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Agriculture, Forestry, and Environment

Introduction

Natural resources underpin Samoa's quality of life, exports, and potential for further economic development. The productive sectors of agriculture, fisheries and forestry will, however, provide long-term, sustainable returns to Samoa only if they are managed in an appropriate manner. Similarly, the developing tourism sector relies substantially on maintenance of the integrity of the Samoan environment, along with the Polynesian culture. In the *Statement of Economic Strategy (SES) 1999–2000*, the Government of Samoa has listed as four of its eight key strategic outcomes

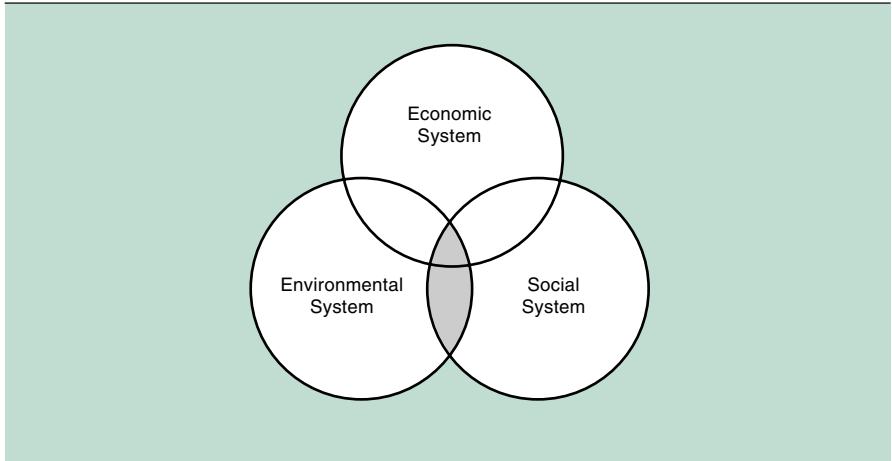
- enhanced private-sector growth;
- invigorated agriculture and fisheries;
- sustainable tourism development; and
- a revitalized village economy.

It is clear that each of these strategies relies on sound management of the nation's environmental assets – its fisheries resources, agricultural land, and natural beauty – and preservation of its strong culture. It must be emphasized, however, that “sustainability” has three overlapping elements, and trade-offs among these may be necessary. The three elements of sustainability are the economic system, the social or cultural system, and the biological or environmental system. As outlined by Barbier (1987), these may be shown to overlap in the manner shown in Figure 8.1. To achieve genuinely sustainable development, each of these elements must be taken into account and a balance achieved between economic, cultural, and environmental objectives.

Policymakers also need to consider two other important guidelines in framing policy for the use of a nation's natural resources. The first is equity, or fairness, both among people in this generation and between

people in this generation and the generations to come; without such equity, sustainability will not be achieved. The second is economic efficiency in resource use (Box 8.1). Again, there will inevitably be trade-offs between these fundamental policy guidelines. These trade-offs must be explicitly recognized and carefully considered in policy making.

Figure 8.1 **The Elements of Sustainable Development**



Source: Barbier (1987).

Box 8.1 **Equity and Efficiency**

Equity, with respect to the environment, means that all people in this generation have equal access to resources (intragenerational equity); it also means that future generations will have access to a stock of resources no smaller than that which is now available (intergenerational equity). *Efficiency* means that the best possible use is made of scarce resources and that the net social benefit from the use of those resources is maximized.

The environment and environmental management are considered further in Chapter 10. While the prime focus of that discussion is economic in nature, it is clear that sustainable, strong economic performance relies on appropriate environmental management; relegating discussion of the environment to a later section, therefore, does not imply that it should be accorded a low priority in government thinking.

Market Failure and the Role of Government

It is now widely accepted that governments, in the drive for economic and social development, cannot function effectively without well-functioning markets (World Bank, 1998). But it is also true that markets cannot function without effective institutions, economic policies, and public investments. A key role for the Government is to ensure that these are in place. As the World Bank (1998) has noted, key questions relate to the nature of the institutions, policies, and public investments that best allow markets to work and result in better social and economic outcomes. Governments also have an important role in addressing market failures that inhibit preferred outcomes or result in negative social and economic impacts.

Market failure occurs whenever the market mechanism does not work effectively; it results in the inefficient use of resources. Consequently, correcting market failure leads to a higher level of income for the economy as a whole and an increase in net social benefits. It is important to note, however, that the correction of market failure does not ensure greater equity: some people may end up better off and some worse off. This is one of the trade-offs with which policymakers must deal. While correction of market failure is an important role of Government, experience shows that such intervention fails if government institutions, policies, and investments are ineffective or poorly targeted. It is critical, therefore, that the problems of market failure not be exacerbated by government failure.

The framework underlying discussion in this chapter is that the Government has an important role in correcting market failure and that, therefore, every effort must be made to mitigate government failure. The role of the Government is to facilitate the establishment of supporting infrastructure and appropriate institutions, along with well-targeted economic and social policies to support development.

The Agriculture Sector

Introduction

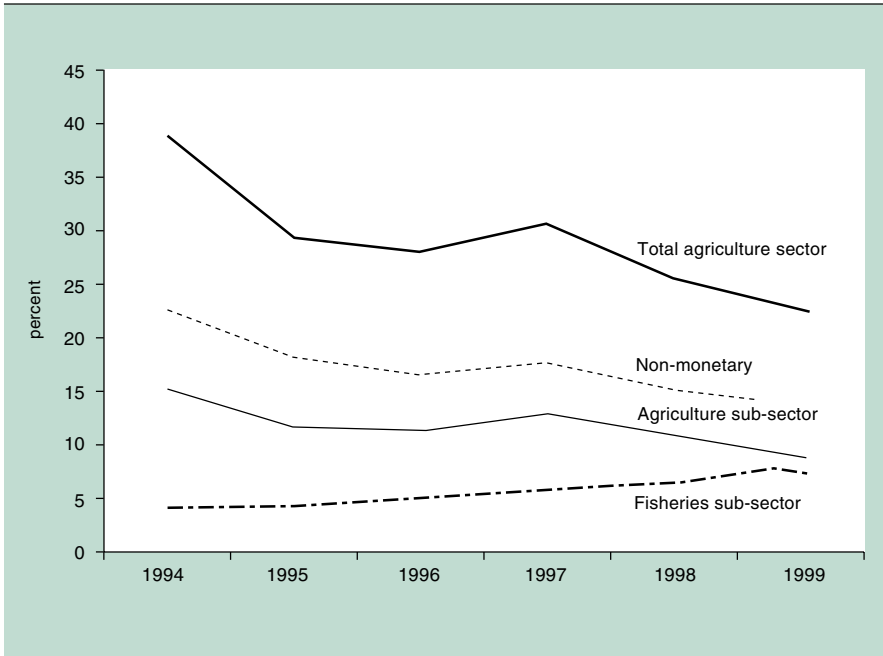
Agriculture plays an important role in the economy of Samoa: at least two thirds of households depend on a mixture of subsistence agriculture and cash income (TIPU, 1998). Even those employed in the wages and salaries sector often supplement their incomes with agricultural production. The agricultural sector was also responsible for just under

30 percent of Samoa's export revenue in 1999. However, agriculture and the economy are vulnerable to the potentially destabilizing impacts of external shocks, such as fluctuating commodity prices; exchange rate movements; and changes in the economic policies of major trading partners. Furthermore, the nation is vulnerable to natural disasters, as evidenced by major cyclones in February 1990 (Cyclone Ofa) and December 1991 (Cyclone Val), which caused massive long-term damage to the production of important commodities, particularly tree crops such as copra and cocoa. The taro leaf blight outbreak of 1993 was also catastrophic, destroying taro production and exports. Production of taro, the most important food staple in Samoa as well as a significant export commodity, has only just begun to recover.

The inherent uncertainty of agricultural production has a number of potential outcomes, including reduced export earnings, but it also serves to highlight the prudence of the Government's intention to "promote the development and *diversification* of cash crops" (Treasury Department 2000, p.4 [emphasis added]). Diversification is one strategy for combating uncertainty in production and markets. The risk and uncertainty inherent in agriculture also impacts upon the ability of producers to access credit, an issue that is revisited below.

Samoa, like most other South and West Pacific nations, is typified by a dualistic agricultural sector, with the majority of households involved in production for home consumption as well as for sale. An agricultural census was undertaken in 1999, but at the time of writing, the data were still being entered into computer files. The previous census was undertaken in 1989, so accurate data on nonmarketed production are not available. However, estimates reported by the World Bank in 1997 are generally consistent with those reported by the Government of Samoa in recent times. According to the World Bank, around 75 percent of the resident population lives in rural communities and agricultural and related primary-sector activities are the most important source of income and employment. The Government of Samoa (2000) reported that about 80 percent of households are active to some degree in agriculture, with subsistence production thought to comprise about half of agricultural output. As shown in Figure 8.2, the contribution of agriculture to GDP declined from 15 percent of total value added in 1994 to 9 percent for the first three quarters of 1999.¹ The contribution of the subsistence, or nonmonetary, sector similarly tended to trend downwards through this period. The proportion of GDP coming from agriculture and subsistence by the end of the third quarter of 1999 was

¹ The GDP figures, by sector, were calculated in a different manner prior to 1994. However, the contribution of agriculture has generally declined continuously.

Figure 8.2 **Agriculture and Fisheries as Percent of GDP, 1994–1999**

Notes: a. for first three quarters of 1999 only.
 b. For the period 1994–1998.
 c. Sum of agriculture and nonmonetary.
 Source: Central Bank of Samoa.

about a quarter of total value added in the economy. It is clear that the importance of these sectors has been slowly declining, but this is not unusual in a developing economy where the retail and service sectors are increasing in importance. In contrast, and as discussed in Chapter 9, the importance of the commercial fisheries sector has been increasing in recent years.

The production of principal agricultural commodities in the 1990s is shown in Table 8.1, while the contribution of the agriculture sector to export earnings is shown in Appendix Table A27. Reference to the tables shows the impacts of the 1990 and 1991 cyclones on copra, cocoa, and banana production, with both production and exports declining in those two years. However, banana exports recovered from 1993 and copra and other coconut products gradually recovered from 1994 onwards. Coconut cream, an important, value-added export commodity, was subject to relatively minor declines in output and earnings in the 1993–1995 period, indicating that the processor held coconuts and/or

Table 8.1 **Production of Principal Agricultural Commodities (long tons), 1990-1996**

Commodity	1990	1991	1992	1993	1994	1995	1996
Copra	9,590	70	1,370	0	70	13,620	15,800
Taro	26,160	29,000	27,260	28,830	9,290	10,690	6,950
Banana	1,740	2,160	1,170	4,340	6,600	7,410	7,340
Cocoa	540	220	0	0	0	10	20
Beef	980	1,000	1,010	1,030	840	660	680
Pork	540	550	550	530	540	560	620
Poultry	40	40	40	40	40	40	40

Note: Figures for 1997 to present are not available.

Source: Kolone Vaai and Associates (1997).

copra stored (available import data are aggregated in such a way that it is not possible to ascertain whether copra was imported). The impact of the taro leaf blight outbreak in mid-1993 is also shown in both tables, with production and exports remaining at low levels for the remainder of the decade. The recommissioning of the coconut oil mill in early 1995, in conjunction with higher prices and recovery from the cyclones, is evident in the increased export of both oil and copra meal. The decline and nonrecovery of cocoa is emphasized, while the increases in kava output, export earnings, and prices are also notable. Reference to the tables indicates the continued importance of coconuts and coconut products, particularly with the improvements in prices in the latter half of the 1990s.

Kava production, exports, and prices are noteworthy, with the price of the commodity peaking at SAT\$24,748 per metric ton in 1998. Kava is an example of a crop that supports the Government's policy objective of diversification in the sector. The high prices reflect the growing international demand for natural therapeutic ("pharmaceutical") products. International sales are growing at around 15 percent per year for the more popular substances, including kava and others such as echinacea and St. John's wort. Kava exports have principally been to Germany, which has one of the oldest and therefore best-established herbal medicine industries. Countries such as Italy, the United States, and Australia are also important markets for kava and other natural therapeutic crops.

The advantages of such products and such markets are that they are high-priced and, if value is added in-country, low-volume, bringing the added benefit of reduced transport costs from a country that is isolated from the main international markets. Unfortunately, such niche markets are normally difficult to service. Quality must be consistent and of the highest standard. Importers test every shipment for active ingredients and, because of the requirements of the therapeutic goods

market, are very intolerant of low and/or variable quality. In addition, customers for these products require security of supply volumes. Unfortunately, these requirements have resulted in Samoa's access to this lucrative market declining in very recent times, a decline that might be difficult to arrest. But such specialty products are attractive to a country like Samoa that has a small amount of arable land and that is distant from markets.

To support such industries two recommendations might apply. First, the end-users—the processors—of these crops might be invited to become involved in crop management in Samoa so as to ensure product quality and consistency of supply. This might, for example, involve calling for expressions of interest in establishing joint ventures between Samoan and foreign investors. Second, and concomitantly, efforts could be made to undertake initial processing in Samoa, again under the control of an end-user. Consequently, value-adding and employment would be supported in-country and freight costs to distant markets reduced. The reforms implemented by the Government of Samoa over the past three years would support such an approach to investment in agriculture, principally because of the reduction in distortionary price signals and disincentives to private-sector activity.

Local market sales are also important, with sales at Fugalei Market in Apia shown in Table 8.2. As shown in the table, taro deliveries and sales remained at low levels following the taro leaf blight outbreak, while taamu, a substitute for taro, experienced substantial increases in sales. Banana and coconut are shown also to be important items in the local market.

Table 8.2 Average Quantity (pounds) of Commodities Supplied to Fugalei Market, 1994–1999

Commodity	1994	1995	1996	1997	1998	1999 ^a
Taro	745	983	621	995	1,387	1,648
Banana	24,435	35,548	25,246	13,543	13,679	14,311
Taamu	5,655	11,553	19,406	12,104	16,956	22,497
Coconut	21,384	16,940	14,073	13,061	15,826	19,553
Head cabbage	2,046	2,595	2,188	2,234	1,963	920
Tomatoes	875	1,598	1,320	1,497	684	460
Chinese cabbage	1,177	970	873	785	685	420
Cucumber	1,947	3,437	3,116	3,137	2,126	3,139
Pumpkin	1,616	2,534	2,273	4,731	5,725	4,592

Notes: Data are derived from market surveys each Friday, and the quantities reported in the table are averages for the Fridays during the period shown.

a. Average of first two quarters of 1999 only.

One pound is equivalent to 0.454 kilograms.

Source: Central Bank of Samoa.

Reform and Development

Through the reform process, the Government has established a more appropriate framework for development, including the development of the agricultural subsector. Yet certain existing assumptions, policies, and activities should perhaps be challenged with relation to agricultural development if the policy framework is to operate effectively. It is commonly stated that most of the poor in Samoa live in rural areas, although the validity of this statement will be further tested with analysis of the 1999 agricultural census and the forthcoming population census. Furthermore, as noted by the Trade and Investment Promotion Unit (1988), agriculture is predominantly a part-time activity; only 6 percent of households earn 100 percent of their income from agriculture and only 23 percent earn 50 percent.

In the Government's *SES 1999–2000*, two projected strategic outcomes are “invigorated agriculture” and “a revitalized village economy.” There is also an emphasis on improving the quality of life of all Samoans and on equity considerations. The Government has, however, stressed private-sector-led economic growth and has worked hard to put in place a business environment that is conducive to private-sector activity. While this approach is appropriate, it might result in wider income disparities; rural communities are the most likely to be “left behind.” This is a matter that requires further investigation, perhaps based on analysis of the recent Household Income and Expenditure Survey, along with the forthcoming analysis of the Agricultural Census data.

In this context, it is important for the Government to

- distinguish between commercial and subsistence agriculture and consider whether policies are appropriate for both groups;
- recognize that most agricultural activity in the nation is part-time, with few people relying solely on farming for their livelihood; and
- differentiate social from economic objectives and resist the temptation to address social objectives by the use of economic approaches, such as happened in the past with bonus schemes for planting certain crops, input subsidies, and so on and, currently, the application of a zero income tax rate on agriculture.

Based on these considerations, the approach to economic development, as seen by the Government, should be to focus on the private sector and on those already involved in commercial agriculture. The approach should include initiatives that will bring about further investment, including foreign investment, in the agriculture sector. As with the fisheries

sector, described in the following chapter, the key to success has been private-sector knowledge, skills, initiative and risk-taking. In other words, and as noted by ADB (1995), to achieve economic objectives in agriculture, the Government should ensure that the investment environment is attractive to entrepreneurs in the sector, as these entrepreneurs will provide leadership and become the sector's "engine for growth."

The ability of such entrepreneurs to develop vertically integrated enterprises is also important. Experience around the world indicates that where production, value-adding, and marketing are controlled by one business, the potential for success is enhanced. As also noted by ADB (1995), *economic* development efforts in the agricultural sector have been based on the erroneous assumption that smallholder farmers want to move away from their traditional, low-risk production system, a system that evolved to meet their food security needs. In this sense, smallholders are supply-driven, but commercial industries need to be demand-driven. Furthermore, for economic development in agriculture to become a reality, an ability and willingness to take risks is a precondition for success. It is entrepreneurs who will take such risks and, once a commercial industry is successfully established, smallholders may gradually enter that industry as semicommercial farmers. As previously noted, the need to distinguish social from economic objectives in government policy for the sector is paramount: economic development of agriculture and an expansion of commercial and export enterprises requires a focus on private-sector-led development and policies that support this approach. Conversely, concern about the well-being of the smallholder subsector might best be addressed through social policy.

The question remains as to whether an environment that supports commercial agricultural development is being created in Samoa as the nation moves into the 21st century. Several initiatives that have been implemented as part of the reform process have direct implications for agriculture; these are considered below.

Agriculture Bonus Schemes

In 1993 and 1995 the Government implemented bonus schemes to encourage new plantings of coconut trees, based on the importance of coconut products to exports and on the fact that most coconut plantings were past their production peak (30 years plus). At the time of preparing this report, renewed discussions had commenced about the possibility of reintroducing the bonus scheme. Apparently, however, there is little evidence that the previous schemes met with much success. While there was no formal evaluation, anecdotal evidence from the MAFFM is that

they were fraught with difficulties in implementation and of limited benefit. Furthermore, such schemes are inconsistent with the Government's reform program and are likely to be an inefficient use of resources. If successful, such schemes might also result in oversupply and a consequent reduction in the prices received by producers.

Reductions in Protection

Certain agricultural products previously received a level of protection from imports through the imposition of high levels of duty. Imported eggs and pork were subject to 50-percent import duties prior to tariff reform. Eggs are now subject to a 20-percent import duty, while pork—depending on the particular cut—attracts duty of 10 or 20 percent. With tariffs now lowered, local producers will have to be able to compete on price and quality with such imports.

Liberalization of the Financial Sector

A more open and flexible financial sector should, in principle, result in greater access by agricultural investors to capital and working finance. Such credit would, in a deregulated market, be likely to come with an appropriate attached risk premium arising from the risk associated with agricultural investments. There is little evidence of increased lending to the agricultural sector in recent times, although this might relate more to a lack of bankable proposals than to a nonavailability of capital. Lending by the commercial banks to agriculture, including forestry and fisheries, is shown in Table 8.3. Reference to the table indicates that the proportion of total lending to the sector is very small. The increased amounts reported in the 1996–1999 period most likely relate to the rapid increase in activity in the fisheries sector. The importance of the Development Bank of Samoa (DBS) to the sector is also shown in the table: DBS makes a substantial number of small loans to the sector each year and loan arrears are substantial at about 12 percent of the loan portfolio. DBS does, however, provide an important service in that it fills a gap in the credit market that would otherwise not be filled. This market failure, associated with the information problems and high transaction costs in dealing with the high risk and small size of many agricultural ventures, is addressed, but not necessarily overcome, by the DBS operations.

Table 8.3 Lending to the Agricultural Sector by Commercial Banks and the Development Bank of Samoa, 1990–1999

	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999 ^a
Commercial Banks, Agriculture, Forestry, & Fisheries										
Tala (millions)	3.1	3.4	3.6	3.7	1.6	1.5	5.6	5.9	10.4	10.4
% of total commercial lending	5.3	5.4	5.1	4.6	2.1	1.8	1.25 ^b	1.1 ^b	1.7 ^b	2.15 ^b
Development Bank, Agriculture and Fisheries										
Tala (millions)	4.2	2.6	4.2	2.4	4.5	3.3	5.2	4.3	5.3	4.9
% of total DBS lending	44	43	42	35	50	48	53	—	—	—
Number of loans	1,299	821	1,439	804	1,035	1,039	1,010	961	1,161	1,425
% of total number of loans	93	90	91	89	92	92	80	—	—	—
Arrears (Tala millions)			5.5	4.6	2.9	4.9	5.6	—	—	—

Notes: a. First two quarters only.

b. Average of the quarterly figures.

na. data not available or not applicable.

Source: Central Bank of Samoa.

Input Costs

Rationalization of the tariff schedule resulted in substantially reduced rates of import duty on a wide range of business inputs. For example, the duty rate on agricultural chemicals was reduced from 35 percent to 10 percent and that on most agricultural machinery and parts was reduced from 20 percent to 15 percent, while that on imported agricultural fertilizers was increased from 0 percent to 5 percent. Most agricultural inputs were previously exempted from import duties, but such exemptions no longer apply. The VAGST of 10 percent is now payable on all items, but is refundable, since agricultural production is zero-rated. The net result is that some agricultural input costs have increased in the wake of the various reforms.

Enterprise Incentives and Export Promotion Act 1992/1993

The Enterprise Incentives and Export Promotion Act 1992/1993 was designed to provide a range of investment incentives for activities focused heavily on exports (defined as more than 95 percent of production exported). In the case of the agricultural sector, the act was most applicable to processing. It was, however, repealed in 1998–99. As with the Agricultural Bonus Scheme, the impact of repealing the act has not been analyzed, although when viewed in association with the other reforms introduced in the past three years, there is little likelihood that investment will be adversely affected.

Foreign Direct Investment

One important effect of reforms has been a greater acceptance of the need for foreign direct investment (FDI), accompanied by a more conducive environment for such investment. Nonetheless, there is still a requirement that any investment must normally involve a major shareholding by Samoan nationals, and this might be a continuing constraint on investment in the agricultural sector. There appears to be no sound reason to prohibit FDI, even up to a level of 100 percent, provided that there are clear and demonstrable benefits to Samoa. The level of investment required to establish vertically integrated agricultural enterprises might also mean that Samoan investors would not be able to contribute a major proportion of the capital needed. Furthermore, the possibility of transferring a considerable amount of the risk of agricultural investment to foreigners has some attraction. Further reforms may be needed to improve the environment for FDI if signifi-

cant investment in commercial, export-oriented agricultural enterprises is to occur.

Taxation of Agriculture

Primary producers are not subject to income tax, while export duties are set at a zero rate for all exports of raw, semi-processed, and processed agricultural products. These policies are a carryover of previous policies and were not introduced as a result of the reforms of the past three years. This, in combination with tariffs and VAGST on inputs, constitutes an anomaly, one that should be addressed (this issue is also revisited in Chapter 9's discussion of the fishing industry): agricultural industries are taxed on inputs rather than outputs. This is inconsistent with the normal approach to the taxation of productive industries. Agricultural inputs should be free of tax, including tax credits for the VAGST, tariff rates reduced to zero, and/or, as in the past, an exemption for agriculture.

At the same time, however, agricultural producers should be subject to income tax. The reasons for previously exempting agriculture were to ensure that investment in agriculture was not discouraged and also that rural Samoans, thought to be among the poorest groups in the nation, were not disadvantaged. With reform to the taxation system, the latter argument is no longer valid, especially since income tax rates have been reduced and the tax-free threshold increased to SAT\$10,000. Consequently, smallholder, semicommercial farmers are unlikely to pay income tax, while larger commercial enterprises, perhaps including enterprises in which foreign investors are involved, might pay some income tax.

There is both an equity argument and an economic efficiency argument for imposing income tax on agricultural producers. It is inequitable to exempt one group in society from taxation while other, perhaps less well-off groups are subject to that tax. In terms of economic efficiency—requiring that the best use is made of the nation's scarce resources—it is potentially distortionary to exempt one sector from a tax that all other sectors pay. In addition, there is little evidence that a zero tax regime has encouraged investment in agriculture and, in any case, if such an outcome had been achieved based on the tax regime, then this would represent an inefficient use of resources.

A further consideration that might guide policy making in agriculture is that of the policies of Samoa's major trading partners. Australia and New Zealand are Samoa's key export markets for most products (other than fish) and Samoa has enjoyed preferential access to these markets under the South Pacific Regional Trade and Economic Coop-

eration Agreement. However, as noted by Kolone Vaai and Associates (1997), these concessions have been eroded as Australia and New Zealand, along with other countries, progressively reduce their import tariffs to meet the requirements of global trade reforms.

Role of the Ministry of Agriculture, Forestry, Fisheries and Meteorology

The Government's reform process has served to clarify the role of many of its departments, yet more remains to be done. In the case of the MAFFM, there is ongoing involvement in commercial activities, and further involvement is foreseen. However, as discussed above, MAFFM should focus on correcting market failures but avoiding government failures, by performing the core functions listed below:

- Provision of extension services to commercial, semicommercial, and subsistence farmers. The Trade and Investment Promotion Unit (TIPU) (1999) reported that, in line with its corporate plan, MAFFM has signaled that its focus will be on subsistence and semisubsistence farmers. However, if the agriculture sector is to develop, it is critical that commercial farmers be provided with technical, extension, and other services. Experience from around the world shows that the more entrepreneurial commercial farmers tend to support agricultural research and extension by providing field sites for trials, field days, and so on. That is, these farmers provide leadership to the whole sector and are those most likely to catalyze growth in the sector.
- The continuation of extension services to subsistence farmers, while recognizing that such services might fill more of a social rather than a market-driven, commercial need and while also servicing the needs of commercial agriculture. The previously adopted farming systems approach, with its "bottom-up" approach to extension and its focus on low-input, low-risk agriculture, is appropriate to the needs of this group.
- Support for research and the dissemination of research results. MAFFM has a key role in undertaking local research, supporting regional research efforts, and ensuring technology transfer from research outcomes, via extension services, to the farming community.
- Policy formulation, regulation (e.g., quarantine services), monitoring of markets, and market reporting as a MAFFM core function. At present these market functions are provided by the Department of Trade, but MAFFM has an extension service that could be useful for transmitting information to the farming sector.

- Research and policy development, in association with other departments such as the Department of Lands and Environment, to formulate and promote farming systems that are environmentally, as well as economically and socially, sustainable. In a land-scarce country such as Samoa, it is vital to promote farming systems that do not cause high levels of erosion and subsequent external impacts on others and systems that do not rapidly deplete soil nutrients or require high levels of artificial inputs.

The corollary of MAFFM's service role is that it should not be involved in commercial activities. It is, however, and some of these activities are described below.

Beef Cattle

At present, the Department's main commercial activity is the operation of two beef cattle farms, totaling around 600 ha. Accurate data on the national cattle herd are not available, but according to MAFFM, the herd totaled approximately 28,000 head in 1998. In both 1992 and 1995, the Government imported 3,000 head of quality breeding stock from Australia, as part of the drive to expand the national herd. This stock and their progeny were previously sold to registered smallholder cattle farmers at subsidized prices. MAFFM attempted to import additional breeding stock in 1999, but was unable to do so because of a lack of financing.

At present, the Department sells weaners from its farms at a commercial price of around SAT\$2 per kilogram live weight. The Department is unable to meet the demand, however, and there is a "long waiting list" of producers wishing to purchase stock. According to departmental representatives, a further shipment of breeding stock would pay for itself. On the contrary, if there is strong demand for live cattle, then a commercial market will develop, a market that can be serviced by the private sector. It is suggested that MAFFM call for expressions of interest, both domestically and internationally, for a private operator to take over its cattle farms. Those submitting an expression of interest would be required to outline their experience in running such a business, as well as their financial capability to do so. If more than one suitable operator is identified then tenders should be called for. A long-term lease should be negotiated with such an operator. If MAFFM has a role it is to facilitate imports of cattle by ensuring that quarantine services are strong and that extension services are available. As with other agricultural inputs, discussed previously, cattle imports should be free of tariff duties.

Abattoir

Beef output is estimated at around 720 tons per year, representing the slaughter of about 4,500 head at an average live weight of 300 kilograms. TIPU (1988) estimated that about 70 percent of this turn-off goes to the *fa'alavelave* market, the ceremonial market in Samoa. The remaining 30 percent is bought by private butchers for the local market. Additionally, Samoa each year imports around 700 tons of beef for the fresh market, including restaurants and hotels, as well as more than 400 tons for the local cannery's operations.

Despite the slaughter of between 1,200 and 1,500 head for the local market, there is no livestock abattoir; all meat is killed in unregulated facilities and no meat inspection is carried out. Consequently, local beef is of highly variable quality, while health concerns also arise. It is widely agreed that there is a need for a local abattoir to process beef. MAFFM has suggested that such a facility should be established by the department and, after a period of operation, handed over to the private sector. However, it is suggested that MAFFM should not be involved in the operation of a commercial abattoir. As with the operation of cattle farms, it is suggested that expressions of interest, under similar conditions to those outlined for beef cattle farms, be sought to construct and operate such a facility and that this be given high priority by TIPU. The Government has a role in facilitating access to appropriate land, probably at Vaisele, and in providing meat inspection and other regulatory services. The Government's reform process, involving reduced tariffs, a liberalized credit market, and a more open attitude to foreign investment, contributes to an enabling environment conducive to private establishment in and operation of an abattoir.

Agriculture Store Corporation

The Agriculture Store Corporation is a 100-percent government-owned enterprise selling agricultural inputs; it was established in 1975 in response to concerns about increasingly high prices for these items. The corporation also operates two banana-farming projects and currently exports 200 20-kilogram cartons of bananas by air to New Zealand each week. The corporation has also recently recommenced taro production. While the store operates on a commercial basis, it has, on occasion, been subject to Board pressure to reduce margins so as to keep prices down.

The Government has, on several occasions, announced its intention to privatize the Agriculture Store Corporation. With the financial, tax, and tariff reforms now in place and the apparent increase in private

retail and wholesale business activity, the store should be privatized as soon as practicable. One genuine private competitor is now active in the agricultural inputs market and further competitors can be expected as a result of the Government's reform program. The banana-farming projects might be sold separately from the store. The store could be independently valued and placed on the market or tenders sought to purchase and take over the operation.

Other Agricultural Facilities and Commodities

A Fruit Tree Development Project, sponsored by UNDP, commenced recently in Samoa. One component of infrastructure needed to support the export of fruit is a high temperature forced-air facility to treat fruit for fruit fly and other insect pests prior to export. Such a facility is important to successful development of an export fruit industry but, in principle, should be the responsibility of an exporter. The difficulty is that sufficient throughput is required before such a facility becomes profitable, yet there is currently little production of export fruit. This is a potential case of market failure and, as distinct from the abattoir situation, there may be a case for government ownership of such a facility, at least until fruit exports reach a level that makes heat treatment a viable private operation. It is suggested, however, that management of the facility be let under a management contract to the private sector at the time of establishment and sold to the private sector, via tender, once throughput reaches a viable level.

TIPU has released a range of "Investment Opportunity" documents for agriculture since 1997, including kava and edible ginger, along with a range of processing possibilities, including coconut oil and banana and taro chips. Kava had already begun to develop, indicating that no market failure existed and, when prices are attractive, the private sector will develop such industries. The suggestions from TIPU are all based on value added in-country which, as previously outlined, is a suitable strategy for Samoa. The TIPU documents are also based on the premise that each investment is attractive to the private sector, requiring no direct government investment in production and processing. Current copra crushing and coconut cream and cocoa products processing and exporting serve to indicate the potential of such activities.² In the case of copra crushing, the Government is involved in a joint venture with Oilseed Products Limited (New Zealand), operating as

² The processor of cocoa products at present imports cocoa from other countries in the Pacific for processing and export. Local production of cocoa would, presumably, render such a business still more profitable.

the Oilseed Crushing Company Limited. However, it is suggested that the Government divest itself totally of this business, particularly as it requires an injection of capital to ensure its future.

Hazards Analysis of Critical Control Points

The process called Hazards Analysis of Critical Control Points (HACCP) is now the cornerstone of quality control in many countries of the world, including Samoa's principal export markets, such as Australia and the United States. As the name suggests, HACCP involves an analysis of the quality of products at every point in the production and marketing chain. Exporters of products that are subject to HACCP—which either already includes or will soon include most primary products and their manufactured derivatives—will be required to have HACCP plans in place, plans that are subject to independent evaluation. Therefore, there must be a dramatic increase in attention to the quality of export products, while manufacturers will be required to have in place HACCP-aligned procedures and equipment.

HACCP is, in countries such as Samoa, self-regulating; it is the job of exporters to ensure that HACCP requirements are met. This presents potential dangers—particularly the danger of losing export markets—if all exporters are not aware of HACCP requirements and/or some are not meeting those standards. The Government has a role in providing information, training, and backup support for export companies that must develop HACCP plans and meet its strict quality assurance requirements. Even without HACCP requirements, the supply of quality-assured product is vital to market development, retention, and expansion. The appropriate agency to provide leadership on this matter is the Ministry of Trade, Commerce and Industry, working closely with other agencies such as MAFFM. This issue is revisited in Chapter 9 on fisheries exports.

Land

The total land area of Samoa is 283,689 ha, with estimates of the area suitable for agriculture ranging from 160,000 to 200,000 ha (TIPU, 1998). Approximately 81 percent of the land is held under customary tenure; this land cannot be sold, but can be leased on a long-term basis. The Ministry of Trade, Commerce and Industry, under recent legislation, can negotiate leases of up to 30 years, renewable for 30 years; take a head-lease over such land; and sub-lease to commercial users. About 15 percent of the land is public land and is controlled principally by

the Samoa Trust Estates Corporation (STEC) and the Samoa Land Corporation (SLC). The roles of these two Corporations are outlined below. The remaining 4 percent of land is in freehold tenure.

Customary land tenure arrangements are frequently cited as a major impediment to agricultural and other development, because they discourage investment in farm improvement and impede attempts to gain credit, because land cannot be used as security. While the Government foresees initiatives to render customary land more accessible, just what these initiatives might be has not been made clear. Given that the Government is putting in place a business environment that supports private-sector-led development, certain issues relating to the management of public land need to be addressed. These relate mainly to the operations of STEC and SLC. The land assets now managed by these corporations provide a stock of land that might be accessed to support private-sector development. This land can be either sold by the Government or made available under long-term, transferable leases.

Samoa Trust Estates Corporation

At the end of World War I, New Zealand took over more than 12,550 ha of former German plantations in Samoa. This land was transferred to Samoa in 1956 and was to be held in trust for the people of Samoa under the Western Samoa Trust Estates Corporation (WESTEC). By the late 1970s, WESTEC was SAT\$29 million in debt to organizations such as the World Bank and ADB. Consequently, the Government passed the Western Samoa Trust Estates Reconstruction Act 1990, under which approximately 9,700 ha were transferred to the Government, to be managed by a new body to be known as the SLC. WESTEC, since renamed STEC, was left with around 2,800 ha in one plantation near the international airport on the western end of Upolu. The management of STEC has made efforts to operate profitably, mainly through the production and sale of cattle and copra. However, the plantation has become subject to vandalism, squatting, and theft of both copra and cattle. STEC also owns a store in New Zealand, which is rented to a tenant.

It is strongly recommended that the Government close down STEC and divest itself of the assets of the Corporation. The store in New Zealand can be placed in the hands of a real estate agent for valuation and sale. Expressions of interest in purchasing the plantation should be sought by advertising both domestically and internationally. Organizations submitting an expression of interest should outline their proposal(s) for use of the land, the benefits to Samoa, and their financial capability to implement their plans. The uses might include, but not be limited

to, agriculture and tourism development. If more than one organization submits suitable proposals, it is recommended that the land be auctioned and sold to the highest bidder. The Government's role will then be to facilitate the development by, for example, assisting with law and order and the removal of squatters, although some consideration might be given to transferring some areas to local villagers.

Samoa Land Corporation

SLC and its 9,700 ha of land, noted above, is managed by a board with the Minister for Lands as Chair. The initial policy for SLC was that land would only be leased, with ownership retained by the Corporation on behalf of the Government. Land was to be leased in four-hectare blocks for a period of 20 years, with an option to renew for a further 20 years. Lease prices were to be by tender and were normally around SAT\$295 per hectare per year. Lease conditions have since been made more flexible and now depend upon land use. Four-hectare blocks are leased for intensive crop production such as taro, while the price for these blocks has now been fixed at SAT\$494 per hectare per year. In addition, 20- and 40-hectare blocks may be leased for activities such as beef cattle grazing. The lease price for the 40-hectare blocks, which only became available in 1999, is set at SAT\$50 per hectare for the first five years and will then be reviewed.

In addition to leasing, SLC has recently been selling 350 ha of land for residential development in Apia. This land is advertised at a set price, which is meant to be in line with market prices; anyone may apply for a residential block who does not already own freehold land in Samoa. A deposit of SAT\$1,000 must accompany each application. The policing of this scheme has proven difficult, particularly as SLC does not have access to a property information system and therefore finds it difficult to identify those who do own freehold land. There have also been problems of underpricing, with buyers quickly selling their blocks for a large profit. These difficulties suggest that the appropriate way to market such land is via auction.

A further difficulty associated with the selling of residential blocks has been that many of those who have purchased land have not been in a financial position to build other than a sub-standard dwelling. SLC is concerned about the development of poorly serviced "shanty towns" and recently recommended to the Board a pilot project for the development and sale of house and land packages.

SLC has also been instructed to develop the 155-hectare National Sports Complex that is now one of Samoa's largest development projects.

The Corporation is expected to use the proceeds of land sales to support development work on the site. This indicates that, even though SLC is required to operate as a commercial entity, it is subject to political processes and decisions, decisions that may be against the best interests of the corporation. The limitations on residential land sales are another political intervention.

The corporation also faces certain other difficulties. Squatting on its land is a significant problem throughout Samoa, while approximately 4,000 ha of SLC land is sitting idle, mainly on Savai'i. There is an ongoing need to survey and accurately identify the land belonging to the corporation. Nonpayment and arrears in lease payments are common, a situation that seems to pervade government-managed assets. In the case of SLC, government failure has led to market failure.

The premises upon which the Government's reform process is based suggest that the Government should divest itself of SLC. The process by which this is done remains to be laid out, but one possibility would be to begin by identifying and surveying land that is unused and/or squatted upon and advertising that land, locally and internationally, for sale or long-term, transferable lease. If the Government wishes to retain ownership of the land, then the latter is the preferred option. This approach would be best based on long-term leases, possibly up to 99 years, allowing investors the opportunity to make long-term capital investments. The property rights associated with such leases should be well-specified, including their transferability by sale to guard against market failure.

The appropriate manner of allocating initial leases would be by auction to interested parties in a two-step process. The first phase would require filing of an expression of interest, with evidence that the intended purchaser has the financial and other resources to develop the land in an appropriate way. An independent assessor should evaluate all expressions of interest, with successful applicants then invited to an open auction. That is, the process is to "sell" the property rights to successful bidders, although land ownership remains vested in the Government. As with the recommendation for STEC, this will make available more land that private investors might access and develop, thereby leading commercial agricultural and other development in Samoa. However, the rate at which land is released onto the open market needs to be planned carefully so as not to force prices down by oversupply.

Much of the remaining land under SLC control is already under lease, notwithstanding a high level of default on lease payments. It is suggested that a management contract for this land be let, by tender, with incentives for the managing agent to recover unpaid rentals or to

repossess the land in question. The management agent would also be responsible for the administration of the long-term leases discussed above. The corporation should, as soon as practicable, be wound up. As leases mature, the land should be made available for sale by auction in the manner previously described. It is also strongly recommended that SLC not become involved in further land development via, for example, the development and marketing of house and land packages. Such initiatives and their associated risk must be left to the private sector.

Summary of Main Points for the Agriculture Sector

The agricultural sector remains important to the livelihood of most Samoans. It also has considerable potential to make a greater contribution to export earnings. To achieve such an outcome, however, the role of Government must be carefully considered. The key points raised in the foregoing pages were the following, with these points generally relating to the Government's reform process:

- Sustainable development of the agricultural sector requires consideration of economic, social, and environmental systems.
- Samoa's dualistic agricultural sector is extremely vulnerable to external shocks such as price variability and exchange rate movements, as well as to internal impacts from cyclones and pest and disease infestations.
- The contribution of the sector to the economy is declining and is likely to continue to do so.
- A distinction must be drawn between the servicing needs of the commercial and subsistence subsectors and, at the same time, between economic and social objectives in providing extension and other services to farmers.
- The approach to economic development of the agricultural sector should be to focus on the private sector and those already successful in commercial agriculture. Private-sector entrepreneurs will provide leadership and become the "engine for growth" in agriculture.
- The reform process is establishing an environment that is conducive to commercial agricultural development. The policy for taxing the sector should, however, be revisited: taxes on inputs should be removed and income tax imposed.
- The Government, through MAFFM, has an important role in extension, research, regulation, and policy development. It does not, however, have a role in commercial activities, except where there is clear market failure.

- The Government should divest itself of the various commercial activities in which it is involved, such as beef cattle farming, STEC, SLC, the Agriculture Store Corporation, and the Oilseed Crushing Company Limited. Furthermore, MAFFM should not become involved in ventures such as the abattoir, although the Government might have a role, because of market failure, in supporting the establishment of the heat treatment facility for fruit export.
- Land for commercial agricultural development can be made available through divestment by STEC and SLC.
- The more open attitude to foreign direct investment should be of substantial benefit, especially if access to land, such as that presently managed by STEC and SLC, is facilitated.

The Forestry Sector

Introduction

The forestry sector has played a small and declining role in the economic development of Samoa in recent years. Data from the Central Bank indicate that, in 1998, the value of forestry exports was SAT\$5,000. The export of logs is banned, timber cutting is almost exclusively for the local market, and increasing amounts of timber are being imported to support the building trade. Only one local hardware supplier still handles locally sawn timber, principally because that supplier is also involved in sawmilling.

Most forestry cutting is now on customary land, with landholders paid a royalty of SAT\$7.77 per cubic meter of timber. Licensing to harvest timber is via an application to the Forestry Division, which assesses the application before passing it on to the Lands Department, which issues the license. The Forestry Division is then responsible for monitoring and regulation of forestry activities. A key regulation is that trees harvested must be a minimum of 30 cm in diameter.

Licenses are presently on an area basis, rather than a volume basis, which is an unusual approach to licensing forestry activities. Recent reports (e.g., Kolone Vaai and Associates 1997; World Bank 1997) have raised concerns about the rate of logging of the remaining merchantable forest. The remaining area of native, merchantable forest was estimated at 15,000 ha in 1993 and at that time it was suggested that the sustainable logging rate should be set at 1,000 m³ per year. However, commercial logging in 1997 was continuing at an average of 15,000 m³. It is thus recommended that, first, licensing should be placed on a volume basis within a given area, to allow easier monitoring. Licenses

based on area alone provide an incentive to take as much timber as possible off a given area. Second, there should be transitional arrangements that allow the timber industry to adjust to reduced allowable harvests. For example, the cut might be progressively reduced over a three-year period.

Plantation Forestry

Large-scale plantings began in the early 1970s, mainly on government land. In 1981 the plantation program was extended onto customary land, with extensive areas of customary land leased for this purpose. Both initiatives were catalyzed by concerns about land clearing for agriculture and uncontrolled logging. The cyclones of 1990 and 1991 virtually destroyed the plantations and the replanting program. The current plantation area is on the order of 2,500 ha, mostly comprising high-value hardwood species, such as mahogany, that are less than 10 years old and that will take at least 25 years to reach economic maturity. Consequently, plantation forestry will make little or no contribution to either local timber supplies or to exports for some time to come.

In a New Zealand-sponsored review of plantation forestry in late 1997, it was recommended that leased land be returned to the customary owners, and that those owners should manage the plantation areas. While the Forestry Division has identified four areas they wish to return, negotiations have yet to commence on those returns. It was also recommended that government plantation areas should be put out to private management via tender. The current situation is that the Forestry Division is continuing to maintain plantations on customary land, but are not undertaking further plantings. However, both maintenance and planting is to continue on government land, with such areas being used as demonstration and education resources.

Given the Government's reform process, it is timely to revisit the New Zealand study recommendations. Negotiations about the return of plantations on customary land should begin as soon as possible. The Forestry Division should, however, monitor those plantations and provide advice on management where needed. The normal requirements for licensing to harvest timber would still apply. The exception is where there is a need to protect watersheds and land that is particularly vulnerable to erosion and soil loss. Such areas might be imposing significant externalities on others in the community, externalities that the owners cannot normally be expected to consider in their management decisions. The Government, through the Forestry Division, has a role in the replanting and maintenance of these areas. Education and awareness-raising

programs are currently provided by MAFFM in relation to the protection of water catchment areas.

Plantations on government land can be regarded as a public good and, therefore, should remain under the management of the Forestry Division. These plantations add to the stock of assets that support biological diversity, help to protect certain watersheds, and assist in the protection of the land on which they are situated. Further plantings should also be continued on this land.

Private Forestry

The Forestry Division has placed increased emphasis on private forestry in recent years and is receiving support under a German-funded project for this purpose. The division provides landholders with up to 100 free seedlings from a nursery it runs; provides advice, training and extension support (through the agriculture extension staff); and monitors the management of the trees planted. Where plantings are well-managed, landowners may receive a further 100 free trees. Beyond this level they are required to pay for seedlings. This again is a role that the Government should continue to play as, without such support, tree plantings are unlikely to occur at a desirable rate.

Samoa Forest Corporation

The Samoa Forest Corporation is a joint venture between the Government, which holds 40 percent of the company, and a private company that owns 60 percent. The principal operation is the sawmilling of salvaged logs on Savai'i, with about five years of resource remaining. Negotiations have commenced for the private company to purchase the Government's share of the Corporation, although these negotiations have apparently been moving quite slowly. In keeping with the economic reform process, these negotiations should be concluded as soon as possible, with 100-percent ownership passing to the private company.

Environment and Conservation

Introduction

It is now widely recognized that successful economic development and care for the natural environment go hand in hand. It is no accident that the poorest countries in the world are those that have the worst environmental problems. Samoa, like other Pacific Island nations, relies on

its productive environment for its agriculture, fisheries, forestry, clean water, health, and aesthetic beauty. The green environment and clear blue waters are among the key attractions for tourism. Consequently, social and economic development depends heavily on the recognition that such resources are ultimately scarce and must be managed in a sustainable fashion. Yet structures to explicitly address environment and conservation issues have been slow in coming to Samoa.

The islands of Samoa are volcanic and dominated by rugged mountains with a 4–5-kilometer fringe of gently sloping fertile land. They are bordered by fringing coral reefs and coastal lagoons. Consequently, there is close interaction between activities on land and at sea. The geography of the islands, coupled with the tropical climate, means that Samoa's natural resources are both fragile and scarce. They therefore require careful management if they are to continue to serve the needs of the people into the future.

The first step in preparing a framework for the development of environmental policies was the preparation in 1993, under the auspices of the South Pacific Regional Environment Programme of the National Environmental Management Plan (NEMS) (Western Samoa NEMS Task Team 1993). At the same time, a review of environmental legislation in Samoa was undertaken in support of the NEMS process (Peteru 1993).

Institutional Setting

Environmental management and related matters, at the institutional level, are the responsibility of the Division of Environment and Conservation within the Department of Lands, Survey, and Environment. The division sees as the central focus of its work coordination, monitoring, and review of activities that impact on the environment. It is also moving to reactivate the NEMS and initiate policy development activity. A review of the legislation under which the division acts is also being undertaken internally.

The division is also placing some emphasis, in its resource management role, on developing partnerships with the private sector. Additionally, however, personnel in the division see a need for greater cooperation with other government departments and a greater understanding by some of those departments of environmental needs in Samoa. For example, while the TIPU has been undertaking very useful work in relation to economic development, it has paid very little attention, in its investment proposal documentation, to environmental needs or requirements.

Environmental Impact Assessment

Draft Environmental Impact Assessment (EIA) legislation has been prepared and submitted twice in the 1990s by the division. The most recent version, prepared in 1997, is currently with the Attorney-General's Office. As an interim measure, the division is now preparing guidelines for the conduct of an EIA, which will be sent to the Cabinet and, if adopted, used as an interim measure until EIA legislation is eventually passed.

Notwithstanding the considerable delays in the passage of EIA legislation, all large government projects are now subjected to the provisions of the draft legislation. Projects funded by multilateral donors such as the World Bank and ADB require that such assessments be undertaken.

Most private developments are also subjected to a two-tier process of environmental assessment. First, a preliminary assessment is undertaken by the Division of Environment and Conservation, which then decides if a full EIA should be prepared. If so, private-sector consultants are used and the division performs a monitoring role. Such a role is in keeping with the limited resources available to the division, which has signaled that EIA preparation should be undertaken by private, specialist consultants.

While EIA is being applied to most projects, both government and private, there is no legal requirement to do so. It would, for example, be possible for a developer to refuse to undertake any sort of EIA for a new development, since present assessment practices have no firm basis in law. Consequently, it is imperative that workable EIA legislation be introduced as soon as practicable.

Other Activities

The Division of Environment and Conservation is engaged in a range of other activities, including involvement in regional programs such as those dealing with the conservation of marine mammals. A new program, sponsored by the World Conservation Union, will be working with 20 village communities to develop marine protected areas and community plans for sustainable development. A World Bank-funded project is focused on coastal infrastructure development and maintenance. Such projects, focused on community education and participation, are seen as important by the division. They are also linked to activities in such areas as fisheries and tourism development.

In summary, the Division of Environment and Conservation has well-focused priorities, particularly relating to EIA and coastal management.

Since all of Samoa is in the coastal zone, it is critical that efforts to preserve and sustainably manage the nation's scarce resources should be strongly supported. Without such support, the important natural resource-based industries of agriculture, fisheries, forestry, and tourism will be unable to make a long-term contribution to social and economic development and, concomitantly, improvements in the welfare of all Samoans.