

Chapter Four

Forecast for Principals Areas of Concern 2002 - 2005

4.1 Introduction

This chapter will provide forecasts for the future on the basis of what is known or likely to occur, and what may occur if actions are not taken to resolve the issues outlined in Chapter Three, Principal Territorial Concerns and Issues.

In the past, several key factors have played a role in bringing the Territory to its present state. They are: population growth; the funding available for development and provision of basic services; the performance of the canneries and government in the economy; and the attitudes of the population about managing the Territory's resources. These factors will also play a keyrole in the future.

This chapter is comprised of two parts. The first section provides forecasts where sufficient information is available to identify probable outcomes. This section includes forecasts for population growth, available funding for services, and the economy. The second section includes forecasts of probable impacts on 'areas of concern' where attitudes will make a difference for resource management in the future.

4.2 Population and Available Funding for Programs

4.2.1 Population Growth

The population is forecast to increase at about the same rate as it did between 1990 and 2000, that is, at two percent per year for the time of this plan. This will yield a Territorial population close to 65,000 people by the end of 2005.

This population forecast draws upon the assumptions, data and forecasts compiled by the Department of Commerce, Statistics Division, the Governor's Tasks Force on Population Growth, and upon the work of Pedersen Planning

Associates (Pedersen), the architect of the ASPA Utilities Master Plan of 1995. Additional calculations were made upon receipt of the Census 2000 population count and compared against Pedersen's forecasts for population growth and settlement concentrations found in the Tualauta County Land Use Plan.

Population projections for this Territorial General Plan are short-term projections, in comparison to the ASPA Utility Master Plan and the Tualauta County Land Use Plan which have fifteen-year horizons. The Governor's Task Force on Population has developed population growth scenarios for a forty- year horizon ending in 2040.

This plan draws upon certain assumptions and information:

- the average family household size will decrease but not noticeably over the next five years (The Department of Commerce and Pedersen estimates include a decrease from 7.0 people per household in 1990 to 5.6 in 2015);
- Pedersen's evaluation of developable land trends, the availability of utility systems, economic activities and other relevant factors for seventy-two villages in the Territory predict a decreased population growth rate (village land use assumptions include forecasts of the anticipated number of future facilities associated with residential, commercial and visitor accommodations);
- Pedersen's predicted rate of growth and predicted areas of growth in Tualauta County between 1990 and 1999;

Based upon the Census 2000 population count of 57,291 people, Pedersen's estimates would parallel, but not define, what may have happened between 1990 to 2000.

The population of the Territory is not increasing as rapidly as surmised or predicted by the Department of Commerce, Statistics Division. The recent Census 2000 has delivered a count somewhat below a commonly accepted prediction of 63,000 people in 2000. This difference between the actual count and the predicted count signify that the assumptions for growth have not reliably predicted the future population, the Census has under-counted the population by as much as ten percent, or both the forecast assumptions and the count are in error.

The Census 2000 preliminary count also shows that some areas of the Territory have lost population, or are growing only modestly. Census information was made available in a one page press release on July 2, 2001. It compares the population of 1990 to 2000 by county.

Figure 3.1 shows that American Samoa grew by twenty-two and a half percent (22.5%), while the Manu'a islands decreased by twenty and three-tenths percent (20.3%).

The Eastern District of Tutuila (which includes the village of Nu'uuli and all land east of Nu'uuli to the eastern tip of Tutuila) grew by ten and six-tenths percent (10.6%) between 1990 and 2000. Only two counties, Ituau and Maoputasi, had double digit growth. Ituau County, which includes most of Nu'uuli village and Fagasa village, grew by almost twenty percent (20%). Maoputasi County (the Pago Pago Bay area) grew by eleven percent (11%).

Tualauta County, which has a population three times greater than the three other Western District counties combined, grew by sixty-six percent (66%) between 1990 and 2000.

These Census results have substantiated the rapid population growth in the Tafuna area. While Tafuna has grown at an annual average rate of five and two-tenths percent (5.4%), the remainder of the Territory has grown at a much lower rate, i.e., about one percent (1%).

This modest, or even low growth rate, lends itself to the assumption that within the next five years, most planning for infrastructure should be focused on the Tafuna - Tualauta County area.

Figure 4.1 Analysis of Census 2000 Population Count

Area Description	Population		Percent of Increase	Annual Growth Rate	Percent of Total Year 2000
	1990	2000			
American Samoa	46,773	57,291	22.5%	2.1%	100.0%
Eastern District	21,175	23,441	10.6%	1.0%	40.9%
Western District	23,868	32,435	35.9%	3.7%	56.7%
Manu'a Islands	1,730	1,378	- 20.3%	- 2.2%	2.4%
Tualauta County	13,237	22,025	66.4%	5.2%	38.4%
Ituau County	3,602	4,312	19.7%	1.7%	7.5%
Maoputasi County	10,540	11,696	11.0%	.95%	20.4%

For planning purposes, this plan will proceed under the following assumptions, that:

- for the next five years the Tafuna area will continue to absorb most of the new residential growth;
- the Tafuna - Tualauta County area will increase in population by the year 2006 by roughly twenty percent, or at an estimated rate of four percent per year;
- the populations of the small villages to the far east and west of the island center will not increase significantly and maintain a one percent growth rate; and
- residents of the Manu'a Islands will continue to be pressured to leave for better opportunities elsewhere.

4.2.2 Available Funding

4.2.2.1 Local Revenues

If money were no object, the American Samoa Government, like everyone else, would have few problems obtaining and providing the services needed. But the stark reality is that the American Samoa Government is short of cash and probably will be for some time to come. This situation will negatively impact the government's ability to affect economic growth, maintain its resources properly, provide adequate infrastructure and deliver needed social services.

The American Samoa Government derives its revenues from several sources:

- the taxation authority enabled by the American Samoa Legislature, charges and miscellaneous fees;
- the Department of Interior Annual Operations Grant and Capital Improvements annual award; and
- U.S. Federal departments and agencies for programs support, e.g. block grants and entitlement programs.

Acknowledging that the American Samoa Government cannot continually run a deficit, the government has invoked new practices. It has

increased taxes and promised to put a fiscal reform package to work.

The collection of taxes has remained constant for the past several years. The American Samoa Tax code mirrors the U.S. Internal Revenue Code. As taxes on the lower income earners in the U.S. have decreased as a result of the increase in the standard deduction, the impact has been to reduce American Samoa's income tax collections.

To counteract this trend American Samoa has recently increased its alternate minimum income tax from two percent to four percent, raised the gas tax and increased collection fees. These increases will only amount to about \$4.0 million or about ten percent of the government's operating revenues.

The other major source of local revenues is the excise tax on imported goods which has been raised. The income from this source has risen very slowly, in spite of the increases in tax rates.

Despite these new initiatives, the Initial Fiscal Reform Plan expects budget shortfalls in revenue, and budget overruns. In the past they have resulted in the government running a deficit of between \$7.0 and \$12.0 million per year. With improvements in place, the Initial Fiscal Reform Plan estimated the FY2001 operating loss to be about \$7.0 to \$8.0 million.

4.2.2.2 The Department of the Interior, Office of Insular Affairs

The Department of the Interior has been providing the Territory with an Annual Operations Grant for many years. The level of the grant has remained about the same value for the past fifteen years and, in constant dollars (devalued on the basis of inflation), the value of the grant has declined by fifty seven percent. In the past ten years, the value of the grant has increased by less than two percent annually. Thus, in contrast to 1986, when the value of the grant equaled forty-five percent of the budget, the value is now only thirty percent of the General Fund revenues.

Given the demeanor of the U.S. Congress and the Office of Insular Affairs toward the American Samoa Government (because of its lack of fiscal responsibility and reform) it should not be expected that there will be an increase in

the Annual Operations Grant of any significant nature.

Similarly, the Department of the Interior will be awarding the American Samoa Government a total of \$10.14 million annually to construct infrastructure. This award is standing at this value until the U.S. Congress changes the legislation.

As of now, there is no indication that the legislation will be amended shortly.

A brief description of what the funds will be used for is provided in Section 6, Construction and Capital Improvements of the Economy forecast.

In summary, the government can expect to continue to receive about the same amount of funding from the Federal agencies, and perhaps a little more. However, prospects for increasing its own funding sources are limited.

4.2.2.3 Other Federal Programs

Income from Federal programs do not lower the government's budget and they cannot be used for purposes other than what they have been specifically mandated for in the U.S. legislation.

Federal programs come and go at the will of the U.S. Congress. Abrupt changes in Federal programs profoundly affect the Territory's direction. American Samoa's agencies take what they can get at the time when it is available. American Samoa Government agencies have no say into what the U.S. Congress will allocate to the Territory, although American Samoa's Delegate to the U.S. House of Representatives and its lobbyists can attempt to influence congressional opinion. Thus the Territory cannot securely plan for the future using Federal funding. It can only observe what the Congress has obligated in its budget for the coming years and adjust accordingly.

4.2.3 Social Development and Social Services

4.2.3.1 Educational Services

Educational facilities are currently over-extended. There are too many students for

existing school facilities and there will be many more students entering the school system in the next several years. In 2001, the Department of Education predicted a need for ninety more classrooms to accommodate elementary school students. On the basis that the educational system will receive about \$15.8 million through 2006 for school building construction and miscellaneous improvements, only one-third of the classrooms will be built. This will result in even higher student-teacher ratios.

The present student-teacher ratio is already unfavorably high and the quality of education presently compares unfavorably with U.S. standards. Although more students per classroom do not necessarily signal worsening student achievement, the lack of funding to get more qualified teachers into the system and purchase needed instructional equipment will certainly add to the problems of providing students with an adequate education. In this regard, the goal of raising the level of student achievement could be severely hampered.

The American Samoa Community College will be hindered with lower than needed revenues and, therefore, in its ability to adapt its curriculum to the future needs of the economy and community. While the college does expect more students to enroll and to be able to provide adequate services, it won't have funds to expand its curriculum and add qualified instructors for specialty areas of education. This situation will hamstring the economic development program of the government, unless a solution is found to offer instruction to meet the future economy's needs.

4.2.3.2 Health Care System

Since the LBJ Tropical Medical Center was split off from the Department of Health and made a hospital authority, the hospital has been receiving the brunt of capital improvement funding. This has left the Department of Health clinics in disrepair, while the hospital has been making incremental improvements.

From 2002 through 2005, the hospital will continue to receive the brunt of funding, unless the Department of Health is able to secure additional funding from other sources. This may be a possibility if the Department of Health is able to complete a facility building plan and

identify applicable funding. If done, the Department of Health could see several new health clinics by the end of 2005, which would be able to serve communities throughout the Territory.

The hospital board has developed a strategic plan for the future and has identified a broad spectrum of issues that need to be resolved. This is a good indication of the hospital board's intent to resolve its financial difficulties and improve conditions and facilities at the hospital.

In the case of both the Department of Health and the hospital authority, funding for facilities is only a small part of the problem. They are both seeking a solution to financing health care that is equitable to the public but provides the needed services. The residents of American Samoa have become accustomed to paying extremely low usage fees for health care coverage and it may be difficult to change attitudes about how much one should pay and what one should expect for services. While this may be challenging, a financing schedule is being prepared to meet forthcoming needs.

As a caveat, it should be expected that because health care costs have risen demonstrably in the last decade, both the hospital and the Department of Health will not be able to provide the kind of broad services, and high-tech services, that can be found in cities across the United States.

On the basis of this knowledge, the Department of Health will be looking at ways to restructure the health care system so that it places greater emphasis on well-being and preventative care rather than upon spending for off-island and specialty care.

4.2.3.3 Social Services

Social services delivered by the Department of Human and Social Services and the Territorial Administration on Aging (TAOA) are less susceptible to funding inadequacies of the local government, because they are primarily dependent upon Federal funding to support their operations.

For the future the Department of Human and

Social Services must deal with its own capacity to deliver services adequately. DHSS is planning to develop a five-year plan as a means to remedy some of the weaknesses in the programs offered.

As population increases, as the American Samoa culture and traditions come into question or conflict with Western values, as greater stress results from living in a cash economy, life's pressures result in often undesirable effects.

In the forthcoming years, DHSS expects that there will be more:

- youth depression and suicide attempts necessitating better monitoring and emergency counseling and care ;
- child abuse and abandonment with greater need for foster families to care for abused children;
- spouse abuse and requirements for emergency shelter programs;
- alcohol and substance abuse requiring better counseling capabilities; and
- situations where youth will be involved in high-risk activities and crimes.

Most people are taken back by reports from TAOA that some elderly citizens are suffering from abuse and abandonment. Yet it has been documented and there will be an effort by TAOA to provide a shelter for the elderly that require emergency assistance.

4.2.3.4 Youth and Women's Affairs

The Department of Youth and Women's Affairs is a relatively new agency which intends to progressively be able to develop its programs during this plan period. The department will focus upon domestic violence and women as victims. The provision of youth services, especially programs focused upon youth recreation, will be the approach to give youth a purpose in life

4.2.3.5. Arts, Culture and Recreation

The American Samoa Council on Arts and the Humanities will continue to maintain a indigenous arts program and sponsor events throughout the plan period.

The Council looks intends to increase its outreach program to include communities in its programs. It will continue teaching of traditional Samoan arts and attempt to expand the practice of making traditional materials. It hopes to bring more overseas artists as instructors for the Arts-in-Education program and to sponsor more Samoa performances overseas to raise exposure of others to American Samoa's arts and culture.

The total renovation of the Jean P. Haydon Museum in 2002 as a venue for the arts should assist in these efforts.

During this plan period, recreational programs for children, youth and adults will endure. For the next several years the Department of Parks and Recreation will receive nearly \$2.0 million in capital improvement funds and community development funds to refurbish existing park facilities and to create more recreational facilities. The funds will be used primarily to improve the Tafuna recreational grounds, children's playgrounds and restrooms throughout the parks. In addition, the Utulei Beach Park and Pago Pago Park will be revitalized with new facilities for the public's use in the Pago Pago Bay area.

4.3 The Economy

4.3.1 Canneries

Various predictions and assumptions have floated around for years about the permanence of the canneries. The problem with forecasting what may eventually occur with the canneries is that decisions about the canneries' future rest on a number of factors having to do with the international economy, the fishing industry and the parent companies. There is no one simple answer for the future.

Some things or events happening on the international scene and in the fishing and processing industries can either work for the cannery business in American Samoa or against

it. However, it can be assured that the canneries are a 'for-profit' business and when they perceive they will be operating at a loss for an extended period of time, they will make some changes.

At this point in time, there are reasons the canneries would stay and reasons why they would leave.

- the canneries must have Internal Revenue Section 936 tax credit in order to remain competitive and the canneries will not invest further in operations until they are secure that Section 936 is renewed;
- the canneries will insist upon keeping the minimum wage low to remain competitive with low-wage countries;
- although Headnote 3a is about to expire, the U.S. has lowered its tariffs on foreign goods to the point that Headnote 3a is no longer an effective incentive for the canneries to remain;
- the development of a fish cleaning plant and freezer in Asau, Savai'i of the Independent State of Samoa by StarKist, may result in the reduction of workers in American Samoa, but it may also increase the throughput of processed fish which can be shipped to American Samoa, thereby strengthening the profitability of the canning plant.
- the Andean Trade Preference Act, which will allow tuna into the U.S. duty free from several South American countries, will benefit StarKist which has a plant in Ecuador and be competition for the American Samoa plant. At the same time, StarKist's Ecuador fish cleaning operations could result in extra supplies to their cannery in American Samoa;
- the recent decision to restrict fishing within fifty miles of the Territory's shores to vessels already registered before October 2001 has resulted in the appearance of up to twenty-five Hawaii and San Diego based fishing boats that intend to supply these canneries;
- the number of fishing boats in the Independent State of Samoa has risen to about five hundred and they are fishing, in

part to supply the canneries with albacore. This is in addition to the estimate fifty alias of American Samoa; and

- at the same time that the fish caught in local waters is increasing, there is the observation that the amount of fish caught is slowly declining throughout the Pacific. This leads marine biologist to be concerned about the continuing ability of fishermen to supply fish to the canneries at high tonnage rates.

The logical conclusion, barring any catastrophic events, would be to say that the canneries will be around for a while, that is, at least for the next few years. There is no clear evidence or overriding reasons for the canneries to leave shortly. But as the fishing business is constantly going through changes, as fishing boat owners place their boats in receivership and as fish stocks become reserved or protected around the world, the fishing business may become less lucrative for H.J. Heinz and Thai Union Ltd.

It should be expected that the fishing business will also go through peaks and troughs, as most of the developed economies do from time to time. But only when it is clear to the industry that too many things are going against them will they decide to divest.

4.3.2 Private Sector

While this plan will recommend strategies to initiate planning and coordination to support the diversification and development of the private sector, the private sector will not expand by leaps and bounds during this plan period.

There do not appear to be options on the horizon that will give the local private sector advantages over any other community in the world, the Pacific Region over the Independent State of Samoa.

Given that the major income earners in the private sector are the retail and wholesale trade sectors, and they primarily sell foodstuffs and clothing, their marginal savings are not enough to spur new development sectors.

The government has looked outside the

Territory for investors in the recent past, but the failure of the BCTC and Daewoosa clothing manufacturers, and the problems associated with their operations, have reduced the government leadership's interest in obtaining alien firms and investments.

These factors hinder the development of the private sector, but do not stop entrepreneurs who are interested in moving ahead with marketable development schemes. The problem will be to identify what they are and how to finance them.

In addition, in order for the private sector to flourish, the private sector will need specific skills and a competent labor force. This will take time to achieve through training and education.

Therefore, it will take time for the opportunities to come to fruition. Under these conditions, this plan does not forecast a quick change in the structure of the private sector.

4.3.3 Tourism

As stated earlier in this plan, there is a possibility for tourism to stage a comeback. This comeback would most likely be on the heels of the tremendous success the visitor industry is having on Upolu and Savai'i of the Independent State of Samoa. However, American Samoa's tourism development will also be handicapped by the reputation and success of Upolu and Savai'i's tourism attracting capabilities. And tourism can be significantly damaged by catastrophic world events as occurred on September 11, 2001.

An Ecotourism Plan is on the horizon for the Department of Commerce. Work on the plan is scheduled to start in Fall 2002. This plan could be developed in unison with a tourism development initiative already in progress in the Independent State of Samoa. Both of these plans could market the Samoas as a unified destination. These plans could conceivably pull American Samoa out of the doldrums and remove the malaise so endemic at this point.

There are also people interested in seeing adventure tourism, culture tourism and educational tourism get a start, with the National Park as the focus in the beginning.

In order to follow through with any development, the government will have to be prepared to deal with its delapidated tourism infrastructure. This is expected to be difficult because of the financial condition of the government. Investment would require the shuffling of capital improvement funds from other sources, but this tactic would not sit well with the Department of the Interior. Thus the government will have to search for other sources of investment capable and willing to put something into American Samoa tourism.

Secondly, the government will need to invest in overall planning and should expect to coordinate planning activities with the private business sector. This will require resources that are presently not available and imaginative prospecting for funding resources.

The real chances of a tourism comeback of any great magnitude within this plan period are low, due to the lack of interest in the Fono for supportive funding and of qualified personnel to see the program through in the government.

Finally, the conversion value of the U.S. Dollar and the costs of services in American Samoa, compared to other countries like New Zealand and Australia, will discourage visitors from coming to American Samoa.

4.3.4 Agriculture

The possibilities for the development of commercial agriculture in American Samoa are marginal. Presently, there is not enough emphasis on providing the Department of Agriculture with the 'right stuff.' Secondly, there may not be enough land available for agriculture to make a dent in the economy. If agriculture were to achieve a higher order of importance, emphasis would have to be placed on a niche product that requires little land, earns a lot of money and has a market in American Samoa and abroad.

In other words the Department of Agriculture and the ASCC-ACNR (Land Grant) will need to look for alternative commercial products that can be grown in areas where residential and commercial development have not taken over. These kinds of activities could potential conflict

with strategies to maintain the natural rainforest and soil conservation.

Secondly, planners will need to bring together the private sector tourism interests and the retail trade with the department to develop produce that could be sold locally and used in the tourism trade. This is a possibility, given the backing of the present administration and additional funding from the Fono to support the development activities. Further niche agricultural development is a possibility given positive attitudes in this case.

4.3.5 Fisheries

The reefs are gradually being restored, but the marine life around the islands could be reduced significantly if the demand for reef fish and marine life increases with the increase in population.

Should this situation become critical, it is likely that the Department of Marine and Wildlife Resources will have to designate most areas susceptible to over-fishing as protected, 'no-take' areas. This has already been considered in some locations. This could happen to most areas and it would mean that fishing commercially for reef fish, or artisan fishing, would no longer be sustainable or permitted.

Fishermen that have traditionally fished the coastal shoreline have already begun to move off shore to fish for bottomfish, tuna and other pelagic fish to sell on- island, off-island and to the canneries. In the last several years, the small, local, alia fleet appears to have doubled for this purpose. Although there hasn't been satisfactory infrastructure to support a larger fleet, e.g. moorings and reefers, it is still quite possible that the alia fleet could double within the plan period, or by the end of 2005. This forecast is based upon the five-fold growth of the commercial fishing fleet at Apia of the Independent State of Samoa.

4.3.6 Construction and Capital Improvements

The Department of the Interior will award the

American Samoa Government \$10.14 million per year for the next several years, based upon U.S. Congress budget allocations. This number could rise or fall depending upon the ability of the American Samoa Government to carry through with its fiscal reform package and implement its current Capital Improvements Program efficiently.

As reported in Chapter Three, Principal Concerns and Issues, the Territory will only receive fifteen percent of its needed funding, or \$50.8 million over the five-year period from CIP. The vast majority of the funding will be used for the hospital (18%), the educational system (30%), the utilities of water and sewerage (30%), and the main sea port (9%). The remainder of the funding will be received for public safety, the Village Road Program and recreational infrastructure.

The Territory will most likely receive funding from the Federal Highway Administration for the next several years with an annual average value of \$3.5 million. The U.S. Environmental Protection Agency will make an annual average amount of \$800,000 available for the improvement of water systems and the government enterprise funds will realize several hundred thousand dollars from fees and charges that will be used for infrastructure. This is the amount of foreseen funding.

Although upwards of \$15.0 million will enter the economy annually, a major proportion of this income will leave the Territory for the cost of materials and the earnings of the companies doing the construction, which have been large foreign construction firms in the past.

4.4 Probable Impacts: Environment and Resource Management

4.4.1 Planning and Human Settlement

There has been no comprehensive planning on a Territory-wide basis in the past. As a result the Territory has evidenced less than efficient and effective use of its funding and human resources, unsystematic development of its infrastructure and random human settlement. If the situation continues, unwanted social and environmental externalities will occur, as defined in Figure 4.2.

Figure 4.2 Possible Negative Externalities

- Random human settlement without adequate infrastructure and services;
- Inefficient spatial patterns that waste limited land resources;
- Land utilization without regard to the fragility of the location;
- Development without regard for adjacent uses or impacts upon communities;
- Random development of roads, lack of a rational transportation circulation system and traffic congestion or grid lock;
- Lack of open space and loss of conservation areas, trees and wildlife habitat;
- Restricted use of land for public recreational purposes;
- Over-crowding of residential areas, and of the built-environment beyond acceptable reasonable and established standards;
- Population growth beyond the ability of the fresh water source to supply homes and businesses on a daily basis;
- Concentrations of facilities beyond the capability of the water, sewer and power systems to satisfactorily provide services and fire services or police to provide safety.

If planning is not initiated soon, and resource management and environmental laws and regulations are not effectively enforced, then it should be expected (but not during this plan period) that population growth and all the demands required to sustain the population will stress or potentially overwhelm the carrying capacity of the island ecosystems, especially on Tutuila. Anyone or all of the results in the box to the right could follow.

Figure 4.3 Possible Terminal Impacts

- Shortages of fresh water resources;
- Removal of forests reserves;
- Elimination of wetlands;
- Elimination of wildlife habitat;
- Depletion of marine resources;
- Elimination of arable land;
- Depletion of fertile soils;
- Contamination of lands.

4.4.2. Management of Natural Resources and The Environment

Effective resource management has been hindered in the past by attitudes of the public and enforcement agency personnel that exacerbate effective resource management. If these attitudes continue to hold and enforcement of laws and regulations is not effective, the following impacts should be expected. All of these outcomes can negatively impact the quality of life for American Samoa's residents.

Figure 4.4 Forecast of Expected Outcomes without Mitigation or Attitude Change

Area of Concern	Description of Environment Impact
Coral Reefs	Degradation of the reefs from improper upstream land use and development activities; Degradation of the reefs from mining of coastal areas and improper fishing techniques.
Wetlands	Depletion from filling of the wetlands for housing and commercial development; Degradation of wetlands by dumping, cutting of mangrove or removal of habitat.
Floodplains	Degradation and siltation of floodplains by improper construction and development; Modification of floodplains by filling of floodways, rerouting of streambeds.
Watersheds	Contamination of fresh water resources from improper development activities in watersheds, especially at Tafuna and Malaeimi Valley; Contamination of fresh water resources from poorly maintained and placed septic systems; Contamination of fresh water resources from toxic materials, pesticides, chemicals and fertilizers.
Forests	Depletion of up-land forests for agricultural purposes; Elimination of forests in low-land areas for residential expansion; Soil erosion from removal of forests on steep slopes; Introduction of invasive species.

Area of Concern (continued)	Description of Environmental Impact
Wildlife	Elimination of wildlife habitat by removal for development; Degradation of wildlife habitat by cutting and burning; Harvesting of birds for cultural purposes and fruit bats;
Marine Resources	Over-harvesting of reef fish and marine life for food; Depletion of marine life from degradation to wetland habitat; Depletion of fish stock from destruction of reef habitat; Depletion of fish stock from unwise fishing techniques
Solid Waste Management	Contamination of surface water and pollution of coastal waters from dumping of solid wastes in streams; Contamination of surface water and pollution of coastal waters from piggeries and improperly maintained septic systems; Debasement of land and scenery by improper disposal of wastes; Importation of short-lived and non-recyclable goods that fill landfill.