

Chapter 8. Agriculture Sector

This review looks at the sector in its entirety – recognizing the major role played by traditional farming systems and the impact of socio-cultural realities. The 1996 Country Economic Report emphasized the importance of traditional agriculture. Another ADB technical assistance project highlighted opportunities for domestic and export marketing. The reality is that the sector continues to be dominated by tradition and that commercial agriculture is almost embryonic. Farmers are getting little if any support from government. Money is being spent on the sector, but little is for the benefit of farmers.

8.1 Situation Analysis

Out of a total FSM population of 107,000, an estimated 80% depend on subsistence or semi-subsistence livelihoods. Agriculture is not a major contributor to export receipts but provides livelihood and employment to much of the population. Recent policies have tended to favor commercial development of agriculture, failing to adequately account for subsistence and semi-subsistence farming systems and their inherent characteristics. The vision for the sector has been inconsistent. Government funding has been allocated without a fiscal rationale, and with insufficient attention to sector needs or quality outcomes.

Traditional subsistence foods have been overwhelmingly replaced by imported foods, and are regarded as inferior (“starch foods”), and not fully recognized for their economic or nutritional value. Support services have not targeted traditional agriculture.

Commercial agriculture has had some successes—especially in niche export markets, e.g., kava (*sakau*), betel nut, cooked breadfruit, and bottled processed *noni*. The common feature of these products is that their markets were developed and are operated entirely by the private sector, with government support confined to quarantine services. *This should be the model for the future.* Products where government has been involved or is active have either largely failed (pepper, livestock) or continue to require subsidies (copra). There is room for import substitution on a limited scale. In 2002, food imports totaled \$28.2 million, of which about \$1.4 million were for fruit and vegetables that could be produced locally.

In summary:

- *Government expenditure in the sector is largely ineffective;*
- *Government expenditure can be better targeted at traditional crop production;*
- *Non-government groups can provide cost-effective support to traditional farmers;*
- *More people rely on subsistence agriculture for employment than they did 10 years ago;*
- *The integration of agriculture and culture must be recognized by sector planners;*
- *Traditional farmers place higher priority on social obligations than on agriculture;*
- *Traditional farmers prefer crops that allow flexibility to meet social/cultural obligations;*
- *Land resources are adequate in Kosrae, Pohnpei and Yap, Chuuk is under pressure;*
- *Niche markets exist for traditional crops;*
- *Opportunities exist for local production of some imported fruit and vegetables; and*
- *Some local foods can address serious dietary deficiencies and disorders.*

8.2 Farming Systems

Most agricultural production in the FSM is subsistence in nature, producing food for family use, ceremonial purposes, social obligations, and income generation. But most people have come to prefer the convenience of cash transactions. The decreasing regard for local foods had made policy makers overlook subsistence agricultural development. However, reductions to Compact funding coupled with cuts in the public sector, have forced many families to fall back on subsistence agriculture. The 2000 Census indicated that nearly 17% of families were dependent on subsistence agriculture for their main source of employment, compared with 10% in the previous census.

A recent survey on Pohnpei showed the value of average agricultural production per household at \$4700 in 2003, equivalent to 74% of median household income in 2000. However, only 25% of this came from market sales; own consumption accounted for about 53%, and 22% was used for ceremonial activities or to fulfill social obligations. Looking at it another way, after providing for household needs, only about half of the discretionary surplus is used to generate cash income.

The major species of livestock are free-range chicken and pigs which are kept for home consumption. Pigs have an important ceremonial value, especially in funerals. There are few regular piggeries, and prices are high because of expensive imported pig feed. Poultry are run free-range, and are used for both meat and egg production. There are a few commercial layer poultry operations, but imported feed makes production costs high. Egg imports in 2002 amounted to \$444,400, suggesting additional opportunities for local production, based on locally grown feeds.

There are export markets in Guam, the Marshalls, and Saipan for root crops, bananas, betel nut and kava, and in many countries for copra. In addition, there are immediate prospects for import substitution of selected fruit and vegetables in local markets.

Agriculture exports amounted to about \$1.4 million in 2002, equivalent to an average annual increase of 6.5% from 1999-2002. Exports of betel nut, kava, and copra grew annually by 18%, 7%, and 5% respectively in the same period. All three crops are grown by traditional, semi-subsistence farmers. Exports of banana, citrus fruits and root crops declined over the same period by an average of 17%. The majority of agriculture exports are sourced from Yap - 51% and 65% of total agriculture exports for 1999 and 2002 respectively - while Pohnpei accounted for 31% and 26%, respectively. Conversely, exports from Chuuk and Kosrae are negligible.

Gross margin analysis of cabbage and cucumber shows a profitable opportunity to grow crops which are currently imported in significant quantities. Costs of production are five times lower than the CIF cost of an equivalent imported product. Assuming a crop failure rate of one in four (e.g., caused by drought, typhoons, disease), farmers can still expect to earn about \$5 per hour, about three times the rate for agriculture labour.

Internal marketing infrastructure is limited. Most produce is marketed through supermarkets, with individual growers delivering directly, but supermarkets report that supplies of local product are limited and erratic.

The coconut tree stock is ageing and there has been limited replanting. Since 1991, copra production has exceeded 1,000 tons only once, and it has averaged 610 tons in the last five years. Prices are subsidized but irregular collection and slow payment are disincentives to farmers. Subsidy allocations by the national government have dropped by 62% from \$200,000 in 2002 to \$75,000 in 2005.

In September 2004, the farm-gate price of copra was reduced from 13 cents/lb (\$260 per ton) to 5 cents/lb (\$100 per ton). Widespread opposition ultimately led to introduction of a subsidized price of 10 cents/lb (\$205 per ton) – still a 23% drop in price. Freight costs an additional \$205 per ton, making the FOB price still higher than the world price of around \$350/t.

Availability of inputs e.g., seeds, fertilizer, chemicals, animal feeds, is variable. The private sector provides feeds for pigs and poultry on a fairly regular basis. However, the Department of Agriculture in some states continues to compete with the private sector in the provision of seeds and fertilizer. While this is done with the best of intentions, it undermines the opportunities for smaller private sector providers.

Box 12. Case Study: A Commercial Fruit and Vegetable Farmer – Pohnpei

Three generations make a living off 10 acres of rocky, medium fertility land. About two acres are rock free and can be mechanically cultivated. On this land, a range of vegetables are grown, including eggplant, cherry pepper, cucumber, runner beans, Chinese cabbages, gourds, and pumpkin. On the rocky land, they are moving to sweet taro (colocasia) for the restaurant market and betel nut for local and export markets. All soils require heavy compost, supplemented with inorganic fertilizers.

Vegetables are marketed locally to outlets with which there is an established relationship. Buyers accept everything delivered, but with a right to reject poor quality product, which is replaced free of charge. Payments are made weekly for deliveries that week.

In addition, they raise pigs – large animals for the funeral market (\$1000 per head) and smaller ones for everyday use. Annual sales are about 10 big “funeral” pigs and 40-50 smaller pigs (at about \$200/head). The market for funeral pigs is weakening due to weaker economic conditions.

The family regards its livestock as ready collateral for the FSM Development Bank and an important fertilizer source for vegetables. The family sees commercial agriculture as a risky business, due to the variations of climate and markets. Although droughts are a constant worry, a loan application for irrigation development was declined ‘because of the risk’. Typhoons also cause losses. The land is government land, allocated to the wife’s family in 1960 under the Homestead Grant Scheme. They have been applying for individual title ever since, and especially in last few years, but to no avail. Lack of clear title is also constraining their ability to access development finance.

Reliable access to inputs (especially seeds and fertilizer) is a problem. Fertilizer supplies from the Department of Agriculture are currently erratic, but generally alright. But the family expects supplies to become more erratic as the frequency of shipping services declines.

They are the only private commercial growers in Pohnpei. Why is this? They note a number of constraints. People do not differentiate between traditional and commercial farming – both have low status. There is a general unwillingness to work hard on a sustained basis. The farming system is too complicated – Pohnpeians lack business and farming skills.

What can be done to develop agriculture? They say people lack initiative – life is too easy. Agriculture is the victim of people in government with grand visions of big international markets and large-scale livestock production and slaughter facilities. The reality is different – what is needed is a community grassroots approach, not fantasies. Lessons should be learned from previous failures – especially pepper. There should be more realistic expectations of production potential and markets, and adequate technical backup before investment begins.

8.3 Productive Resources – land, labor and capital

8.3.1 Land

Arable land in FSM is generally sufficient to support food production needs. The exception is Chuuk, where a combination of high population and limited land means food production capacity is stretched under traditional farming practices. Chuuk accounts for over 50% of FSM's population, but has only 12% of the arable land. Arable land per capita is 0.1 ha in Chuuk, compared to 0.95 ha, 0.65 ha and 0.80 ha in Kosrae, Pohnpei and Yap, respectively.

In pre-colonial times, land tenure was the responsibility of the traditional chiefs, then it passed to successive colonial rulers. Since the Federation in 1986, surveying of individual land plots for issuance of title has proceeded slowly. Previous studies have also highlighted this point. Land can be mobilized under private lease arrangements. The terms of lease of agricultural land varies: Chuuk – 99 years; Kosrae – 25 years; Pohnpei – 25 years; and Yap – 49 years. However, rental arrangements are mostly informal, with little transparency of terms.

Land degradation is a serious issue on most islands. On Pohnpei, encroachment by squatters growing kava into the upper watershed has reduced the area of primary forest significantly – from 15,000 ha in 1975 to 5,200 ha in 1995 to 4,200 ha in 2002. Siltation of the fringing reefs as a result of deforestation and subsequent erosion is causing significant damage to traditional marine food supplies.

8.3.2 Labor

The 2000 Census shows that 52% of the labor force (37,414 out of a total working-age population of 63,836) were engaged in agriculture and/or fishing. Of these, 70% said they were engaged in subsistence activities. Eighty per cent of the males and 86% of the females engaged in subsistence agriculture had either no education or had failed to complete high school. This stark reality highlights the dualistic nature of FSM society – the educated participate in the cash economy while the rest are increasingly marginalized to subsistence agriculture.

In 2000, the Census showed 17% of the working age population engaged in subsistence activities – up significantly from 10% in 1994. The rate for females increased from six per cent in 1994 to 18% in 2000.

Of significance to the agriculture sector is the continuing out-migration of young people, especially men. Anecdotal evidence suggests that this is a factor,

but not yet a major concern. The youth of FSM tend to prefer the cash economy and imported food rather than agricultural work. Agriculture as a career has low status as illustrated by the closure in 2002 of the Pohnpei Agriculture and Trades School course on vocational agriculture – one of the few remaining courses of its type in the region. The College of Micronesia is offering a two year degree course in agriculture but currently only 15 of 2500 total students (0.5%) are enrolled.

8.3.3 Capital

Access to affordable capital is a constraint. Loans are geared towards larger commercial operations, though FSM's recent history is littered with such failed enterprises. Evidence suggests that commercial crop production is sufficiently profitable to justify a well-designed credit program at an appropriate scale.

Opportunities for capital formation from savings are constrained by social issues and a shrinking job market. The FSM Development Bank and others are building compulsory savings into their loan products. But FSMDB has had very limited exposure to the agriculture sector over the past five years with only 0.2% of total portfolio concerned with that sector in 2002.

The budget for agriculture in 2004 and estimates for 2005 demonstrate the lack of government support. Agriculture is designated as a priority productive sector, but only 1.8% is set aside for agriculture in both 2004 and 2005 national and state budgets. The small budget is made worse by the fact that most of the budget is absorbed by personnel costs (i.e., wages and benefits) of agriculture staff, leaving even less to cover the costs of providing field support to farmers.

8.4 Technical Support

The major thrust of agricultural technical backup is offered through the COM Cooperative Research and Extension Service affiliated with the USDA Land Grant Program. This service has a budget of \$0.75 million and total of 43 staff members 21 of whom are either extension agents or researchers. But as salaries account for over 97% of total budget, their capacity to deliver relevant services to rural communities is constrained. There is an opportunity to improve the productivity of these funds. Discussions with the relevant USDA staff regarding funding of community-oriented NGOs to deliver agriculture extension should be a priority. SPC and Peoples Republic of China also have activities in FSM and there are volunteers from Peace Corp and JOCV supplementing State Agriculture staff.

8.5 Policy Issues

The agriculture sector has been typified over the last 20 years by the lack of a consistent vision and by expensive failed government investments. Policy and investments are made in relative isolation, with little or no data, and without reference to the needs and priorities of either rural communities or the private sector.

The problems in agriculture are, for the most part, directly attributable to leadership and governance failures. The rate of out-migration in the FSM is a clear measure of the degree of that failure. Policy advice has favored commercial, market-oriented approaches and paid too little attention to the realities – in particular the prevalence and characteristics of traditional agriculture and the varying needs of the different states – especially Chuuk. Future agriculture policy must reflect the needs of those who rely on the sector for food, livelihood and employment, with investments directly benefiting them.

There are opportunities to work with village communities, and to introduce simple but improved technologies, business understanding, and market awareness. One State Director of Agriculture freely admitted that little, if anything, was being done for traditional farmers. Research and development (R&D) has been limited and of little value to farmers.

Poor performance and fiscal constraints have created the need to develop alternative strategies. A number of agencies are using a community-based approach, recognizing that farmers do respond to new technologies. The FAO believes that for any positive changes to be initiated, target groups need a better basis for decision making. Decisions should be made based on an understanding of the real agricultural business environment (without handouts and subsidies). The Natural Resource Conservation Service (NRCS) in Pohnpei has been doing community-based extension work with farmer groups organized by the village chief. NRCS believes the key is grassroots involvement in initial planning, when needs are determined by the community for the type of service required. They also see demonstrations as a key approach, with many opportunities to improve the performance of traditional agriculture.

The Pohnpei Conservation Society (PCS) started as an NGO in 1997 and has 19 staff members and a \$350,000 budget now funded independently of government. The PCS works with farmers to encourage agriculture and discourage forest encroachment. It believes science can be applied to traditional farming systems, but must be underpinned by proper dissemination through farmer groups. It sees a current gap between R&D and farmer needs—no interaction, no dissemination, and no feedback.

The Yap agriculture garden program aims to help people establish a food garden by providing funds for seeds, fertilizer, tools, fencing, and other inputs – up to about \$200 per applicant. The ultimate aim is to form a cooperative serving the successful grantees, with a market outlet based on the local supermarket.

Rice has become the single largest imported staple, valued at nearly \$4.4 million (cif) in 2002. The shift away from reliance on traditional crops brings exposure to cash shortages and shipping delays. As one villager commented “our traditional root crops and bananas have become ‘show foods’ at special occasions – afterwards we go home to eat rice and tinned meat”.

A 1994 blood survey in Chuuk and Pohnpei showed that more than 50% of children had low levels of vitamin A, with Chuuk having the worst levels. In 2000, another blood survey showed Yap and Kosrae had 38 and 63% of children with low levels of vitamin A, respectively. A recent UNICEF study found that 30-50% of youth in Pohnpei state reported consuming no fruit or vegetables. Vitamin A deficiency can lead to diabetes, infections, impaired vision, heart disease, cancer and anaemia. Infant mortality (aged 0-1 year) is about 50 per 1000 in FSM. In a recent dietary survey in Kosrae, not a single mother or child was meeting vitamin A dietary needs, but many were eating three times their protein needs.

Some traditional FSM foods (especially yellow flesh banana, taro and breadfruit) are high in *beta keratin (bk)*, the source of vitamin A. While a white Cavendish banana has 30 micrograms of *bk* per 100 gm, the FSM “karat” banana has 800 micrograms of *bk*. One karat banana per day would be more than sufficient to provide a child’s vitamin A needs. Conversely, rice contains no *bk*. Rice has to be supplemented by healthier and more nutritious traditional local foods.

FSM agriculture must be adaptable to the demands that socio-cultural activities place on farmers and their families - in particular the funeral culture. The main constraint to commercial agriculture is not technical, economic, or the lack of markets, but local culture, especially attitudes to agricultural work and the costs and obligations associated with funerals. It is harder for a farmer to opt for agricultural work rather than participate in a funeral, an obligation that typically lasts three days.

Coconut provides the only cash crop option for the 19,071 people living in the outer islands. The crop has been heavily subsidized by Government – through shouldering shipping costs and price support. In 2004, the total subsidy required will be about \$73,000 and is projected to be about \$68,000 in 2005. These losses would be much higher if the copra price had not increased by 70% in the last 2-3 years.

While the coconut tree stock is ageing, it is still productive and younger than in other parts of the region, e.g., Tonga or Samoa. There are prospects for extraction of oil *in situ* in each outer island, reducing freight costs and storage losses. There is a current capacity to produce about 100,000 gallons of oil, equal to \$210,000 of oil exports – a 33% increase on the 2004 copra export revenue, after subsidies. This should allow farmgate payments to increase and subsidy payments to be eliminated. There are still further opportunities for value adding to the coconut crop by processing the oil into high-end consumer products.

Previous development approaches have identified market opportunities, assuming farmers would capture these opportunities. However, the cumbersome processes of governments are typically too slow for niche marketing. Agriculture in the FSM will never develop on the basis of large monoculture crops. Supply capacity is too limited and most farmers will not change their farming system.

Imports of vegetables and fruits that can be grown locally in FSM amounted to \$1.4 million in 2002. It seems reasonable to assume that technically this amount could be replaced with local production in the medium term. In addition, imports of rice and noodles amounted to \$5.9 million in 2002. It is assumed that 10% of this amount could be replaced with locally produced root and tree crops in the medium term.

In this kind of flexible market, government's role is to provide an enabling environment, including a consistent and appropriate policy framework, secure land tenure, public infrastructure, R&D, and effective quarantine and protection services. The private sector's role is to find and fill markets with quality products, on a consistent basis and in a manner that treats farmer suppliers equitably. There has to be regular dialogue between the farmers, government, and the private sector. Such dialogue does not occur in FSM at this time.

An important function of government is establishment of an enabling policy framework. To develop effective policy that reflects the priorities of all stakeholders, policy makers need good information on crops and livestock. At present there is a complete absence of such data with the only reliable information coming from the quarantine service. However, because of staff constraints, their data is not up-to-date. The extension staff will greatly benefit from a simple farm-monitoring program where they work with village leaders to gather area and yield data and identify a few randomly selected farmers to monitor in-depth on a regular basis. This way, the data could be constantly updated, both horizontally (general data) and vertically (in-depth data from individual farmers).

As part of an enabling environment, land tenure systems need to be assessed. The following account is considered an accurate assessment of land tenure issues in relation to agriculture. "Land tenure arrangements vary in each state, and

depend on the type and prevalence of traditional and customary authority, and the degree of change to modern systems of land registration and ownership. Systems that are in the process of transition are least clear. Land is perceived as scarce and has high value (but there is no transaction price data that would at least provide some indication of land values) but standards for land value appraisal systems are not clear. Where survey and ownership records and values are disputed, and progress with new surveys and registration is slow, the access and security of ownership to land is a constraint to production and investment. Where customary agreements or modern systems provide fair and undisputed access, value and ownership, the constraint is diminished”.

8.6 Sector Goals & Policies

The sector goals and policies are designed to support agriculture sector development strategies that:

- *Ensure that within an agreed framework, investment in the sector is consistent, equitable, and relevant;*
- *Encourage dialogue between stakeholders, including national and state governments, private sector businesses, civil society agencies, and farmer groups;*
- *Focus attention on the reality that agriculture is based on traditional farm systems;*
- *Recognize that significant commercial production comes from traditional agriculture;*
- *Bring rural communities into the decision making process, encouraging greater self reliance, responsibility and local level initiative for the development of agriculture;*
- *Develop both extension and research services that respond to the different needs of traditional and commercial farmers;*
- *Encourage civil society participation in extension delivery on a contractual basis;*
- *Recognize market opportunities in import substitution, and local and regional exports;*
- *Allow the private sector to devise realistic strategies for each market segment;*
- *Ensure that the private sector is fully responsible for supplies of farm inputs;*
- *Encourage the provision of sustainable financing for commercial farming; and*
- *Ensure environmentally sustainable production.*

The mission statement for the agriculture sector is:

“The agriculture sector, including forestry, shall provide: (i) food security, cash income, and healthy livelihood; and, (ii) opportunities for domestic and export markets, while promoting environmentally sustainable production within a stable and consistent policy framework”.

The Draft Strategic Goals and Policies for the agriculture sector are:

Strategic Goal 1: A well resourced and properly focused agriculture sector consistently operating within a stable policy framework.

Supporting Policies:

- *Adherence to an agreed policy framework based on solid information*
- *Allocation of an equitable Government budget share to agriculture*
- *Equitable allocation of Government agriculture budget between staff salary-related costs and operating expenses*
- *Delivery of effective education to rural population*
- *Raising the image of agriculture as a worthy and satisfying career choice*

This Strategic Goal provides a consistent vision and adequate productive investment that benefits farmers and their families, and not government staff. Agriculture receives inadequate funding and existing funds are largely unproductive, i.e., expenditure is ineffective in helping traditional farmers. Compact II funding levels and restrictions on uses will result in reduced Government budget resources. Thus, greater efficiency and productivity of Government expenditures will have to be achieved.

The agriculture sector has lacked a consistent vision. Policy advice has tended to favor commercial, market-oriented approaches (both export and import substitution at various times) and has paid too little attention to the realities of the sector—that it is substantially based on traditional agriculture and that the states have different needs constraints and opportunities – especially Chuuk. Future agriculture policy must reflect the expressed needs of those who rely on the sector for food, livelihood, and employment. Future investments must directly benefit them.

Policy and investments are made in relative isolation, with little or no data, and without reference to the needs and priorities of either rural communities or the private sector. The norm for investment in agriculture has been single solutions

based on large government expenditure. But most such investments have failed and have tended to either ignore or overwhelm small, traditional farmers. The major share of expenditure is on agriculture staff that are perceived by farmers to be ineffectual in providing assistance because they offer little of relevance to them or their families. Agriculture successes in recent times (in kava and betel nut production) have been achieved despite Government involvement in the sector, not because of it.

Strategic Goal 2: To increase production of traditional farming systems for home nutritional and traditional needs, and cash incomes.

Supporting Policies:

- *Improved outputs and profitability from traditional farming systems*
- *Development of a flexible extension service specifically designed to deliver quality services to traditional farmers*
- *Elimination of Vitamin A deficiency among the FSM population*
- *Development of a more focused household food security strategy for agriculture in Chuuk*
- *Replacement of some imported foods with local product*
- *Adequate investment in border protection and agricultural quarantine*

This Strategic Goal aims to: (i) focus specifically on the farm family; (ii) differentiate services, especially extension services, between traditional and commercial agriculture; (iii) highlight the need to offer support services at the community level where extension will be effective; (iv) employ agencies best equipped to deliver such services – not necessarily from inside the government; and (v) ensure that closely related aspects of traditional agriculture such as quarantine and nutritional health are seen as part of the same goal.

Strategic Goal 3: Increased volumes of saleable surpluses to be placed into local and regional markets by the private sector.

Supporting Policies:

- *Establishment of regular dialogue between stakeholders (Government, private sector and growers)*
- *Recognition of the separate roles of stakeholders*
- *Encouragement of niche commercial crops for import substitution and export*

- *Manage the coconut industry for the benefit of both producers and processors*
- *Differentiate extension services between commercial and traditional farmers*
- *Develop small-scale agriculture/food production units and industries*

This Strategic Goal aims to ensure that: (i) the role of the private sector in market development is realized; (ii) there is recognition of the need to hold dialogues between all market stakeholders; (iii) there is a focus on small incremental gains from niche markets which will build confidence among all stakeholders, especially farmers, to whom improved status and recognition are important needs; (iv) the potential of selected commodities, such as coconut, for value adding is captured.

In any successful marketing environment, each stakeholder will recognize its particular role. Some niche markets already exist. There are opportunities to leverage the FSM image of a clean and green environment where food can be produced without concerns about contamination. Niche markets can also be tapped for import substitution. A community of farmers could agree to produce to replace a share of the market of some imported fruit and vegetables.

Strategic Goal 4: Promote environmentally sound and sustainable production.

Supporting Policies:

- *Establish effective mechanisms to control invasive species*
- *Discourage slash and burn farming/deforestation*

The FSM's limited land resources and fragile ecosystems should not be left to casual methods of environmental protection given the rapid deterioration that can result from inappropriate production practices. The causes and effects of environmental decline are often not immediately understood by resource users. For those striving to make a living, the issue may not be a priority. As proven in a number of programs, a community-based approach focusing on resource users through education and appropriate support services can yield results. The policy is aimed at a pro-active and integrated approach to addressing environmental sustainability.

8.7 Agriculture Sector Growth Projections (2005 – 2023)

Growth scenarios for agriculture have been calculated, demonstrating that the sector could make significant contributions to economic growth if it were provided with appropriate support and direction. In the average growth scenario over the period from 2005-2023, subsistence agriculture is expected to grow by 3.3% per annum, agriculture exports by 13.3%. Eighty two per cent of the readily replaceable food imports will be locally produced. The average growth scenario assumes a population growth of 0.5%. In addition, there is an expectation that a higher proportion of the population will go back to traditional agriculture, and a higher productivity from traditional agriculture will result from the implementation of the Agriculture Sector Matrix. Export receipts are expected to grow as a result of improved extension services to commercial farmers, and a greater focus on niche markets and increases in food processing. In the average growth scenario, coconut crop potential is captured by moving to oil extraction. Import substitution of readily replaceable products is achieved, and there is some tourism growth — averaging 1.5% annually.

In the high growth scenario, subsistence agriculture is expected to grow by 9.6% per annum, exports by 33.5%. Ninety seven per cent of the readily replaceable products will be locally produced. With enthusiastic and full support for the policies and strategies recommended, including the full collaboration of stakeholders, this scenario is achievable.

In the low growth scenario subsistence agriculture is expected to grow by 1 per cent per annum, exports by 3.6% and 59% of the readily replaceable products would be locally produced. A continuation of current policies, resource allocations and governance standards, will result in this rather dismal scenario.

8.8 Agriculture Infrastructure Investment Needs

An Infrastructure Development Plan (IDP) for FSM was prepared in 2002 to address anticipated needs for the period 2003-2017. While the IDP addresses the infrastructure needs of the private sector in general, it makes no specific mention of agriculture, except that for secondary rural roads. In fact there is \$250 million earmarked for investment in roads. Additional investments in agriculture that should be considered, in addition to that contained in the IDP, is infrastructure for quarantine (\$1,040,000), additional market infrastructure (\$120,000) and coconut oil extraction facilities in the outer islands (\$180,500).