values that could hold us together. Most of the social, economic and political issues we now face have a spiritual core.*

Thus Abesamis, a theologian from the Philippines, states that if we are to put the poor people first, then participation is a call for individuals to become poor themselves so as to feel and be part of the poor (Abesamis 1988). We cannot ask the poor to be contributors if we are not willing to understand their situation fully. As Abesamis became sensitive to Christian teaching about poverty, he became more and more dissatisfied with the comfortable life style of the seminary professors and students, which seemed alien to the poverty of the people they were being trained to serve. He then became more like the poor by realising that he must work with the poor in empowering them with the word of God in the Bible. Instead of living a comfortable life as an educated elite, he came to live with the poor to be of service to the poor. This suggests that we need to look beyond seeing participation as simply a contribution of the poor, rather, academics and professionals need to reach down to be able to understand the situation of the poor.

Liberation theologians rely heavily on the Bible and its teachings as their way of understanding the situation of the poor. After one of Wallis' seminarian students decided to cut out from an old American Bible every single mention of the poor and disadvantaged people, the Bible when held up fell apart. Now at every conference he goes to with the top officials from many countries, Wallis always holds the Bible up for them to see and notes that their social, economic and political policies are filled with holes because the poor are not there or are cut out in many different ways.

For example, many policy makers and top officials accumulate wealth at the expense of the environment and humankind while blaming poor people for their poverty and for environmental degradation. It is not sufficient, therefore, to see participation as simply involving a contribution from the poor. First inequitable structures will need to be challenged so that the poor have the opportunities to build inner and outer freedom and to have peace.

### **3.2.2 Participation as Organisation**

Oakley et al. (1991:9) noted that, 'there has been an argument across the range of development literature and practice that organisation is a fundamental instrument of participation'. Participation as organisation takes two forms: one being introduced from outside such as co-operatives, farmers' organisations and so forth (Mayoux 1995), while the other emerges spontaneously at the local level such as China's Cultural Revolution (Friedmann 1992). Participation as organisation can be seen in non-government organisations and women's organisations (Moser 1989; Mayoux 1995); and co-operatives (Oakley and Marsden 1948). These organisations have different aims and structures based on how participation is interpreted. Some organisations aim at addressing poverty, others aim at tackling gender inequalities while some are aimed at gaining high economic returns through their organisations (Moser 1989). As noted earlier, participation can not be defined universally (Oakley et al. 1991) which is why there are a diversity of organisations which claim to be participatory.

Participation as described by Rahmena (1992) could either be transitive or non-transitive. Transitive participation means having a goal or target. People, before they join in organisations, must fully understand the goals of the organisation, how these goals are going to be met and the pros and cons of their participation. Therefore, before people take part in an organisation, they must be informed properly of the goal of participation. Any imbalances or misinformation of the people can result in disillusionment and the downfall of the organisation. With water projects, for example, people need full information before joining water management committees. Rahmena (1992) noted further that participation could be forced or free. Free participation means that people must be free to make their choices and decide for themselves. If people are forced to

participate in organisations then people's rights are abused and violated. Consensus is often sought but again this is affected by inequities in terms of resources, time, power and so forth.

Not all organisations have aims or structures which are participatory. As noted by Moser (1989) for example, in order for women to address gender inequalities, they must join together in organisations through which they can be empowered to challenge and confront men with their subordination. But who defines subordination and its causes? Answering this question unveils the bias of some women's organisations which rely for their focus on the interpretations of many experts who have not lived or even experienced the life of the indigenous people. Mayoux (1995:249) noted that in Nicaragua and India,

*...in all the organizations studied it was noticeable that participation in decision making and management was confined to a narrow group of women; those who were most active were the women with relatively higher education and fewer or no family commitments.*

Clearly, then, many organisations which may appear to be participatory are hiding bias in terms of their leadership.

There are other important social divisions in addition to gender which must be considered. As noted by Mayoux (1995:244), 'there are significant differences between women from different classes, age groups and marital status.' So the higher the numbers of people in organisations, the more complex they become because differences in class, gender, ethnicity and age of participants must be negotiated before equal participation can be achieved. Organisations, therefore, must address their own internal differences before they promote participation. This is why, as Mayoux (1995:247) noted, 'participation can be time consuming, with disagreement and problems reaching consensus leading to delays (1995:247)'.

Because of the complexity of equity issues within organisations, it can be difficult for them to be participatory in their practices.

### 3.2.3 Participation as Empowerment

Oakley et al. (1991) noted that since the World Conference on Agrarian Reform and Rural Development (WCARRD) in 1979, the importance of power transfer in participation has been emphasised with the term empowerment becoming an accepted term in development vocabulary. However, like participation, empowerment has no uniform definition. Some define empowerment as the development of skills and abilities to enable rural people to manage better, have a say in or negotiate with existing development delivery systems while others see empowerment as more fundamental and essentially concerned with enabling rural people to decide upon and to take the actions which they believe are essential to their development (Oakley et al. 1991). Participation is a process (Oakley and Marsden 1984) in which empowerment is the key to getting all the people to participate in their development.

Friedmann (1992:vii), sees empowerment is the key to an alternative development. He noted that:

*An alternative development is essentially a dialectical ideology and practice. It is what it is because mainstream doctrine exists, just as the state exists. Its aim is to replace neither the one nor the other but to transform them both dramatically to make it possible for disempowered sectors to be included in political and economic processes and have their rights as citizens and human beings acknowledged.*

Friedmann defines poverty as a situation in which people lack politically and economically, and thus are excluded from development. The only way for them to participate in development and benefit from it is through empowerment.

Friedmann's (1992) idea of empowerment is that it must start with the household and its members. He noted that;

*Households are composed of natural persons - that is of three-dimensional, moral human beings who, from birth, stand in dynamic interaction with others. As moral beings all of us have certain obligations; we compete but we also learn to work together; we relate to each other according to complex moral code in which many of our responses are culturally patterned. As moral beings, we have not only wants or desires but also needs, among which are the psychosocial needs of affection, self-expression, and esteem that are not available as commodities but arise directly from human encounter (1992:32)*

To be empowered, each individual needs psychological, social and political power (Friedmann 1992). Psychological power is described as an individual sense of potency or state of mind and behaviour. Social power refers to individual access to all sorts of social 'bases' such as information, skills, education, financial institutions, health, and social organisations. Finally political power refers to individuals being able to exercise their rights to vote and speak out their minds expressing their ideas in their homes as well as in public. In a similar discussion on participation, Ingham (1995:207) notes that 'Political participation is closely linked to human rights' and 'social participation is another way of people realising their full potentials'.

Since individuals are different in physical structure, educational achievement, wealth, power, status, race, rank, age, sex, home environment, and so forth, empowerment is vital. It is through empowerment that people will start to grow in their positive thinking about themselves especially the poor and the disadvantaged people for they are the ones who have the lowest psychological, social and political power. However, these powers could only be achieved if people at the top are willing to share their power with the poor and the disadvantaged people. Since all have human rights to be equal with everyone else then there is not right for anyone to be more advanced than the others in terms of power, wealth and status. So empowerment is a process to achieve an end whereby all people are equal to pursue development opportunities and to have dignity as human beings. Participation therefore must be a contribution and this contribution should

empower people to participate in their development. Without empowerment, there would be no or limited participation of the poor people in the management of the water supply systems in Tonga

### **3.3 OBSTACLES TO PARTICIPATION**

Now that I have discussed the concept of participation, and what it can involve, it is important to clarify obstacles which might stand in the way of participation in practice. Oakley et al (1991), after reviewing the practices of participation, noted the following obstacles to participation of people in their development: structural, administrative and social obstacles.

#### **3.3.1 Structural Obstacles**

According to Oakley et al. (1991), structural obstacles refer to the political environment within a particular country. In some countries, open discussions and genuine participation of the citizens is not encouraged which suppresses people's participation in their development. The main decision making, therefore, remains with the top people with the majority of the people having no political voice. Some would say that this is the case in Tonga because, for example, even at the highest political level the majority of the people only have a say in the election of one third of their representatives, as shown in Figure 1.5.

Oakley et al. (1991) further noted that a centralised political system reduced the potential for authentic participation of people. Authentic participation is the genuine participation of the people in their development. Friedmann (1992) noted that 'development is lived by the people, where they are, where they live, learn, work, love, play - and die' (Friedmann 1992). A centralised political system takes away the freedom of people to make decisions regarding their development at the local level. With the system being centralised and consisting of highly educated elites, rural people feel inferior and threatened by it. Under a centralised political system, the top people get the highest share in the benefits of development while the poor miss out (Oakley et al. 1991).

Oakley et al. (1991) noted further that while development activities usually called for redistributing of political and economic power so that people could participate in their own development, tensions between the village people often defeat the purpose of the development projects. For while the projects were properly designed and planned, implementing them in practice often brings negative results. Some of the tensions and negative results of water projects have already been referred to in Chapter Two as described in the case studies. Because of these reasons, people tend to withdraw from participating in development projects despite their benefits.

Another tension mentioned arises from mechanisms that are promoted by the government clashing with mechanisms that spring up spontaneously at the grassroots level. Organisations that are supported by the government will have more benefits than the spontaneous organisations in terms of support.

Oakley et al. (1991) also noted that the existing legal system within a country can seriously frustrate efforts to promote participation of the rural people in their development. The legal system can be biased in the way it maintains its status quo. Also it can be biased if it is based on a foreign structure and the rural people are not aware of how it functions and their legal rights.

The political environment and legal systems within a country can thus frustrate efforts to bridge the gap between the elites and the rural people, thus impeding the rural people's participation in development processes.

### **3.3.2 Administrative Obstacles**

'Centralised governments encouraged centralised administrative structures which, by their very nature, are major obstacles to people's participation' (Oakley et al 1991:11). Administrative structures hinder the participation of people because marginalised or poor people lack the knowledge to understand these structures, skills to use these structures and to benefit from their services, time to participate in what these structures are planning for them, transport or money to be able to attend activities in the main centres that would benefit them and so forth. Chambers (1983) suggests that the answer for

administrative obstacles is to be decentralised but Slater (1989) argues that this would result in more destruction for power would still be accumulated by the rich, powerful, educated and traditional elite. Decentralisation according to Slater is like transferring the cost of development to the rural poor by extending their arms of control from the centre.

### **3.3.3 Social Obstacles**

Social obstacles refer to factors that obstruct the participation of people in their development as human beings. These factors include gender relations, cultural values, physical abnormalities and so forth. For most third world countries male-dominated culture is seen as the greatest obstacle that affects women and impedes their development (Oakley 1991, Mayoux 1995). Mayoux's (1995) study reports that participatory development fails to address gender inequalities in resources, time availability and power which is the same with the inequalities of economic development. This means that while men seem supportive of their wives being actively involved in the work of organisations, still women's roles and workloads remain unchanged. Decision making is still with men. Within the organisations, women in higher classes still make the decisions and lead the organisations for members lack resources, time and power to contribute effectively to match the expectations of the top people in the organisations. Mayoux (1995) further reported that although some men interviewed during her research said they were supportive of their partners' achievements but this support cannot be taken as evidence of support for changes in gender inequalities.

Class implies positions within one's society and the higher you are in a society the more respect you have and you are not to be questioned. The poorer the people in terms of resources, the more unlikely they are going to participate in development programmes designed by others for them. This is because the demands on their time with every hour of the day required just to meet the survival needs.

## **3.4 SUMMARY**

The three concepts of participation of contribution, organisation and empowerment are interrelated. In previous development theories, participation was seen as a free

contribution of poor people's time, energy and resources, but not as empowerment. However, this discussion showed people need to be empowered psychologically, socially and politically before they can participate in an equitable manner in development projects or organisations and enjoy the benefits of participation.

The obstacles to participation are structural, administrative and social. These structures hinder the participation of people in their development. As noted earlier, people have human rights, therefore, no one has the right to obstruct people's participation in their development. Therefore, people need empowerment if participation is to be meaningful and just experience for them.

Next, Chapter Four explores the methodology I adopted for my fieldwork while Chapter Five and Six will look specifically at the findings of my fieldwork in Tonga.

# CHAPTER FOUR

## METHODOLOGY

### **4.1 INTRODUCTION**

This chapter is divided into three sections. Section one discusses the rationale for this study. Section two looks at the research methodology I chose to adopt. Lastly, I consider how my research went in practice, including whether or not the information was collected effectively.

The objective of this chapter is to give an in-depth understanding of the importance of the methodology used in getting information from people because methodology can determine the quality and type of information received.

### **4.2 RATIONALE: HOW DID I COME TO CHOOSE MY TOPIC?**

The importance of water is the same everywhere in the world: it is very important because it is a basic need. However, some countries are more able to afford water delivery systems than others. Tonga is a developing country which depends on overseas funding for most of its development programmes. As yet, not all villagers have access to a safe and constant water supply. Even those with water supply systems often suffer because the systems are not being adequately managed or maintained. Water is increasingly scarce in Tonga because of an increasing population and new forms of development, such as industrialisation, which place major demands on water systems. Research for better management procedures for water is thus definitely appropriate.

Being a resident of Longoteme, one of the poorest villages in Tonga, has taught me a lot about life. Growing from childhood to motherhood in this village in a poor family has shown me first hand the reality of water problems. As a child, I used to bathe in the sea with other children because water collection from the wells took time and energy. Furthermore as the number of households in the village increased, the demands for water increased too for both household uses as well as commercial farming. Gradually, it

became clear that traditional water supply systems, mainly wells, were inadequate. Once or twice I witnessed young children falling into the well, the main water source in our village at the time, because of its openness. When pumped water was introduced in Tonga in the mid sixties, most of the wells were destroyed because they were seen as unsafe for people to use for consumption. This included the well closest to us which was dug by my great grandfather.

After graduating from the University of the South Pacific in 1983, I was employed by the Ministry of Education in Tonga as a teacher at Tonga High School in Nuku'alofa, the capital. On many occasions, children were asked to go home because the water system broke down. During my teaching career, I also joined the Longoteme Women's Development Group and we were able to upgrade Longoteme's community water tank and able to install 14 individual water tanks in the area. In 1991, I was called to work as Acting Deputy Principal in 'Eua District High School in 'Eua Island (Figure 1.1). The water supply was the most frustrating problem at the school. 'Eua's main water supply system comes from a stream and when it rains, it becomes muddy thus 'Eua's water is often not suitable for drinking. When it is muddy it is also unfit for any other household duties such as cooking, washing and so forth. 'Eua is a raised coral island and underground water is impossible to get. There are hardly any coconut trees in 'Eua which could have provided us with drink from the fruit. Therefore, people depend on cement tanks for water for drinking and cooking. When it rained, my family had to rely on our neighbours for drinking water from their cement tank or we had to buy lemonade drinks from the shops. The considerable need for effective water supply systems in Tongan villages should now be obvious.

In 1992, I came back to Tonga High School and mid year 1992 I resigned to take up a new post at the New Zealand High Commission as a Development Assistant Officer. Here I was responsible for aid projects, especially community projects which included water tanks, community water supplies, women's projects and students on scholarships. I realised then that water problems in Tonga were numerous for the majority of the projects submitted for funding were water projects. In the same year, I went with a New Zealand consultant and the Canadian Aid Coordinator to Vava'u and Ha'apai to appraise

some of the project proposals which had requested funding under the New Zealand and Canadian aid programme. Again the majority of the projects were requests for upgrading of community water supply systems or water tanks.

In 1993, Tonga's Catholic Women's League was established and I was elected as the secretary. During visits to other church women's groups in the villages, we found that in most meetings, people raised their wish to have water tanks because the village water supply systems were either unreliable, or non-existent. In the same year, I was nominated by Tonga's Catholic Church to represent the Church at a Women Empowering Communication Conference held in Bangkok, Thailand in February 1994. Stepping on Thailand's soil gave me the greatest shock in my life regarding environmental pollution and overcrowdedness of the city. The first thing that struck me was air pollution and the traffic jams and as I went on to explore the city, the extent of Bangkok's water pollution and mass poverty were made clear to me. While Tonga's water problems are not critical as those of Thailand, both countries are dealing with the same issues: population growth, growth in modernisation and degradation of natural resources. These factors will continue to make water a prominent development issue in Tonga.

Early in 1994, I and two other women were elected to be members of the Longoteme water committee. This was the first time women had been elected as members of our village water committee. Although our work was appreciated by the people, it required commitment, hard work and accountability. It was at this time that I recognised the difficulties faced by village water committees and the huge responsibilities they had on their shoulders.

A study carried out by the Australian and Tongan Governments in 1992 showed that the water problems in the rural areas were numerous. Also in 1992, the Fresh Water Treaty called for another model of development that would sustain water. My personal background and experiences in Tonga thus combined with information from published reports to help me to see that research on water management was needed, and that it could benefit many people in Tonga as well as the donor countries and that it may

provide insights about water management in other developing countries such as Thailand.

### **4.3 CHOICE OF METHODS**

There are two types of methodologies adopted in research: qualitative and quantitative methodologies. They are often described as opposite yet complimentary. Qualitative methods lack statistical rigour because there are no standardised responses from the respondents therefore some argue that this method has a risk of making erroneous conclusions. The figures used in quantitative methods, on the other hand, do not always adequately explain complex human behaviour and cultures, which is something qualitative methods can do (Bilton, et al., 1996). Hughes (1976:25) as cited in Bilton, et al. (1996) however, noted that

*Human beings are not 'things' to be studied in a way one studies rats, plants, or rocks, but are valuing, meaning-attributing beings to be understood as subjects and known as subjects.*

This, suggests the need to understand human in their natural environment. In order to treat my research subjects as naturally as possible, qualitative methods were selected as most relevant for this study.

#### **4.3.1 Avoiding Bias**

Chambers (1989) argues that researchers should be careful that their methods avoid biases. These biases impede the contact of outsiders with the rural poverty especially the poorest of the poor. He was able to identify six of them as urban, tarmac and roadside biases; project bias; person biases namely elite bias, male bias, user and adopter biases, active, present and living biases; dry season biases; diplomatic biases which include politeness and timidity biases; and professional biases.

Urban bias refers to research that focuses on urban areas seeing that 'it is cheaper, safer and cost effective in terms of academic output' (1989:126). Chambers noted that often

young and inexperienced researchers are sent to rural areas to do the rural research. These researchers, if they have no familiarity with the worst of poverty, are likely to concentrate on the people at the roadside that are easily accessible. This is known as tarmac and roadside bias. Project bias points to the selection of villages and projects for the study. Often the selection is based on good projects in places identified by their counterparts. Usually researchers are concentrating on friends and people known to them as elites. This is referred to as elite bias. User and adopter biases refer to choices of participants in the researchers for usually they are influenced by the researchers' professional interests such as targeting education, health, agriculture or women's organisations gathering where people would be greater in numbers. Chambers warns about active, present and living biases by noting that there are sick and disadvantaged people who are shut out of research. Dry season biases refer to researchers only visiting the villages in good and sunny seasons and remaining home in the wet season. Finally professional bias means that researchers with their expertise are only looking for what would give them the answers that they want.

When I went to do this research, I tried to be as natural as I could and to do that I was as I am. I had my aims in mind and I wanted to see as many people as I possibly could and to include a diversity of people according to sex, age, religion, organisations and status. I respected everyone equally knowing that my being there and doing this research was not just for the poor or the rich but for everyone's benefits. When I visited the villages, I took time to talk to people, to walk around the villages and try to feel what these people felt.

#### **4.3.2 Techniques Used**

There are many qualitative techniques one can choose yet participatory observation was chosen as my main research method for it is considered best for addressing the biases outlined above. Drew, (1980:57) noted that 'it attempts to study the routine behaviors of the subjects in their natural environment, therefore, this method calls for the researcher to participate in the events of the interest group. According to Babbie (1992), participatory observations provides an in-depth understanding of the social processes affecting the participants, their attitudes and behaviours. Babbie further noted that this

method is relatively inexpensive and flexible as one can modify research design at any time. This means that the researcher would be able to change their plans to accommodate any changes in normal circumstances, such as funerals or wedding, which are likely to happen in Tonga. Furthermore, the validity of participant observation is better than the other qualitative methods because the researcher is there with the people listening to them, learning from them and trying to be part of their community so that people feel and act naturally rather than on a superficial level. This research technique also calls for the researcher to avoid cultural, gender and ethnic biases.

The other major technique I used was interviews. I planned to interview individuals and groups, including water committees, women's groups and families, single-headed households, old people, church leaders, water committee members and town officers. I also planned to interview senior people in the appropriate Government Departments. Data was thus collected through participation, interviewing and recording of the information for analysis so as to see any relationships between information.

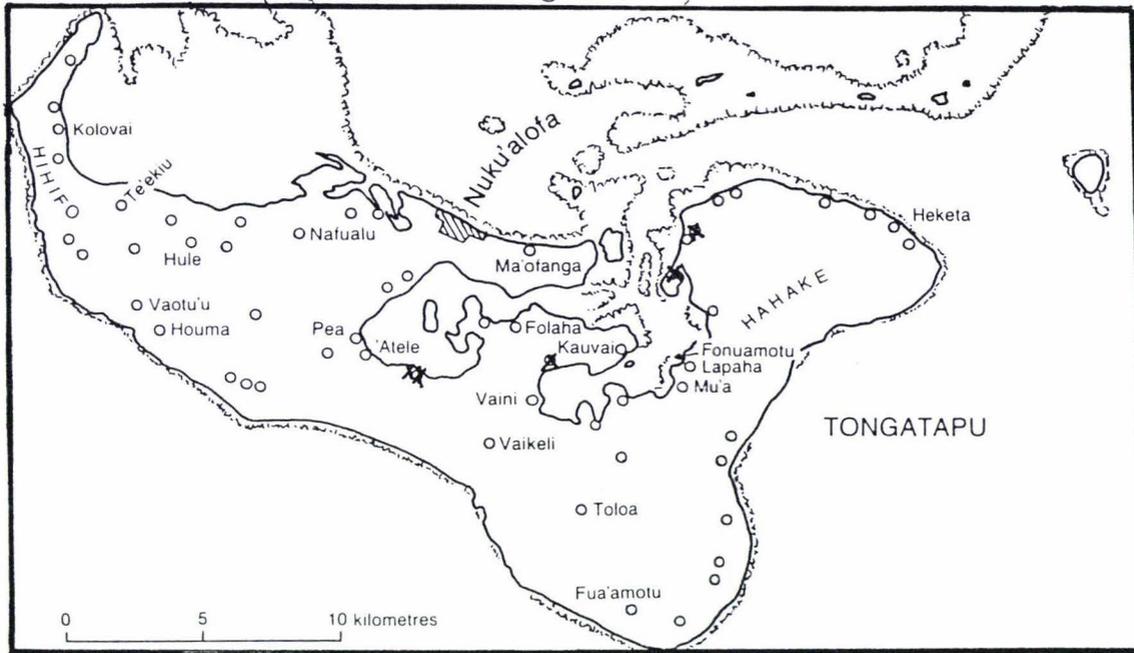
#### **4.4 RESEARCH IN PRACTICE**

##### **4.4.1 Choice of Villages**

Figure 4.1 shows the locations of the five villages selected for the study.

They were Longoteme, Veitongo, Lotoha'apai, Nukuleka and Makaunga. I chose Longoteme for it is my village and I know my people and have lived and worked with them all my life. Veitongo and Lotoha'apai were chosen after talking to the Central Planning Department. They noted that I should look at these neighbouring villages for originally they shared one water system but due to increasing problems Lotoha'apai fundraised for their own water systems. Later I went to the Ministry of Health to find out some information about Fua'amotu village for I was informed that this village has all women in their water committee. However, I found out that Fua'amotu's village committee consisted of all men and since Veitongo and Lotoha'apai also had only men in their water committees, I decided not to pick this village. I then decided to include Nukuleka village. This village is isolated and far from town and it is located away from

**Figure 4.1: Five Villages Selected For Research**



Source: Collins and Collins-Longmans (1994): World Atlas for New Zealand and the South Pacific.

Note: X is the villages selected for study.

the main road. It is a place that depends highly on sea resources for the people's income and food. Maka'unga village is close to Nukuleka but it is located on the main road. I decided to include it because while I was doing my research on Nukuleka, the people there noted Maka'unga village had been without water for quite sometime.

So the selection of the villages for my study was determined not just by me but by the information gathered from Tongan Government and the people. Villages were not chosen randomly but due to careful consideration to ensure that I studied some villages with functioning water supply systems and others without, some villages close to the infrastructure and services and others which were more isolated, and some villages which broke from convention by having women on their water committees, to see if this made a difference.

#### **4.4.2 Time Spent on Research**

I arrived in Tonga on 23 of March 1996 and came back to New Zealand on 3 June 1996. After one week of arriving home my father passed away on Friday 29 March, 1996. He was buried on 2 April and I rested, as is traditional mourning practice in Tonga, for one

week after this before I started my research. I started my research by checking on the Tonga Government's approval. I also arranged appointments with officials from the Ministry of Health (MOH), Central Planning Department (CPD), Ministry of Land, Survey and Natural Resources (MSLNR), Tonga Water Board, Women in Development Unit at the Prime Minister's Office, the Foundation for the People of the South Pacific (FSP), the New Zealand High Commission and the Australian High Commission. Most of the time, however, I set aside for being in the villages with the people.

I resided in Longoteme during my stay. I usually went to visit other villages in the morning and came back in the evening. When I observed that many men were out in the bush doing agricultural work for most of the day, I waited until sundown so that I could be able to talk to some of them. On some days I left very early in the morning to get to the villages before men went to the bush. I was fortunate that I had use of my sister's car during this time as public transport is irregular to many of the places I wanted to visit.

The difference between going to urban interviews and the rural village interviews was that I had to have an appointment with the urban officials while with the village people I only had to go to the villages and knock people's doors and ask if they were available for me to carry out research on water. Another difference was that I had time limits of one hour when interviewing the office workers while the people in the villages had more time to chat while doing their weaving or tapa-making or cooking or smoking while we talked. This allowed me to inform the villagers more about aid, about water projects and to discuss other related development issues with them.

#### **4.4.3 Interruptions to My Research**

My father's death was very painful to me since I was very close to my father. Even when I got married, my family stayed with my parents until we came to New Zealand for me to study. We have a closely knit extended family. Furthermore, the death of my father made me deeply miss my husband and two children who remained in New Zealand while I went to Tonga for my research. I managed to overcome these disruptions, however, because I was motivated to continue with my research.

#### 4.4.4 How I Applied My Methodology

The villagers were not informed of my research prior to my arrival as I did not want them to make a fuss over me or to go out of their way to make preparations for my visit. When I arrived in each village, I firstly went to greet the town officer. Because the people had not previously been informed of my visit, they related to me as a Tongan and as a woman, rather than as highly educated outsider who they might feel intimidated by. I then advised each one of the reasons for my research. General questions were then asked of them such as the approximate number of people, including families and single-headed households in the villages and what water problems they faced. Then I would walk around looking for people to talk to. At all times I tried to be friendly and not to intimidate the villagers thus I did not draw much attention to my past jobs or my present studies, which would have made some people feel inferior to me. The populations varied from a few hundred to about two thousand people or so in the villages visited. It was observed that the higher the number of people in the villages, the more difficult was the town officer's work. Furthermore, villages with higher populations were more divided in terms of religion, class, status, and stages of development, meaning more work for the town officers to meet the people's different needs and wants. I saw this first hand because I carried out participant observation.

When I visited a household in Nukuleka, the husband was not there but the wife was beating the barks of the mulberry plant for making *tapa*. They had a modern house but she was doing her work inside the Tongan kitchen or *peito* made of coconut leaves. I greeted her from outside and said '*Malo e tutu*' acknowledging the great work she was doing. She then said '*Io. Malo 'e lelei*' meaning 'Thank you. How are you?'. So I asked for her husband and she sent her son to call him from nearby, where he was working in the bush. So I said '*E lava keu huatu?*', asking if it was alright for me to enter the *peito*, however, she was conscious of the condition of the *peito* and wanted us to go to the other house to talk. I did not want to go to the other house as this would have meant leaving her work undone. I wanted her to feel that I was no different from her and did not mind sitting in the kitchen. I said I would like her to continue her work while we talked. I did not want to stop her from her work. When I went into the *peito*, I sat there and I could tell from the woman that she was uncomfortable but when I

started to talk about my own mother doing similar work, she talked freely. Minutes later, the husband joined us. We had a good talk about the village and how it operated. We also talked about the village *fono*, with the wife saying that she seemed to be the only woman to talk in the *fono* with the other women being quiet. This taught me that both women and men can give their opinions when they feel comfortable with you and also know that you are not a threat to them.

In the village of Lotoha'apai, I came across a group of women doing some weaving for which they were being paid. They were making a fine mat of 30 feet for the Queen of Tonga's 70th Birthday on 4th June 1996. When I greeted them, they all invited me in and I was then called to sit and talk with the leader. She was highly respected by the people of the village for she works very closely with them. When I asked questions, no one among the women would answer because of respect for this woman: they left her to talk and answer my questions. While I collected some useful information, in this case the value of a group interview was undermined because the Tongan custom of respect for those of status meant that most women would not answer my questions.

In the village of Veitongo, I came across a group of men and a women doing carving for export. They just sat on a verandah outside while doing their work. I greeted them and asked if I could have a chat with them about water. They were happy to talk with me and they contributed well to the discussions on water. In this case a group interview worked well.

I also had no trouble interviewing church leaders, youths and single-headed households. For example I interviewed a young mother of four children. She and her husband had no land to farm nor a place to stay so they had stayed with the widowed father of the wife. Her husband then went to Australia to visit relatives and to find a job to support his wife and children. The woman reported that after few months of her husband's departure to Australia, her husband contacted her no more. She thus has to cater for her family's welfare on her own and her children are not going to school because she could not cope on her own. She said she tries hard to pay her water bills but she is often embarrassed when the collectors come for the water bills. Her only source of income is weaving and

she noted jokingly that the next option is to sell her body, but she knew that this would embarrass her relatives and children. Although she said it jokingly, but this option is available to households headed by a woman who has no resources, relatives or church help to support them. The sharing of such personal information such as this showed the confidence that these people have on me.

#### **4.4.5 People's Responses to Me and to the Study.**

The biases outlined by Chambers were dealt with by being as natural as possible and to do this, I had to be myself. I respected the people I interviewed. I made sure that the people must first accept me before I entered their door. I spent time talking with the participants then writing. I called them by their names for this makes them more confident. My previous experiences gave me confidence too in doing my research, as understanding the norms of approaching Tongan people really helped. Also my faith in God and His teaching made me go deeper to seek those who are mostly forgotten in research for the research is for the benefit of all people, especially the disadvantaged.

I used face-to-face interviews by going to the villages and knocking at the people's doors. If someone was at home then I asked them if they were willing to talk about their community water supply system. If they agreed then I would talk with them and if not, I moved on to the next house. In some cases, when I finish talking with the people in one house, I asked them for the names of the couple next door so that I greeted them by their names.

I explained to the interviewees that I was doing research on rural water supplies so as to find out a way of improving the management of water supply system in the villages. In doing this, I explained I had to talk to them for they were the ones who benefited from the water supply system or met the costs of failed system. I told the research subjects my personal background and the work that I did prior to going to New Zealand for further studies especially when they wanted to know more about me but it varied according to how much they wanted to know. This made the interviewees feel that I was part of them, having emerged from humble beginnings and that most of my life I stayed in my village, even though I was well educated.

My research also tried to avoid introducing things that might create bias, including abnormal actions and pretense on my part. I only carried a pen and a small book. I did not carry any camera to take pictures or fancy bags to attract people's attention. When I talked with the people, I spent time with them so that they felt comfortable with me. I did not want to rush thus before starting with my research questions I waited until we felt comfortable with each other. Because my father passed away during my fieldwork period, I had to wear black with big *ta'ovala* (woven mats) around my waist every day throughout my survey. People knew that I was mourning because of the costume I wore and often they asked me who had died, which was a good starting point for me to open up to them and for them to get comfortable with me before I actually started interviewing them.

The photos that were taken of the village people and of water systems in Tonga were taken by my nephew after I came to New Zealand. I felt that this was less intrusive than if I had taken the photos while interviewing people.

The people were quite positive with me when I came to see them. They talked freely and it seemed they felt comfortable with me. With my years of experiences as a teacher, as development assistant officer, an active member in Longoteme's development works, plus being the secretary of the Catholic Women' League, and with the level of education I had, people respected me. Yet I was also a commoner. I could make *tapa* and weave mats myself. I had also enjoyed working with my husband in the bush planting and weeding. I had children and I was from a close knit extended family with good relationships with all our neighbours, so people I interviewed could relate to me too. My fluency in Tongan language and knowing the Tongan culture and customs prepared me well for interviewing the people and following appropriate protocol. I had no difficulty in carrying out my research with regards to talking with the people but I had difficulties with homes that have fences around their houses for in some cases I had to ask someone who really knew the people in those houses to take me there. Some of the people with fences had dogs that bite people. The more modern the fence, the more difficult it is for strangers and ordinary people to approach the house.

As a married woman, men and women alike respected me. In addition, I have the build of a Tongan woman and was dressed like a Tongan not like a Westerner. In the villages, their ways are more traditional and a person entering the village with make up and western clothing will be judged as an outsider. Entering the selected villages for my research was no different from me entering my own village.

When people knew my background and that I was being honest with them, it made them feel they should not hide anything. They wanted to talk and talk and for me to take what was relevant from whatever they said. Another thing that I know made them feel comfortable with me was that I had remained in the village even when I married my husband whose family live in town.

In the Government Departments, I had no real fears about dealing with the officials as some of them were students of mine when I was a teacher. Others, I had close contact with during my work at the New Zealand High Commission. My past experience at the New Zealand High Commission gave me a lot of confidence in requesting appointments with the top people in the Tongan Government. Those who did not know me prior to my appointment with them were supportive because water is one issue that costs a lot of money and that they wanted solutions to its management.

I think another reason why the research went well was because I was really interested in the topic. I knew that water was a major problems in Tonga and I wanted to see how it was managed and the reasons for the failure of water supply systems in many villages.

#### **4.5 SUMMARY**

My experiences during research gave me more empathy for the rural people. Their courage is strong and their survival is still based on the principles of reciprocity which was rooted in the lives of the people as part of their traditions. The introduction of the Christianity is also rooted in the principle of reciprocity as outlined in the Ten Commandments. However, a system of economic development has been imposed which calls for efficiency by being individualistic and materialistic and this can undermine this principle of reciprocity. More fences are going up around the houses dividing people,

and this reflects how individualistic society is becoming. Although more water tanks and reticulated water systems are being built to meet the economic and social needs of the people, because people are more self centered and they are more concerned with themselves then the good of the community. With many people being unable to pay, they feel ashamed of themselves.

Using a qualitative methodology allowed me, through participant observation and interviews, to learn these things, and to understand the ways in which Tongan society is changing and how this influences the type of water systems people need and how they should be managed.

# **CHAPTER FIVE**

## **THE NEED FOR, AND DELIVERY OF, RURAL WATER SUPPLIES IN TONGA**

### **5.1 INTRODUCTION**

The purpose of this chapter is to relate the increasing demand for water to socio-economic development of Tonga. The increasing demand for water has resulted in the transition from traditional water supply systems of natural springs and dug wells to newer water systems such as reticulated water systems and water tank systems. These systems are easy, fast and available for the use of the people at their homes, leaving women with more time and energy to do other work. However, these newer systems cost money to install, manage and maintain. Since Tonga is a developing country with scarce water resources, donors have assisted through their aid programmes with the development of these newer systems. The Tongan government and donors have promoted self reliance in communities by organising for them to run their own water systems once installed. However, recent studies on water projects by overseas consultants have proved that these systems, especially the reticulated water systems which are common in villages, have encountered many difficulties ranging from technical to management problems (Buchan and Connell 1991).

This chapter has four sections. The first section outlines the reasons behind the need for water supplies in villages in Tonga. The second section discusses both the traditional and the newer water systems in Tonga and thirdly, the delivery system for rural water supply in rural areas in Tonga is considered. Lastly, I examine funding of village water projects.

### **5.2 DIFFICULTIES IN PROVIDING WATER TO ALL TONGAN VILLAGES**

Water is necessary for the productive and reproductive roles of Tongan men and women to be fulfilled. It is also needed for the social and economic welfare and development of

the people in the villages. As the population grows, and as people in the remote areas seek development opportunities, the demand for water increases. As discussed in Chapter Two, water is a scarce resource in developing countries such as Tonga therefore it needs to be managed effectively.

According to the 1986 Census, about 76 percent of Tonga's population of 95,000 people resided in the rural areas (South Pacific Commission 1993). The geographical distribution of villages in four island groups in Tonga was shown in Figure 1.2. It is difficult to provide water to all villages in Tonga for several reasons. Firstly, underground water resources are scarce. Secondly, regional villages are small and scattered which makes it costly to provide each of them with a separate water system. Furthermore, the growing population coupled with greater expectations and more uses of water has led to an increasing demand for water.

The Ha'apai region is the most disadvantaged region in Tonga because the islands are small, low lying atolls are scattered which contributes to the salinity of the underground water. This is also true for some parts of Vava'u region and the Niuas. In addition, some villages in Vava'u and the Niuas are located high above sea level which makes underground water resources too deep to get access to. The villages that experience the problems discussed above depend on rain water supplies. However, Tongatapu is a flat island with suitable underground water and almost every rural village has a reticulated water system. As mentioned earlier, I decided to focus my research on Tongatapu because it is home to the main administration centre for the country, Nuku'alofa, and there are many services and facilities here compared with the rest of the country and if the water problems are high in Tongatapu, then it is obvious that the problems in the outer islands will be worse.

### **5.3 THE NEED FOR WATER SUPPLIES IN TONGA**

Water is a basic need of all living things and it is generally accepted that access to a safe water supply is a basic human right (Cox 1989). Discussed further below are some of the reasons for the need for water supplies in villages in Tonga.

#### **5.3.1 Sanitation, Personal Hygiene, and Domestic Uses of Water**

Water is required for all domestic purposes such as cooking, washing, bathing and cleaning. These activities are keys for keeping the family happy and healthy. With limited water, these activities can not be carried out completely and effectively. Furthermore, these activities are mostly carried out by women with the help of children. If water is not accessible, then it is women and children who have to spend a lot of time and energy collecting water. This energy could be better invested in other activities.

Contamination of underground water from improper sanitation systems is a threat to Tongan people in the villages. Water is a means of spreading communal diseases such as dysentery, typhoid, and tuberculosis, for example. These diseases are better prevented than cured considering the physical, social, economic and psychological problems that result from them. Poor people are often most vulnerable to such diseases, yet their access to water is restricted by many factors such as lack of money and resources.

Water is also required for dental care, for example. According to the Tonga Statistical Report (1993), about 1.5 million dental services were carried out in the Kingdom from 1987 to 1992. All dental services are carried out in the main urban hospital because of the limited resources and shortage of qualified staff in Tonga. People from rural areas are most disadvantaged when seeking dental care as they pay more in terms of energy and time spent in traveling to town for dental treatment.

### 5.3.2 Agriculture

Since Tonga is highly dependent on agriculture for its economic development and subsistence living, the need for water supplies in villages is vital. Water is used for irrigation of cash crops such as squash, vegetables and watermelons. It is also used for mixing with chemicals for pest control. This water usually has to be collected from the villages due to the expense of piping water to the plantations. Only a few people have managed to pipe water to their plantations through gaining project funding. The collection of water from the villages involves time, money and energy. Photo 5.1 shows the uses of water with regards to cash crops.

**Photo 5.1: Water mixed with Chemicals for Spraying Squash to be Exported to Japan.**



Drought is a natural phenomenon in Tonga which effects agriculture during the summer season (usually from November to February). If water is not accessible in the villages,

then agricultural production is effected meaning that more food will have to be imported and exports diminish.

Home gardening is now a common practice for women in the villages. It is men's traditional role to work in the bush allotment but through home gardens, women are able to grow plants for their own needs. In the home gardens, women plant mulberry trees, bananas, breadfruit, traditional plants and flowers. Some also plant vegetables because they have limited bush allotments<sup>1</sup>. Many of the women-headed households have no bush allotments so home gardens are essential to their health and well-being.

Pigs, cattle and horses are raised in the villages and rural areas. They need water for drinking especially in hot summer months, a time when water is very limited in some places in Tonga. These animals are important economically. Most households in the villages have pigs because they are easy to raise and a relatively easy form of income generation for rural families. Pigs are also traditionally significant for occasions such as weddings, funerals, and feasts and church festivals, for pigs give the occasion its significance. For example when a young man wants to marry his girlfriend, the man's family will get a *kava* plant and a big pig for the wedding proposal. *Kava* plants are used for making *kava* drinks as in all social gatherings by mixing the pounded *kava* roots with water.

### 5.3.3 Fund-Raising and Cultural Activities

Most development and community projects require groups to fundraise in order to contribute a financial share to the projects. In the rural areas, the main form of fundraising is a *kalapu*<sup>2</sup> where *kava* roots are mixed with water for sale to the men who attend the *kalapu*. Two litres of *kava* cost about T\$5<sup>3</sup>. In the *kalapu*, the men organise themselves into several groups. Young girls are placed in each group to serve the men with the *kava* drinks and they also motivate men to compete to give the most money by

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<sup>1</sup> Bush allotment is where people plant their crops. The size of it varies from small to large acreage depending on who you are in the Tongan society.

<sup>2</sup> *Kalapu* is a common form of fund raising in the villages in Tonga where drinks from *kava* are paid for.

<sup>3</sup> Exchange rate for May 1986 was T\$0.86 equals NZ1.00.

purchasing the most *kava* drinks. Traditional cooked food is also prepared for presentation to the winning groups at the end of the *kalapu*. This form of fund raising is effective in collecting large sums of money, however, it is impossible without access to quite large quantities of fresh water.

The coming together of extended families, relatives, friends and the community when there is a funeral, wedding or a big feast also requires large amounts of water to be accessible. Such activities are an important part of the cultural life of all Tongans. In a funeral, for an example, water is needed during the *apo*, that is when the deceased is traditionally kept in the family's house for a night while the people pay their last respects. Tea and soft drinks are served together with cooked food throughout the night for the people attending the *apo*. While everyone else is served with food and tea, men gather for an *ilo kava*<sup>4</sup> or *tukituki*<sup>5</sup>.

In funerals, the duration of mourning lasts for 3 to 10 days depending on the status and age of the deceased. This means that closely linked relatives and friends remain with the family for that length of time, therefore, water needs to be accessible for all domestic activities for these people. The '*ilo kava* or *tukituki* also continues for the duration of mourning.

#### **5.3.4 Women's Activities**

Water is essential for tapa-making processes which are carried out by women. In the process of tapa-making, water is used for softening the mulberry paper bark before women beat them to a bigger size. Water is also used for cooking the paste for gluing the tapas together and for mixing with the dye used in printing the tapa designs. Photos 5.2 and 5.3 show how water is being used for making *tapa* firstly by soaking mulberry bark in water, which is then beaten, joined and dyed to make a tapa cloth. Tapa provides an important source of income for the rural families in Tonga who may sell the

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<sup>4</sup> *Ilo kava* refers to having traditional *kava* drinks with an elite such as a noble, minister or bishop being present.

<sup>5</sup> *Tukituki* is when there is no noble present but only commoner.

tapa locally or to Tongans overseas or in overseas markets. For a 50 foot length of tapa, it costs between T\$800 and T\$1,000 and a 4 foot tapa costs between T\$20 to T\$40.

Another women's activity is mat making for both traditional and economic purposes. Pandanus leaves are required for mat making but first pandanus leaves must be cooked and water is needed for this. Both tapa and mat making require a lot of time and effort and without an accessible supply of water, it is difficult for women to perform these roles which often provide their only source of income.

### **5.3.5 Miscellaneous Needs for Water**

As more European-type buildings are constructed in Tonga, more water is needed for mixing concrete. Such buildings include concrete houses, church buildings, community halls and school buildings. Water is also required for the construction of water tanks or septic tanks for sanitary disposal systems, in homes, schools, and community halls.

Primary schools, present in most villages, require effective water supplies too for drinking, toilets and washing hands. A good water supply system can protect the children's health.

In the rural areas, motor vehicles are very important forms of transport for all. Motor vehicles are essential for children attending urban schools and adults with jobs in town as well as for taking agricultural produce or craft goods to market. Water is needed for the engine for the vehicle as well as to clean vehicles from time to time (see Photo 6.1).

As mentioned above, water is needed by the people in the rural areas for various purposes such as health and well-being, commercial and subsistence production, income generating activities, and to support cultural activities. Now that the need for water in Tongan villages has been established, it is important to consider what water supply systems are available, both traditional sources and more recent systems.

## 5.4 WATER SUPPLY SYSTEMS IN TONGA

### 5.4.1 Traditional Village Water Supplies in Tonga

The traditional water sources for the village people in Tonga were firstly from natural sources such as rain, springs, coconut plants and the sea. In times of shortage, people were able to move from places of minimal water to where it was plentiful. Others dug wells for the use of all the people in the community.

The traditional sources of water are described in detail below. These sources are still used today to some extent, although they cannot provide for all of the needs of rural communities. In some places, some of the sources of water have been destroyed since the introduction of piped water, including wells in Longoteme, my home village.

There were springs in some of the villages. These springs were cared for and used by the village people for community purposes especially bathing and washing. Each of the springs had a name that is related to an ancient story linking the Tongan people with *pulotu*<sup>6</sup>. These springs are still known by their names given to them in the olden days. Some of these springs and their names are listed in Table 5.1.

**Table 5.1: Names of Some of the Springs in the Four Island Groups in Tonga.**

Name of the Spring	Name of the village	Island Group
Vai ko Puna	Pea	Tongatapu
Vai ko 'Atele	Ha'ateiho	Tongatapu
Vai ko Felefonu	Vaini	Tongatapu
Vai ko Latai	Faua'amotu	Tongatapu
Vai ko Siu mo Heu	Manuka	Tongatapu
Vai 'O'oa	Puke	Tongatapu
Vai Sio'ata	Vaotu'u	Tongatapu
Vai Salisali	Sopu	Tongatapu
Vai ko Tufumahina	Tufumahina	Tongatapu
Hafu	Vaitaki in 'Eua Island	Tongatapu
Vailahi	Niuafu'ou	Niuas
Vai ko Niutoua	Niuafu'ou	Niuas
Vai ko Vahenga	Falevai	Vava'u

<sup>6</sup> Tupouniua (1977) referred to *pulotu* as a pre-Christian concept for heaven or paradise where ancient Tongan gods and goddesses were residing.

Photo: 5.2: Soaked Mulberry Plants' Barks Ready for Beating



Photo 5.3: Completed Tapa and the Owner



The largest spring is that in 'Eua Island which provides thirteen of its fourteen villages with water. According to legend, this spring is the oldest and represents the first water to be deposited in the soil of Tonga from *pulotu*. The water from this spring is piped from the source and distributed to the village of 'Eua through the management of the Tonga Water Board. 'Eua is a raised coral island which makes ground water inaccessible. The other large spring is in Niufo'ou' Island which is located at the middle of the island. Because of its big size, it is known to some as a lake. When I spoke with the Central Planning Office during my field research in Tonga, they noted that a project proposal had been submitted for New Zealand funding to pipe water from this spring to all the villages. This would mean that the fresh water fish, *lapila*, that were released into the spring to provide fish for the people of Niufo'ou, would have to go. Providing water supply systems is thus a delicate process of balancing different needs and wants.

Sea water provides a good alternative source of water for some craft and domestic activities. For example, when a large number of people reside in a household, the children may be encouraged to bathe in the sea. When making tapa, women sometimes soak the mulberry in the sea before they collect it for beating. Pandanus leaves are boiled with sea water before drying and one particular type is boiled and is left in the sea for one to two weeks. This makes the pandanus leaves very clean and white for making the most important mats for traditional occasions such as weddings and funerals. Being able to use the sea water for these purposes saves women from spending long hours collecting fresh water. Sea water also provides alternative water for the people residing in very small islands of Ha'apai and Vava'u for most of the household activities for they depend so much on rain water for drinking because underground water is saline.

Coconut milk provides an alternative to drinking water in some circumstances. Coconut milk is a nutritious drink. Mothers who breastfeed their children are encouraged to drink and eat the coconut fruit for this reason. Coconut is highly recommended for children, who are sick with dysentery or other diseases causing diarrhea. The collection of coconut fruit is done by men and young boys.

Wells were sources of water for many villages in Tonga. They were dug by the village men for the use of the community. Traditionally, the digging of wells signifies the strength and power of men. These wells range in depth from very shallow to very deep. A long rope and a bucket are used to draw the water up from the wells. Women and children are mostly responsible for collecting water for the family while men are responsible for cleaning the wells periodically by taking out rubbish that might have fallen into the wells.

While these traditional sources and uses of water still have some value today, there are also problems associated with some of them. For example, when wells are the main sources of fresh water for the village people, those who reside far from them spend a lot of time and energy collecting water. Well water can also be a risk to people's health if it is not tested and treated for any contamination. Springs on the other hand could not provide for the privacy of people as individuals. The use of coconut juice and fruits is limited to consumption only and sometimes for health.

The traditional water sources were widely used for maintaining the needs of the people, however, the increasing demands for water for both social and economic development as well as the increasing population led to requests for more effective systems. Furthermore, fetching water was seen as one of the most frustrating tasks of women and children. Modern technology was then seen as the answer to water scarcity and increasing demand.

#### **5.4.2 More Recent Water Supply Systems in Tonga**

After the Second World War, Tonga was assisted by certain Western countries and international organisations to 'develop'. As with many developing countries, Tongans accepted that this development would bring them economic growth and social progress. With overseas aid, many facilities such as schools, health centres and communication networks were developed, for example. Many resources and technologies were also transferred to Tonga to assist in its development. These developments, however, required better water supplies that were efficient in meeting a wide range of needs.

#### *5.4.2.1 How New Water Supply Systems Were Introduced*

The traditional sources of water were widely used in Tonga until the 1960s when the World Health Organisation (WHO) introduced projects for installing new water systems in the rural villages. The two systems that were introduced in the villages were the reticulated water systems and water tank systems. The WHO projects also set up the structure for managing these village water systems. The Ministry of Health was given the task of administering the village water systems because of their extensive network in rural areas through their health centres and because water was seen as a part of the environmental health and sanitation programmes run by the Ministry of Health.

At the village level, Village Water Committees (VWC) were set up to be responsible for the daily operation, maintenance and management of the village water supply systems. These committees were legalised under the Water Act as the formal bodies responsible for the village water systems. Details of VWCs are given in Chapter Six.

When Tonga launched its First Five Year Development Plan for the period 1966 to 1970, with a section on water supplies, the government officially took over the role WHO had assumed. A Village Water Scheme Project was undertaken to develop water systems in the villages as a continuation of the WHO projects with the United Nations Children's Fund (UNICEF) as the main donor. In the 1980s, funding of the rural water systems was transferred to the Small Project Fund (SPF) which is now known as the Small Community Development Fund (SCDF).

Projects that are funded under the SCDF allocation include community water projects, home improvement projects (namely kitchens, toilets and water tank projects) and school projects. This SCDF allocation comes from New Zealand, Australia and Canada. All rural business and income generating projects as well as the agricultural irrigation projects are funded under the Rural Business Development Fund (RBDF).

#### **5.4.2.2      *Reticulated Water Systems In Tonga***

A reticulated water system includes a drilled well, a pump (which is either operated on diesel fuel or electricity), tank reservoirs (which are located on top of super structure made of iron and wood), and water pipes (that connect the well water with the tank reservoirs leading to every corner of the village). These pipes are the main water distribution lines that individual home pipes are connected to. Each home is expected to have a water tap and a stopper. The system, once installed, starts operating by pumping well water up to fill the tank reservoirs before water is released through the distributive pipes to individual homes in the village. Figure 5.1 show a simple model of a village reticulated water system in Tonga. Photo 5.4 shows Longoteme's Reticulated Water Systems. The water house is more than twenty years old and could be blown away by the next cyclone.

The reticulated water systems are the main systems used in the urban areas and rural villages in Tonga where underground water is accessible. The urban reticulated water systems are found in four of the five regions of Tonga namely Tongatapu, 'Eua, Ha'apai and Vava'u, with Tongatapu's urban water system being first to be installed before the installation of any rural water supply system. The urban water systems are managed by the Tonga Water Board (TWB).

The first reticulated water system to be constructed in a rural village in Tonga was at Houma village in Tongatapu in 1961. According to the Ministry of Health, there are 80 rural reticulated water systems that are currently operative throughout Tonga. One of these rural systems serves Fua'amotu International Airport and two systems serve secondary boarding schools in Tongatapu while the rest are located in villages throughout the five regions of Tonga. Table 5.2 shows the location of these village systems in the five regions of Tonga.

**Figure 5.1: A Simple Model Showing a Village Reticulated Water System in Tonga**

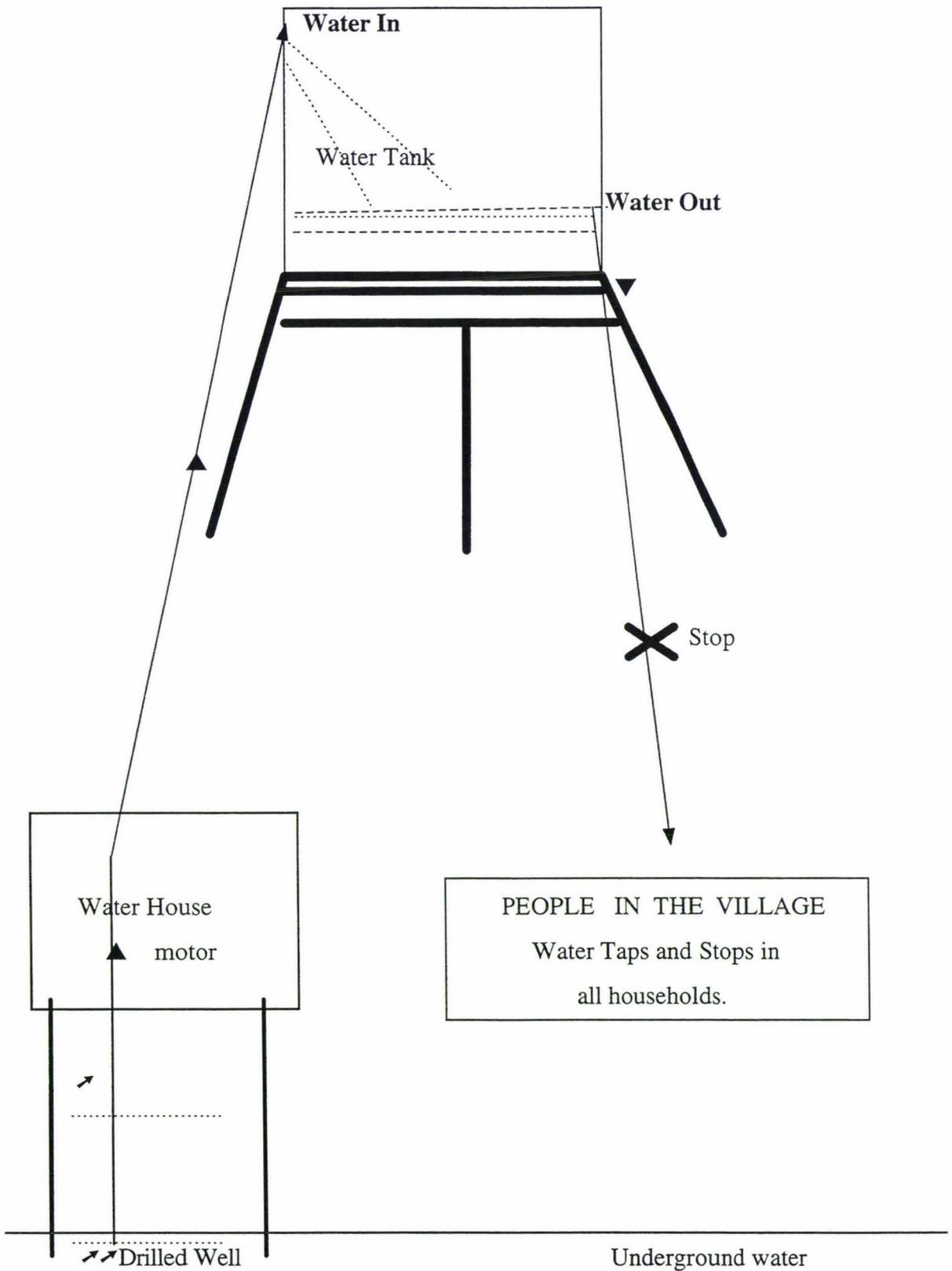


Photo 5:4 Longoteme's Reticulated Water System



*Table 5.2 Rural Reticulated Water Systems in the Five Regions in Tonga*

Region	# of rural villages	# of reticulated water systems
Tongatapu	52	49
Vava'u	33	18
Ha'apai	27	6
Eua	1	1
Niuas	12	3
<b>Total</b>	<b>125</b>	<b>77</b>

The villages without reticulated water systems are served by water tanks. In Tongatapu there are three villages that are served by one reticulated system due to the low lying nature of that part of Tongatapu, thus every village in Tongatapu is effectively connected to a reticulated water system.

#### **5.4.2.3 Water Tank Systems**

Water tank systems are found in smaller villages and islands in Vava'u, Ha'apai, and the Niuas where underground water is either saline or difficult to get access to. They also

supplement reticulated water systems in Tongatapu and elsewhere. The water tanks are owned individually or communally. Individual tanks are connected to individual houses while community tanks are connected to village halls. Most church buildings and primary schools have water tanks which also assist in providing the villages with water. Farmers use this water for irrigation since it is better than underground water. Furthermore, people who have no water tanks collect water from these community tanks when tap water is not running. Most of these people are poor and have no proper roofs for collecting rain water. Also they have no money to purchase water tanks nor have enough to meet the daily demands for their survival such as food to eat.

Houses that are made of coconut leaves cannot have water tanks because water collected would be mixed with old pieces of coconut leaves and dead organisms such as coachroaches and millipedes. Collection of such water would mean that consistent clearing of the tanks would be required and the uses of this water would be limited to washing and cleaning. This means only those with houses made of permanent materials, usually with corrugated iron roofs, are suitable for water tanks. Water tanks are either bought through individual purchasing or are funded by donors, overseas agencies or non-government organisations.

Rain water is seen as being more beneficial than ground water in many ways. It is regarded as best for irrigation and electric appliances, as well as tasting better and being safer for drinking. Ground water often contains salt which can increase the risks of crop disease, change soil textures, contribute to rusting of vehicles and washing machines and so forth. Scum is formed when washing with soap in salty water and this makes the clothes sticky and not very clean. While detergent can be used in salty water more successfully, this is often too expensive for village people.

Water tanks also provide water for the village people when the reticulated water systems are broken down or disconnected due to unpaid water bills. The Central Planning Department orders new pumps for the villages when necessary but this often takes

several weeks before they arrive. These water pumps are not available or made locally because of lack of funding, parts and technical skills for making them<sup>7</sup>.

Water tanks are also important to villages in Tonga when there is a drought or cyclones. During the drought season, there is limited recharging of the underground water due to low rainfall. Furthermore, the increasing number of water tanks also means that water that should percolate through the soil giving it its moisture is now being captured and stored in water tanks. When there is a cyclone or strong wind warning, the tank reservoirs are filled to stop them from being blown away and no water is released to the village people until after the cyclone has cleared. In these cases, water tanks are important for providing people with water.

## ***5.5 THE DELIVERY SYSTEM FOR RETICULATED WATER SYSTEMS IN RURAL AREAS IN TONGA***

### **5.5.1 Introduction**

While water tanks play an important supplementary role in the villages of Tonga, it is the reticulated systems which provide for most of people's needs on a daily basis. Management problems related to the rural water systems are difficult to tackle especially in the villages with reticulated water systems because they cost a lot in terms of money, resources, time and energy. Because of the many problems related to managing the rural reticulated water systems, the focus of this study will be on these and how they operate in rural villages. The discussion to follow refers to the delivery of the reticulated water supply systems in rural areas.

The water delivery system in Tonga follows a top down approach whereby the planning and decisions regarding water development are made at the national level. At the village level, the people are expected to manage and maintain their reticulated water systems.

Figure 5.2 shows the institutions that are involved in the water development projects and the management of water supplies in Tonga, including the reticulated water systems.

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<sup>7</sup> However, the Ministry of Health usually has one on hand for urgent need.

The roles of each institution are also given. Following this introduction, a brief elaboration on each institution and its roles regarding water systems will be provided and the management systems at the village levels will be discussed. There will also be an explanation on the Small Community Development Fund (SCDF) and Rural Business Development Fund (RBDF) and how water projects are processed for funding.

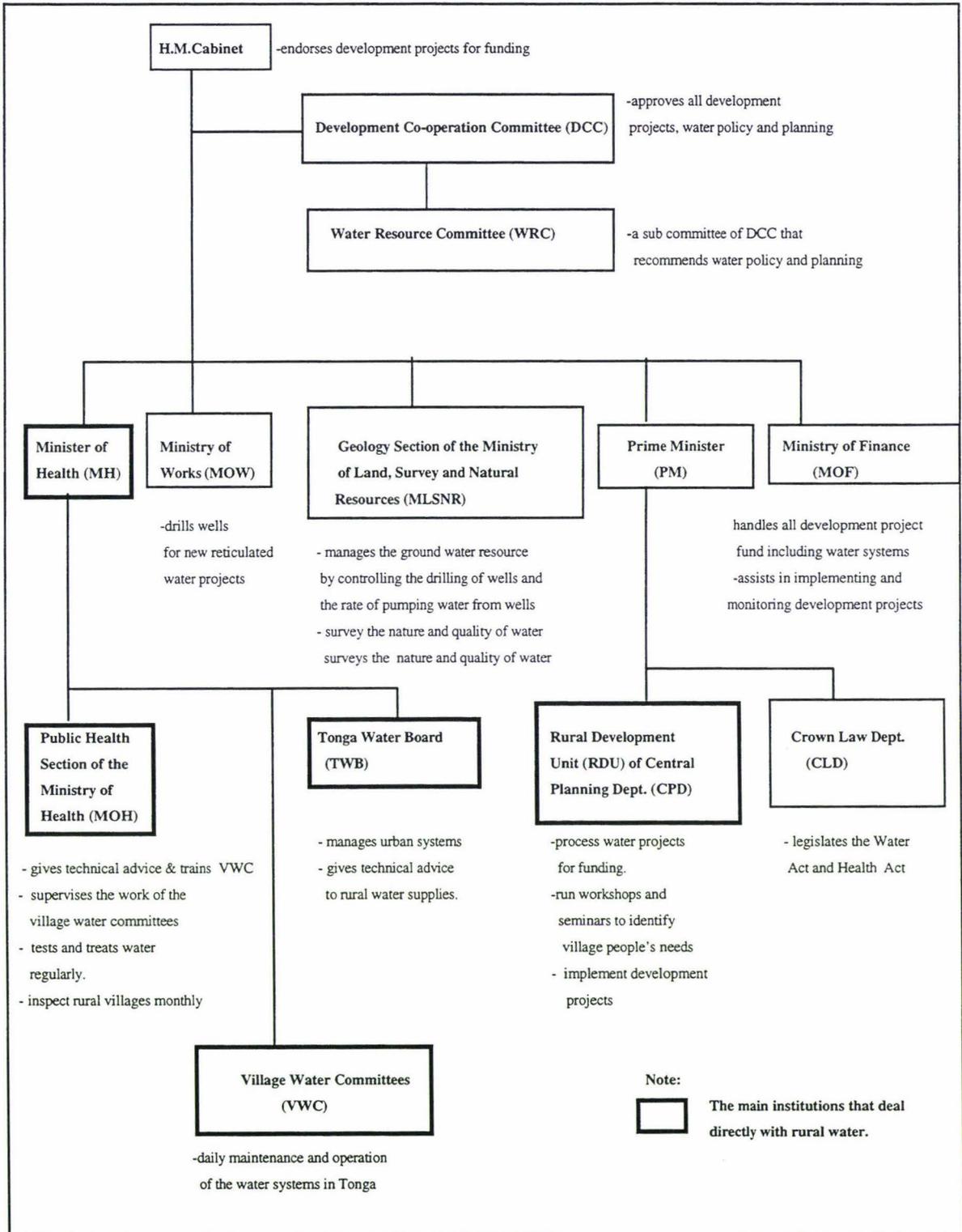
### **5.5.2 Institutional Roles in Managing Rural Water Development**

At the national level, each institution has a role to play according to their area of expertise and responsibility. While a number of institutions are discussed, the major institutions involved in the development and management of rural water supplies are the Central Planning Department, which plans and implements rural development programmes including the reticulated water systems, and the Ministry of Health, which controls and supervises the work of the Village Water Committees in the rural areas. It is important to realise that many of the other institutions are involved only because aid funds are solicited for every water supply project in Tonga.

Figure 5.2 shows that **His Majesty's Cabinet (H.M.Cabinet)** has the overall say in the development of the country. The Cabinet consists of the Prime Minister, the nine Ministers of the Crown and the two Governors of Ha'apai and Vava'u. The Prime Minister is the Cabinet Chairperson. The endorsement of all development projects including water projects is done by the Cabinet. Water Supply Policy and Planning must also be approved and endorsed by the Cabinet.

The **Development Co-ordination Committee (DCC)** is chaired by the Minister of Education. The members of the committee consist of the Directors and Secretaries of the various ministries in Tonga including the Manager of the Tonga Water Board and the Solicitor General.

**Figure 5.2 The Structure of Water Delivery Systems and Their Management Problems in Tonga**



Source: Based upon PPK Consultant's Report on Tonga Water Supply 1992 and fieldwork, 1996.

The committee is given the task of approving projects, such as water supply projects, for funding before the projects are submitted to the Cabinet for endorsement. **Water**

**Resource Committee (WRC)** is a sub-committee of the Development Co-ordination Committee and is responsible for advising Cabinet on policy and planning of water resources and supplies. The committee consists of nine appointed members.

The **Minister of Health (MH)** under the Water Act has the overall responsibility for the development of the urban and the rural water systems in the villages. However, he is rarely called upon for his opinion and authority due to his many other commitments.

This **Ministry of Works (MOW)** owns and operates the only well drilling rig in the Kingdom and they are given the task of drilling new wells for new reticulated systems. For cement tanks, the Ministry is consulted for their expertise in designing water tank structures.

The **Ministry of Lands, Survey and Natural Resources (MLSNR)** is given the task of managing and protecting all natural resources in Tonga. They manage the ground water resource by controlling the drilling wells and the rate at which water is pumped from the wells. They are also responsible for surveying the nature and quality of underground water.

The **Ministry of Finance (MOF)** is responsible for handling project funding. Once the projects are approved by donors for funding, the MOF and the applicants are advised. The applicants then work together with the Central Planning Department (CPD) and the Ministry of Finance (MOF) in implementing and monitoring the projects. Both the CPD and MOF are responsible for advising donors about SCDF and RBDF expenditure.

On the other hand, the **Public Health Section (PHS) of the Ministry of Health (MOH)** is directly responsible for the rural water supplies. It provides the Village Water Committees (VWC) with technical advice and training. This section also supervises the VWC's work carried out in the villages. They must test and treat water regularly for any possible contamination. And finally, they are required to carry out monthly inspections of the villages to ensure that the villages are kept clean by sweeping and burning the rubbish, grass is mowed, bottles and cans are buried, toilets are clean, water taps are not

leaking and pigs are fenced. Households which fail in any of the above are warned and are later reinspected.

The **Tonga Water Board (TWB)** is responsible for the urban water systems and their development. It is also required to provide technical advice for rural water supplies.

The **Rural Development Unit (RDU) of the Central Planning Department (CPD)** is directly responsible for planning and implementing the rural development programmes which include water projects. Rural development programmes are aimed at upgrading the standard of living of the people in the rural areas. The planning role of the Unit involves the formulation of the Rural Development Plan and an investment programme. The staff are required to reach out to the villages through identification missions and assist the people in identifying their needs for ongoing planning and development purposes. It is the responsibility of the Unit to plan and organize workshops and training to benefit the village people regarding developmental issues and sources of funding for projects, including water.

The Unit's implementation roles involve: effective implementation, monitoring and regular reporting of the SCDF and RBDF projects to higher authorities and donors; developing a rural database for village projects; acquitting SCDF and RBDF expenditures from donors; advising CPD on progress by providing a regular evaluation of funded projects; and establishing links with Non-Government Organisations (NGO).

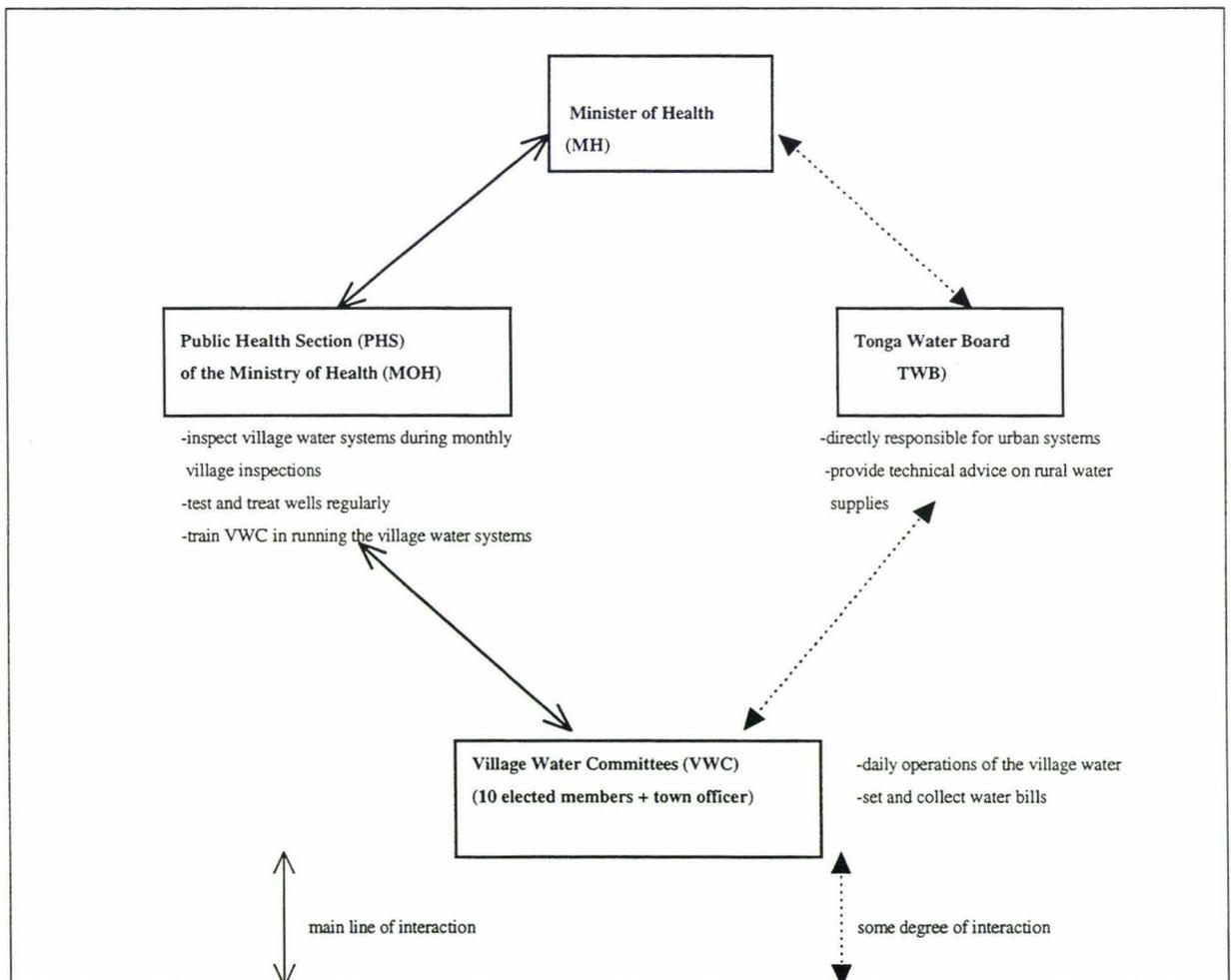
The **Crown Law Department (CLD)** is the legal institution that is responsible for the water legislation by making appropriate changes in the Water Act to reflect institutional roles and power over water. It is also there to ensure that what is legalised under the Water Act is implemented accordingly.

**Village Water Committees (VWC)** are the legal body that administers the village water supply systems. They are responsible for the daily operations of the village water systems by setting and collecting monthly water bills, fixing leakages, ensuring that the water is consistently running, report any system problems to the Public Health Section

and meeting monthly to plan and update their work. At the village level, the community is expected to assist with the maintenance and management of the water systems.

The village reticulated water system’s daily operations and management are carried out by the village water committees of 11 members (ten elected members plus the town officer). They are elected for three years of service. The committee members must be approved by the Ministry of Health before they become the legal body acting on behalf of the Ministry of Health in the villages. Fig 5.3 shows the process of managing the village water systems in Tonga.

**Figure 5.3 Institutions Directly Responsible for Managing the Water Systems**



Source: Fieldwork, 1996

The water committee members are elected by the people in the village meeting or *fono*. Before the *fono* is carried out, the people are informed about it through a *uiaki* (walking

and shouting throughout the streets of the village at night time). All people age 21 or over are required by law to attend the *fono* (Tupouniua 1977). In the past, this system worked well but today, people are over committed with obligations to their families, communities and employers and often, in practice, many do not attend. However, only those who attend the *fono* vote for the village water supply committee.

Since the mid-1960s, the daily management of the rural reticulated water systems has been left to the village water committees and the communities to handle. It is clear that that the running of the water systems is directed from above. Furthermore, many institutions are involved in the management processes. It would be particularly confusing and complicated for rural people to find out that so many institutions are involved. The next section looks at the water project funding sources of Small Community Development Fund (SCDF) and Rural Business Development Fund (RBDF).

## **5.6 FUNDING OF VILLAGE WATER PROJECTS**

### **5.6.1 Introduction**

Figure 5.4 shows the procedure for getting funding for village water projects under the SCDF and RBDF which are overseen by the Central Planning Department. The water projects include both reticulated and non-reticulated water systems of individual and community water tanks and wells.

The SCDF and RBDF are allocated annually by donors as approved during aid talks between Tonga and donor agencies, mainly New Zealand and Australia. Canada's allocation is determined separately by its government. Project submissions for the SCDF and RBDF annual allocations are made twice every year.

The projects, once they are submitted to donors for funding, are checked against the approved criteria before they are funded. In 1992, however, about 200 projects were 'backlogged' including water projects. Many backlogged projects were projects that had been endorsed by the government for funding but no donors had agreed to fund these projects for either the projects fell outside the SCDF and RBDF funding criteria or



For other projects, the Central Planning Department has to find other sources of funding. Since the 1992 'backlog' incident, the Rural Development Unit of the Central Planning Department is required to informally meet donors first before projects are channeled through the system (see figure 5.2) for Cabinet's endorsement of projects.

Non-governmental organisations also fund water projects in rural areas, especially in the outer islands. The Central Planning Department is required to work closely with the non-governmental organisations for planning purposes thus avoiding double funding of projects and to spread the benefits throughout the rural areas.

### **5.6.2 Procedure for Processing Village Water Project Applications**

All rural development projects including water projects are submitted to the Rural Development Unit (RDU) of the Central Planning Department (CPD) for screening and appraising. The Unit works together with the applicants on their projects so that they meet the criteria for funding. The applicants, whether they are individuals, groups or communities are required to contribute financially. Applicants' contributions vary from 10 to 30 percent of the total costs of the projects. This is hoped to eliminate aid dependency and to develop self reliance among the people.

Health projects such as water and sanitation projects need the approval of the Ministry of Health before they are allowed to be processed for funding. The endorsement of the Ministry of Works is also required for construction projects including water tank projects.

### **5.6.3 Eligibility For SCDF And RBDF Funding**

All the islands of the four groups of Tonga are eligible to apply for SCDF and RBDF funding through the Central Planning Department. At the same time, Vava'u and Ha'apai have their own Development Committees with a separate allocation for their regional development programmes which are mainly for the development of the islands' infrastructure.

The Vava'u Development Programme is funded by the European Economic Community (EEC) whereas the Ha'apai Development Programme is funded under Australian development aid. The Niuas have a separate allocation under the New Zealand development aid programme which is also administered by the Central Planning Office. 'Eua island has no separate allocation due to its closeness to Tongatapu. The regional projects from Vava'u, Ha'apai and the Niuas are submitted directly to the Development Co-ordination Committee instead of going through the process outlined for Tongatapu's projects.

### **5.7 SUMMARY**

Chapter Five began by stressing the need for water supplies in rural areas of Tonga, showing how water was necessary not only for daily sustenance, but also to meet important construction, cultural and income generating purposes. It was noted that the existence of a good water supply could save women and children in the rural areas in Tonga from excessive work in collecting water.

After describing a range of traditional and more recent water supply systems, I explained why I had chosen to focus on the popular reticulated water in my study. The management of the reticulated rural water systems takes place through a top down approach. The administration is highly centralised and complex, involving many different agencies. Only one agency, the VWC, represented the interests of village people, however.

Chapter Six, to follow, outlines the findings of my research, focusing on problems, which occur in the delivery of water supplies and management of reticulated water systems in villages in Tongatapu and drawing conclusions about village people's participation in water management in Tonga.

# **CHAPTER SIX**

## **PROBLEMS WITH THE DELIVERY AND MANAGEMENT OF RURAL RETICULATED WATER SYSTEMS IN TONGATAPU**

The discussion of my research findings is divided into two levels: the national level and the village level. At the national level, the discussion will be based on the institutional structure and roles of the government in ensuring the efficiency of the water systems at the village level. At the village level, discussions will focus on problems of managing the reticulated water systems by the Village Water Committees and the village communities. Also, the effects of these problems on the social and economic development of the village people will be considered.

As explained in Chapter Five, the reticulated water system has been selected as the focus of my research because this is the system that involves the most funding in Tonga and needs committed community participation for ongoing management and maintenance for the system to function effectively. It is also the source of the greatest volume of water supplied to villages in Tongatapu, the site of my fieldwork. To conclude, this chapter will discuss the relationship between participation of village people, their empowerment and the effective management of water systems in Tonga.

### ***6.1 PROBLEMS AT THE NATIONAL LEVEL***

The structure of the institutions that deliver water is one that reflects a hierarchical system where the decisions are made from the top and expected to trickle down to benefit the rest of the people. There are many problems associated with this system. One of the problems is the accumulation of wealth and power which occurs at the national level with little benefits reaching the majority of the people in the villages. Looking at the institutional structure in Figure 5.1, Figure 5.2 and Figure 5.3, and observing the operations of the institutions, a number of problems which will be outlined below, were identified.

### **6.1.1 Top-Down, Bureaucratic and Male Dominated System**

The system, as noted above, is one that reflects a top-down approach. The interactions between the government and village people are through junior staff who have little impact on the planning and the designing of water policies and whose interactions with the villagers mainly limited to the Village Water Committees. Senior staff rarely work away from their offices.

Furthermore, almost all national-level institutional positions are held by men who are residing in town and the water problems that are experienced at the village level are not experienced by these decision-makers. In their positions and living in town, they have access to services, power and wealth, which puts them in a position of ignoring and neglecting the very critical issues of development in the rural areas. The involvement in water delivery of so many departments with limited staffing means that officers prioritise work that will satisfy the senior officials as promotion and other benefits come from the top and not from the rural poor.

The treasurer of the Longoteme Water Committee reported that one time she went to the Public Health Section to ask for advice on the type of legal action that could be applied to those who had not paid their water bills for many months. She was told that the only thing that could be done was to report these people to the police. For this women, who found participation in the water committee and the responsibility of maintaining the water system very draining, such a reply was frustrating. She felt that those working for the government offered no practical assistance to water committee members. This further reflected the nature of the system in Tonga, where complaints are not taken further up to the top decision makers and complaints of villagers are not acted upon seriously and effectively.

### **6.1.2 Urban Bias**

The Tonga Water Board consists of the Minister of Health, Chief Secretary and Secretary to Cabinet, Director of Health, Director of Works, Accountant General, Manager of Tonga Water Board and three consumer representatives. The members are

mainly senior officials from government departments which are closely involved with the management of the urban systems. The services provided to approximately 24 percent of Tonga's population which reside in urban areas appear to be far greater than those supplied to the other 76 percent of the population residing in the rural areas. Furthermore, those in the rural areas are given the task of running their own water systems, albeit with the assistance of the Public Health Section of the Ministry of Health.

In practice, the Board has greater power to push for government commitment than does the Public Health Section. The main reason for this is that the Board consists of top position officers, as mentioned earlier. These officials have the advantage of pooling their departmental resources and expertise to improve the urban water systems rather than looking for ways of assisting the rural areas. Furthermore, they have the power to mobilise resources for the advantage of the urban areas which they tend to do because the problems of the urban areas are directly apparent to them because of the pressure from the urban consumers.

Another example of the urban bias of the water system is in the area of human resource development. The Tonga Water Board staff have the benefits of overseas and in-house training yet the Village Water Committees are dependent on the requests or availability of the government staff to provide any training to the people. The village people participating in my research noted that the government officials have not been to any village meetings or workshops organised for the whole village to discuss roles of each institution involved with water delivery and identify people's needs. This shows that while effort is being directed towards improving the water systems in Tonga, it is not enough to ensure self-reliance and growth in people's understanding of these systems and how they can best control them.

The lack of commitment towards advising people in the rural areas provides another example of urban bias. The Tonga Water Board is expected to provide free technical advice on rural water supplies and technical services on a commercial basis under their institutional roles but the Manager of the Tonga Water Board noted that the current capacity of his staff is limited to the urban areas. Furthermore, the villages must now pay

first before the Board will provide service because some villages have not paid overdue bills for past services.

### 6.1.3 Understaffing

While, as clearly stated in Chapter Five, the Rural Development Unit has many tasks to perform, it has only seven staff for dealing with the rural development programmes. Table 6.1 summarises the number of RDU staff and their qualifications.

*Table 6.1 RDU Staff at Central Planning Department*

Region	# of Staff	Qualification
<i>Tongatapu &amp; 'Eua</i>	5	3 with Tertiary Education 2 locally trained staff
<i>Vava'u</i>	1	locally trained
<i>Ha'apai</i>	1	locally trained
<i>Niuas</i>	0	depend on Tongatapu
<b>Total</b>	<b>7</b>	

The Rural Development Unit's economist of the Central Planning Department, argued that RDU's staff needed to work consistently to complete tasks in time and they had to concentrate more on office work and project appraisal and implementation. What has been observed and found out in previous reviews is that there is little contact with the people in the villages. As noted by The Environment Officer in the Ministry of Land, Survey and Natural Resources, the main problem with government work is lack of contact with the rural people and trying to understand the needs of the people and what people really need for better planning. However, he noted that although this is what is needed, they are too busy with the office tasks to do this in practice.

At the Ministry of Health, there are 12 full time staff looking after public health. They carry out regular village health inspections, water testing and treatment of village water. They train plumbers and pump operators and support the duties of the village water committee, in addition to their office jobs. Table 6.2 outlines the location and qualifications of these staff.

**Table 6.2 Public Health Section Staffing 1990, Ministry Of Health**

Location of Staff	Location	Qualifications
Tongatapu	11	1 Senior Public Health Inspector
		2 Health Officers Grade 1
		5 Health Officer Grade 2
		3 Clerical Staff
Eua	1	Health Officer Grade 2
Vava'u	2	Health Officer Grade 1 & 2
Ha'apai	1	Health Officer Grade 2
Niuas	0	Depends on Tongatapu
<b>Day Labour</b>		
Tongatapu	13	11 Plumbers and 2 mechanics
Ongoing Recruitement	6	6 Health Inspector trainees
Training		

**Note:** Health Inspectors trainees are trained for one year before new trainees are recruited.

While this table may suggest that Tongatapu is well catered for with Public Health Staff, in practice they rarely visit villages.

#### **6.1.4 Inappropriate Database**

Collecting appropriate data and information through surveys and coming into contact with the people is increasingly important if effective policies and plans are to be put in place. Effective data can also help to ensure equitable distribution of funding thus avoiding village biases and double funding of projects. Likewise, data can be used to address people's incorrect perception of project aid and to target development objectives more appropriately. Without accurate data, planning and implementation of water systems can thus overlook important concerns and issues.

The current data base at the Rural Development Unit (RDU) records only the funded projects, names of the applicants, project locations, region, project types and funding, names of donors, total project costs and the amount requested and approved for funding. This database is appropriate mainly for project implementation but it is not suitable for planning purposes. For planning purposes, the database must consist of the village profiles outlining the types of water systems in each village and village demographic characteristics including population (disaggregated by sex), number of households, types

of houses, number of water tanks, number of reticulated water systems and how much project funding has been received by each village.

The RDU has a computer, a phone, a photocopier and a vehicle that could assist in collecting information about the villages. The Village Water Committees and the town officer would also be able to assist with this task. If community participation is to be promoted, village people should be involved in providing data and helping RDU staff to interpret it for planning purposes.

From the above discussions, it is obvious that overcoming the problems at the national level is critical for the development of the people at the village level. These problems need to be addressed and the system needs to be restructured to accommodate people's development needs at the village level. Next I focus on the village level and find out the main problems encountered there to be able to relate the two levels and how they affect each other.

## **6.2 PROBLEMS AT THE VILLAGE LEVEL**

Each village reticulated water system is operated either on electricity or diesel fuel. People are required to pay water fees to meet the expenses in maintaining the system, pay the water bills and the plumbers, water operators and managers and related expenses. However, the village people encounter daily problems with these water systems. When their social and economic activities are constantly interrupted, because of a failure of the water system, people feel the service they are being provided with is not good value for money. These problems and effects are discussed in detail below.

### **6.2.1 Mechanical Break Downs**

The village reticulated water systems often break down due to lack of maintenance of motors. Some motors are old and have never been maintained since they were purchased and used for pumping water. The reason for poor maintenance of the motors is due to no spare parts being available locally and people's lack of knowledge of how to fix or maintain the motors. When the motors break down, the village people are required to

raise funds to be able to purchase new motors from either New Zealand or Australia, for motors are not available locally. This takes several weeks since villages have little savings, and thus there is considerable disruption to the village social and economic activities.

While this research was taking place, I visited the village of Makaunga because I was informed by residents of Nukuleka village that Makaunga's water system was not working. I found that the village was without water for going on four weeks due to a mechanical break down. I spoke with the retired town officer of Makaunga for he had submitted a village water project to the Central Planning Department to fund a reticulated water system for the village which included a new drilled well, a new motor, a tank reservoir and pipes to connect the old village water piping to the new tank reservoirs. This project was initiated because the old well no longer provided sufficient water to the village. The details of the project submission through to project approval is outlined in Table 6.3 below.

The project was submitted in January 1995 and when I visited the village in May 1996, the project has not started and the village was out of water. The main reason why the project had not started was that the community had not yet saved the full T\$9,000<sup>1</sup> for their contribution before the project could start. The old water motor broke down at a time when the community had already raised T\$5,000 for the new water project, T\$3,000 coming from people of Makaunga who were resident in New Zealand and Australia. CPD had no other option but to order a new motor, asking Makaunga village to donate T\$3,000 of the T\$5,000 already raised to meet the costs of the new motor. The new motor is to replace the old, while the village continue to raise the remaining T\$4,000 for the completion of the water project. While the people were waiting for the new motor to arrive, efforts were made by the village water committee to fix the old motor to provide water for the people but with little success.

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<sup>1</sup> Exchange rate for May 1996 was T\$0.86 equals NZ\$1.00

**Table 6.3**      *Details of Makaunga's Water Project Proposal*

Information	Project costs and Dates Funding Approved
Total project costs	\$18,800
Amount Requested	\$9,000
Village Contribution	\$9,000
Date Project Submitted	1-Jan-95
Date Approved by RDC	18-Sep-95
Date Approved by DCC	25-Sep-95
Date Approved by Cabinet	Oct-95
Requested Funds received from Donor	12-Jan-96

The effects of the broken water system were clearly evident. People said that the duration of the water shortage was too long for many activities to function normally. Children and parents were seen bathing in the sea and collecting sea water for domestic duties. Families with flush toilets inside their houses were frustrated because they had to collect water to make their toilets work. Some families had water tanks but there was little rain at that time. The extent of the problems drove people, especially women, to search for water for their domestic duties. One woman said that twice a week, she went to her parent's village to do their washing especially her children's uniforms. Others who have to travel far had to have bus fares or hire a van to take the washing with them. Fortunately, there was no funeral or any major traditional event that required water during this time. School children woke up earlier than normal to collect water. The primary school was fortunate because it had three cement tanks and a water tap connecting from another village.

Women's groups also had to postpone *tapa* making because of the water system break down. Some women did not have the time to do their *tutu*<sup>2</sup> because they spent time collecting water for their domestic duties. The home gardens were hardly watered because of the lack of water.

Agricultural work was also effected. Some people had to purchase water for their agricultural irrigation. Those without vehicles had to pay for the transport. Pigs that

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<sup>2</sup> *Tutu* is the beating of the bark of the mulberry tree for tapa making.

were fenced were let out to roam in the village to find food and water, which is not very hygienic. Owners of livestock had particular difficulty finding water for their livestock.

As discussed, mechanical breaks down affect the normal functioning of the social and economic activities at the village level. However, people's dependence on government and outside assistance due to a lack of funding and lack of training in technical skills means they are unable to fix the motors themselves. Limited village savings and a lack of good leadership skills and resources to respond quickly to water problems were also evident. While it is important for the government to ensure that village water systems are functioning effectively, there are not many committed outreach staff to do this job or to train villages to be able to do it themselves.

### **6.2.2 System Leakages**

In all of the villages, problems with system leakages cost a lot in terms of money, time and resources. While I was interviewing a young woman in Veitongo, I could hear the tap in the bathroom dripping. The woman said that she had reported the problem to the water committee but had to wait for them to fix the tap. She said she could not fix the running tap but that she had a container for collecting the dripping water for the children's bath. Outside the bathroom, pigs were digging in the muddy water which accumulated because there was no proper sanitary disposal of used and wasted water. Her other alternatives would have been to turn off the stop when she was not using the water so as to minimise water wastage. The town officer and water supervisor should have checked her property and advised her of this option.

While I was in Longoteme, the new water committee was conducting a survey of home taps because the treasurer had noted that the electrical bills were increasing every month. Also there had been complaints that at one end of the village, people hardly received water in the morning and on Sundays when there was a big demand for water. After the survey, the plumber reported that more than 70 percent of the home taps were leaking. Ten homes were using long hoses for watering home gardens, feeding fenced pigs, and for using as showers by families who had no indoor showers. Photo 6.1 shows how the

long hoses are used for washing vehicles and also for many other purposes as noted above.

Two homes were reported to have enormous water wastage. A connecting pipe that ran from the main distributing pipes to a house was cut in one case and had never been reported to the water committee. This split pipe was located at the middle of the family's home garden of mulberry paper plants which assisted in boosting the growth of the garden so it is dubious whether the split pipe was accidental. Another house was reported to have a dripping tap in the bathroom and water was dripping into a bathing tub which overflowed when full. These families are among the respected families in my village because they belong to churches' main decision making bodies yet they were not being responsible about water conservation.

The plumber was asked to fix the problems but the plumber requested an increase in pay before he would perform the task realising that lots of work were needed to repair the leakages. The committee accepted the request. After two week, the water was operating well because most of the dripping taps were able to be fixed. The plumber advised that the main problem with trying to fix the taps was due to lack of spare parts and people's irresponsibility. He spent a lot of time shopping around for spare parts because the government had no spare parts workshop for water systems.

The consequences of system leakages include increased electricity bills from water wastage and low water pressure which inhibits effective water distribution. Since everyone is paying equal water fees, it is unfair that some have to pay more because some homes are irresponsible.

### **6.2.3 Election of the Village Water Committee**

Moving on from technical problems associated with the water systems, it is essential to consider how the systems are managed. The next three sections will, therefore, focus on how village water committees are elected, whether representation on the committees is fair and management problems in practice.

The election of the village water committees is carried out during the first *fono* of the new year. The duration of the services of the village water committee varies from one to

**Photo 6.1: Car Washing**



three years depending on each village. Discussed below are some of the problems and consequences of electing the village water committee in the *fono*.

Each village has a town officer and this person is required to call a village meeting or *fono* on the first week of every month. In the *fono*, people sit and listen to the town officer who informs them of instructions from either the government or their respective noble. As Walsh (1972) noted ‘the *fono* is not a place for discussion or complaints.’ *Fono* has been traditionally the way of calling people together for collective action in fulfilling traditional obligations to the nobles and the King. It was appropriate in the olden days because the nobles stayed together with the people and were able to redistribute wealth to the people. Today, commoners feel they are told what to do by nobles but that they get no benefits from this. The majority of the interviewees saw the

*fono* as a mean of passing more *kavenga* (obligations) to the people from the top people and this is seen to be the main reason for having district officers. The district officers are seen as controlling the town officers and the people at the village levels.

The district officer must run the first *fono* of the year before the town officer carries out his monthly *fono*. Longoteme's first *fono* this year, 1996, was carried out in May, which was almost half way through the year. The majority of the people did not attend the *fono* because the *uiaki* was carried out at about seven in the morning for the *fono* to be carried out that same morning at nine.

The district officer chaired the meeting and the town officer took over when electing the new committee members. The people accepted the many excuses provided by the district officer in delaying the first *fono*. The election of the VWC members was done last on the agenda. Since it is the traditional practice to respect people higher in status, the district officer is always seen in that position allowing him to complete his items first in the *fono*. The people did not challenge him for his delay in carrying out his rightful duties for the village people.

A resident of Veitongo advised that the first *fono* of the year by the district officer always took a long time. During the same *fono*, the election of new water committee members takes place, and usually the election is placed at the very end of the agenda. By the time the election of the water committees takes place, the *fono* has taken up two to three hours, therefore, the attendants do not wish to prolong the *fono* by voting for the new committee members. Instead they usually only vote for the replacements of members who had left the village otherwise the old committee members remain. Similarly it was only when old members left that three women were elected to be members of Longoteme's water committee in 1994.

The village people have been brought up in a society where respect is given to the people with higher status therefore, it is difficult to challenge leaders because the values of the people incorporate respect, obligation and loyalty which are rooted in the lives of all Tongans. So while the call is for rural people to participate actively in the decision

making process of the *fono*, respect of elders, of people with wealth and status and conflict avoidance between women and men in Tonga prevents effective discussions in the *fono* on issues regarding rural people's development. Both traditional and modern decision making operates in a top down manner.

#### **6.2.4 Representation on Village Water Committees**

Early in 1995, as part of an ongoing review of the projects funded under the SCDF allocations, a New Zealand consultant, in partnership with the Central Planning Department, completed and published reports on a review of the previous projects funded under New Zealand Aid Programme. Regarding the Village Water Committees, the report stated;

*The village water committee is the legal body that administers the village water supply. Although policies made by the committee have legal effect on the villagers, coordination is still lacking. Community participation is very weak in many villages. Almost all villagers show little participation in fund raising for their cash contribution. This has caused delays in project implementation. CPD sometimes waits for up to two years for village cash contributions. During project construction very few people turn up to help. The worst is observed in payment of water tax. There are lots of free riders. The water committee cannot exercise good management resulting in inefficient reticulated water systems culminating with a poor maintenance schedule (CPD Tonga 1995).*

The above statement is putting the blame for poor management and maintenance of village water systems on the village water committees and the village communities. But is this a fair judgement of the village communities? This kind of judgement discouraged people from participating in their development knowing that they could easily be blamed for something that they have no complete control of.

There are various problems with representation on VWCs. Many of the villages I visited had only men in the village committees. Most were men of higher rank in relation to the

other people in the village. Of the 77 villages with reticulated systems in the whole of Tonga, the water committees are predominantly staffed by men. According the Ministry of Health, there are only about five villages with women in the village water committee. Because, there is no clear criteria for electing village water committee members, the government officers were asked for comments. While officially it is up to individual communities to decide who is to be elected to the committee because men and women are supposed to be treated equally and people should not be discriminated against because of gender, religion or poverty, in practice villagers are confused about their rights. They are used to being told what to do and to perform their obligations without complaining. This reflects a high level of dependence of the people on the decisions of the government. Furthermore, decision making has been traditionally made by men not only within the household and the extended family but also within the class system in Tonga. The introduction of the government and the church systems into Tonga has strengthen this traditional roles of men. Respect of men as head of the family also entails respect of their traditional roles. This respect is also between sisters and brothers which hinders the election of women and youths to village water committees in fear of losing this respect. However, the people need to feel more in control of their own development.

Despite poor representation on VWCs, many of the people interviewed supported the view that women, minority churches, youths and poor people should be represented in the VWCs. Thus there are some reason to hope that changes could be made in the future.

#### **6.2.4.1 *Economically and Socially Marginalised People***

People with serious economic and social problems are not represented on VWCs including people who are poor economically, have no formal jobs, no land for farming and no relatives overseas who help them out financially. Their households are usually crowded, with two families sometimes living under the same roof. There are many single parents in this category. They rely on extended families, neighbours, and churches for support.

When I visited the village of Nukuleka during fieldwork, two women were doing weaving. I introduced myself and after that we talked. The two women were glad to talk about the water problems in the villages as they had no water tanks and were dependent on the reticulated water system. These women were economically and socially disadvantaged. One woman was a widow with five children. She was facially handicapped. She earned minimal cash from selling seafood in the market. However, she only had the chance to go to the sea once a week so it was difficult for her to earn money. She had no close relatives overseas but her church, neighbours and relatives provided her with support. Weaving was another way she attempted to earn money but a single mat took weeks to make. Her children's education costs were met by the Mormon Church, otherwise her children could not have gone to school. She paid T\$1.50 for monthly water bills.

The other woman had three young children. Her husband worked for the Mormon Church. She said that they had just moved from Ha'apai so they lacked family support and were heavily dependent on her husband's job. She also tried to earn some money by doing weaving to sell. They had no bush allotment but their neighbours and the Mormon Church is helping them by supporting them with food and clothes. As it is traditionally practiced in Tonga, your neighbours are the closest people who could offer help in times of need and could share available resources. These women's cases are typical of economically and socially marginalised people.

While such people lack resources and have to work hard for the very survival of their families, the decision makers have no knowledge of the impact of their decisions on these people. When the poorest of the poor fail to pay their water fees, they are seen to be the free riders. This results in other people seeing this group as inappropriate and unfit to be in the village water committees. It is no wonder that disadvantaged people such as the two women described above do not even turn up for the village *fono*.

#### **6.2.4.2 Women**

Women should be represented in the village committees because they are the main users of water as explained in Chapter Five. In times of water shortages, women are the main

collectors of water and this increases their work loads considerably. Women have both reproductive and productive roles which are hindered by water shortages while men are mainly affected in terms of their productive roles, such as commercial agriculture. Of the five villages that were studied in this research, only two VWCs had women as members; Longoteme and Nukuleka. Table 6.4 shows the composition of the committee members of some of the villages in Tongatapu.

*Table 6.4 Village Water Committees in Seven Villages in Tongatapu*

Village	# of men	# of women
Longoteme	7	2
Veitongo	11	0
Nukuleka	7	2
Loto Ha'apai	6	0
Makaunga	11	0
Houma	11	0
Ha'ateiho	11	0
Fua'amotu	11	0
<b>Total</b>	<b>75</b>	<b>4</b>

**Source:** Based on information from officials in MOH and VWC members.

There were two women on each. These were all married women and were very secure socially and economically. One owned a shop and her husband was a civil servant; another was a university graduate; another had the majority of her children residing overseas; and the last was the a wife of a respected church member and was well off too in comparison with the other women in the village.

When asked around for household views on the performance of the four women in their respective villages, the people expressed their support for these women in the VWC. They felt that women were trustworthy, kept good records of meetings, ensured that the water systems were operative, and used the revenue appropriately.

By contrast, Veitongo and Loto Ha'apai villages had no women on their VWCs. Loto Ha'apai has recently acquired their own water system after many years of being under the same system as Veitongo. The Veitongo VWC members had all been in the committee for some time, apart from a few who were replacements for people who had

migrated overseas or moved to other places. When I visited Veitongo to see the committee, I found out that the secretary had been overseas for almost two months. Scheduled monthly meeting was rarely carried out which contributed to problems with the village water. Water was stopped from nine at night until seven or eight in the morning due to unpaid water bills.

After three decades with the same delivery system in managing village water systems in Tonga, the problems are not decreasing but increasing. This could be at least partly because water is not such a concern for men. It is women who have to collect water when there is a shortage and whose daily roles rely on the availability of water. Including women could help to ensure the increase in efficiency in managing the village systems.

#### **6.2.4.3 Churches**

People's religious beliefs are influential in their attitudes towards community work in Tonga. Churches with small representation in a village hardly participate in community work. For example, in Longoteme, there are about 80 percent Catholics, seven percent Methodists, five percent Free Church of Tonga, five percent Mormons and three percent Pentecostals. However, with regards to attending the *fono* and elections of the VWC members, the Pentecostal and the Mormon Church members do not attend mainly because they are newly introduced churches in the village and only socialise within their own members. Therefore the running of the VWCs is mostly done by people of the Catholics and Methodist church with the town officer being a member of the Free Church of Tonga. Although everyone is entitled to participate in VWCs, the predominant trend is for members of larger churches to dominate all community leadership posts because the majority of the people are acquainted with each other. At the village level, the churches can be a very divisive force.

The new Methodist steward in Longoteme said that he was new to the area but he had already experienced the water problems in the village. He noted that the barriers of the churches must be bridged in order for the people to come together as a community and that the smaller church groups must be encouraged to participate.

I later talked to a Mormon woman who said that she and her family had converted to become Mormon. They now felt isolated and alone and they kept their distance from the rest of the people in the community and their close relatives. She was supportive of the idea of all church leaders being targeted to encourage their members to work together at community activities, including those related to management of water systems.

The churches could certainly be playing a stronger and more unified role in encouraging villages to cooperate to improve physical development in the villages. The churches are respected by the people and therefore have the ability to encourage their members to work together for change. By helping to provide for a basic need like water, the churches would be showing their concern for the welfare of their people. They could also encourage their members to use water carefully, in a sustainable manner, as this is a way of looking after God's creation. The government, however, is cautious of the involvement of the churches in community development because it is through the churches that people's voices of discontent can be projected.

#### **6.2.4.4 Youth**

The youth are the future leaders of the villages and they must be able to learn about community development from the older members of the villages. Many are underemployed and their potential is undermined because they have been brought up in the Tongan culture that is rooted in 'respect' or *faka'apa'apa* of the elders, their parents and people of higher rank without questioning their decisions, as noted in Chapter One. Significantly, the youth have already shown their organisational and leadership qualities by fundraising for community projects in some villages. In Veitongo village, youths were assisting in fund raising for the village new water system. They raised T\$2,000 and gave it to the water committee for the village water project. This shows the strength of the youth to contribute to the development of the water systems. However, youths are not represented in the committee. Talking to the youths, they said that they do not want to challenge or go against the decisions of their parents. The consequence of not involving youths is that they will remain dependent on their parents without realising their potential to contribute effectively to their future development, and to the effective functioning of village water systems.

To sum up, people characterised by social and economic marginalisation, as well as women, youth and those from churches which have a minority of members in any particular village, are the last to share in any benefits from a top-down approach. This is the approach followed for the delivery and management of the reticulated water systems in Tonga.

## **6.2.5 VWC's Management Problems**

Moving on from representation to management issues, I wanted to see how the village water system is managed and sustained. Furthermore, I wanted to identify the factors that determine how the village people managed their water system.

### **6.2.5.1 *Lack of Members' Commitment***

In Longoteme and other villages, committee members do not have to pay water fees. This is one motivation for some members to be in the committee, rather than a feeling of commitment. VWCs are part of the structure that are laid down by the government to manage the water in the villages and they more or less control the village people because they know they have support at the top level. So the decision making is with the few powerful people at the village level and they get privileges of being members of the committees but they have no magic for solving the water problems at the village level.

There is little commitment from some VWC members because the privileges as members of water committees are not sufficiently significant to promote their participation. Some consumers in Longoteme said that eleven members in a VWC is too many, as even with so many people they are not doing anything to solve water problems.

The committee members noted that they have the same productive, reproductive and community duties as the rest of the village to fulfill. At the same time, they are frustrated with people not paying their water fees and they lacked ways of handling the problems. No one in the committee would willingly give up a lot of their time to attend to water problems (except the women) without proper payment since development today costs

money. This is due to women being the collectors of water for they are the main users of water in completing their roles as mothers and wives.

Few village surveys were done in order to assess and fix water leakages and monthly meetings were not consistent because of the interplay of several factors that hinders the effectiveness of the committee in managing the village water supply system in Tonga. These factors include the priorities of the committee members as noted above. Furthermore, the committee members are not the same in the way they interpreted their roles and responsibilities regarding water management. For example, the water supervisor spoken to felt it was their job just to ensure that water is pumped daily therefore he is not to involve himself in fixing water leakages and surveys for already he has contributed.

Village Water Committees not doing their task effectively has resulted in poor participation by other people in looking after their water taps, reporting any water leakages, paying water fees consistently and participating actively in community fund raising. Water problems tend to escalate because people are not willing to cooperate to work collectively to solve the problems. The impact of ignoring the people in planning and decision making has proven costly in terms of increasing electricity bills by ignoring water leakages, effects on the social and economic activities of the village when the electricity is cut off, and instilling bad feelings so that people are then slow to raise money to fix water problems.

#### **6.2.5.2      *Accumulation of Benefits and Skills in the Hands of a Few***

In most villages, the VWC members were elected to positions such as secretary, treasurer, plumber, and water operator. Town officers are chosen automatically by the village people as the chairperson of the VWCs. The rest of the committee members were elected to assist with the planning and decisions regarding the work of the water committee. Plumbers, water managers and water operators are usually paid for their services so as to ensure that water leakages are fixed consistently, water is pumped continuously and people's complaints are dealt with effectively. These positions are seen to be the key to reducing water electricity bills and effective running of the water but on

the other hand, the officers involved have families to look after. As these members accumulate confidence and technical skills, people tend to rely on them and become dependent on them. However, there are many problems associated with this:

- The skills are with only a few.
- They could demand higher payment for their services and it would be difficult for the VWC to refuse.
- They tend to be less efficient in the longer term.
- The likelihood of them traveling overseas or other places where their skills are in demand is high.

It is important that more people are trained to be involved in water management and maintenance instead of a few specialised people in the village. This would be more beneficial in terms of people being able to fix their home water technical problems and develop self reliance among people with regards to their technical skills. People should share not only the water bills but also the benefits from managing the water system.

#### **6.2.5.3      *Physical Dispersal of People***

While an average village may have only a few hundred people, they are dispersed over quite a large land area. This is especially true in bigger villages. People are, therefore, not socially familiar with each other unless they belong to the same social groups such as women's groups, church groups, cooperatives, or youth groups. It is therefore very difficult for the people to relate to each other in the *fono*.

Also, when committee members do their inspections, they find at times it is very hard to do their job well because of the scatteredness of the people's houses. This suggests that the management problems could not be tackled by the committee alone.

#### **6.2.5.4      *Skills and Competency of Town Officers***

The town officers are the chairperson in all village water committees and although anyone could be the chairperson, everyone in the committee votes for the town officers

because they say that they are quick to act on their behalf when water becomes a problem. The town officer is seen as the go-between the government and the people as well as between the nobles and the village people. The town officers are paid very little even though they carry out a very challenging role. Two town officers told me that their wage from the government was T\$30 per fortnight.

The town officers' roles include attending regular meetings with the Prime Minister's Office, running monthly *fono* with the village people, being chairperson of the village water committees, ensuring that law and order is kept in the villages, advising and organising people to meet any traditional obligations to the King and the nobles, and helping health officers when they arrive in the villages for monthly inspections. The town officers are not in a position to challenge the top decision makers but to be submissive to them and carry out their roles as directed. The duties of the town officers at the village level are underestimated regarding their commitments to the people, nobles and village water supplies.

The decision makers at the top are happy to designate responsibility to the town officer as then they must answer for all the problems at the local level. It is important that the role of the town officer be taken seriously by the government if the water systems are to operate properly.

Because the town officers chair the Village Water Committees and they have the task of ensuring that the water systems are running smoothly every day, it is vital that they are paid well by the government. Town-officers have great responsibility and face many challenges yet they have limited influence over the decisions of the people at the government level.

Next I examine how water fees are devised and the problems associated with payment of fees.

### **6.2.6 Water Fees**

Water fees calculation is done by each VWC, although the MOH assists in determining the appropriate level of charge. Normally, the charge per family ranges from T\$1 to T\$5 per month depending on the size of the village. Most villages have small savings and depend on community fund raising when the motor or other parts of the system break down. Widows and widowers who are older and are staying on their own usually do not pay water fees. Single parents families that are really poor are usually given reduced water fees as compared to the rest of the villagers.

#### **6.2.6.2 Legal Action Seen As Solution**

The people who are consistent with their payments are disappointed with the town officer and the committees because of the problems with the water systems that are experienced regularly by the village people. People, once they pay their fees, expect the VWCs to deal with the problems effectively. However, the VWC members noted that the amount the people pay monthly does not cover costs of ongoing maintenance of the systems or even save any money for future maintenance. The town officers and the committee members are pressured to take people to court with unpaid bills. While the town-officers have done this in a few cases, more recently, they want to deal with the problems locally. Fee paying villagers claim that town officers do not take legal action because they still want to win support from the respective village people in future campaigning for the town officer's election. When the town officers were asked for comments about this claim, they all said that they did not like to prosecute offenders because of the respect that they have for these people and the extended family linkages within the villages. If they follow the quick way of taking legal action, they will be hated for it and life will be very difficult for them staying in the same village as those they have prosecuted. The town officers also noted that legal action not only creates bad relationships among the village people but they use up their time, energy and money in pursuing legal actions which could harm the peace and harmony in the village.

Dealing with the water fee problem locally does not solve all problems smoothly either. For example, some committees use the disconnecting method in dealing with the

consumers' with unpaid water bills. However, one woman in Nukuleka reported an incident that their water was disconnected without telling them and the cut was made at the mid section of the pipe that they purchased leading to their tap water. This angered her husband because the committee did not inform them first and they cut the water pipe which the family themselves had purchased. The husband had a big argument with the committee. Both parties were ready to take legal action against each other because of the incident but it was settled by a police officer who pointed out that the couple was in the right.

**6.2.6.3 Monthly Fees do not Meet Expenses**

When people do not pay water fees consistently, the committee can not pay the monthly water bills, plumbers and water operators. Given below are two village examples of the water expenses and water revenues per month which show the need for consistency in paying water bills (Table 6.5).

*Table 6.5 Monthly Expenses and Revenues for Longoteme and Veitongo Water Supplies*

Village 1	Approx # of Families	Monthly	Expenses	Monthly	Income (\$3/family)
Longoteme	100	Plumbers	\$50	# of Families x \$3	\$300
		Water Operator	\$40	Water sale	\$70
		Water Com: (11)	\$33		
		Electricity	\$260		
<b>Total</b>			<b>\$383</b>		<b>\$370</b>
Village 2	Approx # of Families	Monthly	Expenses	Monthly	Income
Veitongo	120	Plumbers	\$30	# of Families x \$3	\$360
		Water Operator	\$30	Water sale	\$90
		Water Manager	\$25		
		Diesel	\$280		
<b>Total</b>			<b>\$365</b>		<b>\$450</b>

Source: Fieldwork 1996

As seen in Figure 6.5, Longoteme's monthly expense and revenue are almost equal with no money left as savings for future repairs. However, other sources of funding come

from requesting for funding from overseas donors and community fund raising. All these activities are highly dependent on the support of the village people. The monthly water fee per family does not reflect the many uses of water for both productive and reproductive roles carried out by the families. Neither does it reflect the uneven development at the village levels as many families have poor houses with only one tap while families with well furnished modern houses have more than one tap in their houses. Those farmers who have large plantations and are in need of water for agricultural irrigation pay for the water. For small scale farmers, they do not pay as long as they are not taking water in barrels.

It is also obvious that the monthly fee per family does not cover the cost for ongoing maintenance and any savings for future maintenance. Most villages depend on community fund raising for these purposes. There is a need to revise the water fees to deal with these issues.

#### **6.2.6.4      *Legislation of the Water Systems***

All the systems of Nukuleka, Longoteme and Veitongo are located in bush allotments belonging to residents of their respective villages. This effectively means that those who own the allotments own the water systems. In Longoteme, the owner of the allotment is not paying water fees because it is seen that he is providing a service by allowing the system to be on his land. This person was watering his garden day and night when there was no rain. This means the cost of his action was paid by all the village people. The water committee was concerned about stopping the family from putting such a heavy burden on the water supply because they owned the land on which the water system is located.

To conclude, the system of allocating water fees is one of bias against the poor and the disadvantaged because the level of use of water in households differs yet they all pay the same fees. Some people are wasting more water than others. It is quite difficult, however, to devise a system that is fair for everyone when it comes to the foreign concept of people paying money for a resource that has been traditionally been available without payment.

### 6.3.7 Village People's Perception and Attitudes

Participation by village people has already been mentioned as an essential ingredient of any effective and efficient water system. There are several factors, however, to be discussed below, which impede people's participation, however.

#### 6.3.7.1 *People are not Participatory*

Not everyone in the villages participates in community work regarding water. Most people who do not participate in community work are those who are quite well off and well educated in comparison with the others in the village, but who do not have any positions on the water committee. Some have the attitude that what goes on at the village level belongs to the narrow minded people and that to participate at the village level would be to lower their standards. Those high status people who do participate only do so for they see the benefits of being in the committee. At the other extreme, poor people hardly ever participate in community work, perhaps partly of their heavy workloads and partly because they feel marginalised within the village.

The *fono* in Longoteme on May 1996 was attended by only a few people. I was told by the town officers that youths hardly ever attend the *fono* and those who attend kept quiet throughout. The majority of the women do the same because they lack confidence to talk. Traditionally, however, women are seen as the key to the success of men's decisions. When wives show their respect for their husbands as leaders and decision makers by supporting and implementing their decisions that are made publically, the status of their husbands and families are maintained.

Some noted that they only attend the *fono* because they are required by law to do so. Since legal action is no longer reinforced, many people have started to miss the *fono*, however. People who did not attend the *fono* said that they had other things to do but they would go along with any decisions once passed.

### **6.3.7.2      *People Lack Understanding of the Importance of Water***

People lack understanding of the importance of water to them as a community. They think very much as individuals. One poor farmer in Veitongo said;

*I want our water systems to be managed by the Tonga Water Board because I would be paying a smaller amount while my neighbour would pay higher because they use water for their cattle, for irrigation and for washing their cars.*

The farmer was logical in his mind and thinking about water usage but at the same time it would mean that he would no longer be able to ask for rainwater from the neighbour's tank in times of trouble. Furthermore, the Tonga Water Board can not guarantee efficiency in their operations due to a shortage of funds and staff, expertise, commitment and so forth. In this instance, people are in need of training and education about how water delivery system is organised and the importance of water conservation.

### **6.3.7.3      *Lack of Interest on the Part of Marginalised People***

Disadvantaged people are not interested in water management because after failing to pay their bills regularly, they are left out in most decision making. Even when they do pay their water fees, the decisions are made by other people for them. They feel neglected and unimportant.

Furthermore, marginalised people are cautious of joining organisations such as the VWC and even community groups where they may be required to contribute with their skills or resources when, with what they have, they only just manage to ensure their family's survival on a daily basis.

Lack of interest also derives from a lack of knowledge. There is hardly any community training programme organised or designed nationally to educate or train the village people to widen people's knowledge and to understand the best way to deal with their reticulated water system. This is entirely left to the VWCs whose roles as committee

members are competing with their family roles and obligations. Television and radio programmes and local newspapers are means of getting the information to the village level but only those with access to this equipment or who can afford newspapers are likely to learn from these mediums. The poor and the disadvantaged people are the ones that miss out on these information systems.

#### **6.3.7.4      *Lack of Training and Communication with Village People in General***

When people are not involved in training and they have no contact with government officials, they start to become unconcerned when the government does make an attempt to get them involved. When I asked around, none of the villagers could remember any training sessions or workshops on water maintenance for the village people in the past five or more years. Plumbers, water operators and some village water committee members were the only people to receive training from the Ministry of Health. The only regular contact with the Ministry of Health was the village inspections which were carried out once or twice every year but because the people did not receive any feedback as a community from the MOH officers, there was no real pressure or incentive for them to care for the environment and their homes in the future.

## **6.4                      CONCLUSIONS**

The aim of this thesis, as stated in Chapter One, was to identify equity issues that need to be addressed so people are encouraged to participate in the management of water systems and benefit from this participation. This chapter has revealed problems at the national and the village levels which impede people's participation. At the national level it is clear that the institutional structure is weak due to a lack of staffing at the national level, lack of commitment to training and biases towards the urban areas with regards to resources, training and human resources and the limited funds available. These are some of the contributing factors to the problems that are happening at the village level. The water delivery system needs to be restructured to become less bureaucratic and more focused on the needs of the village people.

Both donors and governments have made efforts to improve the water systems in Tonga, but they have not done enough to ensure self reliance and a growth in people's understanding of water systems and how they can best control them.

A consultant's report blamed villagers and VWCs for all of the problems associated with water supplies in rural areas, which suggests that the consultant only saw participation as contribution - the contribution of villagers' time, energy and resources, as discussed in Chapter Three - rather than seeing participation as empowerment. Under the latter approach, government officers would make an effort to appreciate the complexity of the socio-economic situation in many villages and focus on empowering villagers with knowledge about water management, as well as inviting their input into improvements in the delivery system for water in Tonga. Villagers could also be invited to collect and interpret data along with Rural Development Unit Staff.

Despite increasing social problems at the village levels, the government concentrates on the physical and technical aspects of water ignoring the changes that have taken place in the villages. These include the uneven development in the villages, the increasing roles of women in agriculture, the increasing incidence of single-headed households, the unequal distribution of land, the problems of unpaid water fees and the effects of inefficient water systems on women and children and the expansion of the population with new families being formed requiring access to tap water. Those planning for the development in Tonga have largely ignored these very important issues.

At the village level, people's participation in the management of the rural water system is hindered by the social, economic and political structures of Tonga. Because the social and political structures have been established traditionally and have been strongly interwoven with 'modern' structures, it is difficult to challenge these structures. These structures are sustained by our traditional values of respect, obligation and loyalty in the family, churches, and in the communities and to the leaders of the country. To challenge the top people would mean go against them. The traditional values sustain these structures in Tonga, despite the fact that these structures hinder the participation of

people. People have the rights as human beings to participate in their development and social, economic and political structures should not stand in their way.

These social, political and economic structures and the traditional values, particularly impede the participation of women, who are the water collectors, and youths, who have great energy and ideas and are effective at fundraising. Many VWCs are missing out on the potential contributions of these two groups. With regards to decision making, men with status make decisions at home, in the community and in public. Yet when the water system breaks down, it is women, children and the disadvantaged people who are mostly affected because they are the ones who collect the water. However, they are not represented in VWCs. Respect is one traditional value that impede the participation of everyone in the Village Water Committee for fear of causing conflicts between men and women, or between youths and their parents.

Meanwhile, socially marginalised groups in society, especially the poor and those with no status, have a great need for water yet their views and interests are not represented in VWCs either. This is not surprising as both traditional and 'modern' decision making, including the *fono*, operates in a top-down manner. People are used to being told what to do: they have a high level of dependence on decisions passed down to them from above. This stifles people's initiative and prevents people from contributing what could be creative solutions to water management problems in Tonga.

Growth in population, poverty and economic processes contribute to global pollution of water and other natural resources. To manage water at the village level we need to manage environmental degradation and pollution as well by controlling population growth and economic activities for these activities are factors that pollute the atmosphere, land and sea and thus affect the quantity and quality of water. While this is vital to the management of the rural water supply systems, the impacts of cyclones, droughts and spread of diseases can not always be controlled by humans.

In managing the water system at the village level, people should be targetted to participate and to promote their own development. Technical problems are secondary to

the problems of getting people to participate actively in their development and in managing their water system.

It is therefore concluded in this study that water management problems in the villages in Tonga can not be solved by money alone. It must be recognised globally that participation of people in their development is a human right. Once this is done, then, the obstacles to participation must be addressed, because these obstacles hinder the participation of people as human beings in their development.

To solve the water problems in Tonga, the principle of Christianity of everyone being equal in God's eyes must be adopted. Tongan leaders need to show their respect, obligation and loyalty to God by recognising the rights and dignity of every person God has created. Unless participation is considered a human right, then efforts to try to promote participation will still be hindered by the social, economic and political structures.

Finally, the call by the International Non-Government Organisations in 1992 for another model of development which is socially and ecologically sustainable can only be resolved in addressing the social, economic, and political structures that hinder the right of the people especially women, children and the disadvantaged people as human beings to participate in their development for no one has the right to make decisions for them or bring development to them. As well as no one has the right to degrade and pollute our planet, our water sources and resources which sustain the life of all in our ecosystem. We belong to one family of human beings and our call is to respect and love each other and to relate to each other peacefully for this is the only way we could save our mother earth which is home to all living things including human beings.

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