FRESH PRODUCE DEVELOPMENT AGENCY

STRATEGIC PLAN

2010 - 2030

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A Strategy for the Horticulture Industry to Move Forward

August 2009

Abbreviations

AIDS	Acquired Immunodeficiency Syndrome
AIS	Agricultural Innovation System
APEC	Asia-Pacific Economic Cooperation
ARDSF	Agricultural Research and Development Support Facility
AR4D	Agricultural Research for Development
AusAID	Australian Agency for International Development
DNPM	Department of National Planning and Monitoring
FAO	Food and Agriculture Organization of the United Nations
FPDA	The Fresh Produce Development Agency Limited
FPDC	The Fresh Produce Development Company Limited
GDP	Gross Domestic Product
GoPNG	Government of Papua New Guinea
HDI	Human Development Index
HIV	Human Immunodeficiency Virus
ICCC	Independent Consumer and Competition Commission
ICT	Information and Communication Technology
IMS	Information Management System
IPA	Investment Promotion Authority
IRC	Internal Revenue Commission
ISP	Institutional Strengthening Project (New Zealand AID)
K	Kina
LNG	Liquefied Natural Gas
M&E	Monitoring and Evaluation
MDG	Millennium Development Goals
MDP	Market Development Project
MFVP	Marketing Fruit and Vegetable Project
MSG	Melanesian Spearhead Group
MTDS	Medium Term Development Strategy
NAC	National Agriculture Council
NADP	National Agriculture Development Plan
NAQIA	National Agriculture Quarantine and Inspection Authority
NARI	National Agricultural Research Institute
NARS	National Agricultural Research System
NDAL	National Department of Agriculture and Livestock
NGO	Non-Governmental Organization
NRI	National Research Institute
NSO	National Statistical Office
PDAL	Provincial Division of Agriculture and Livestock
PIF	Pacific Islands Forum
PITIC	Pacific Islands Trade and Investment Commission
PIP	Public Investment Project
PNG	Papua New Guinea
POM	Port Moresby
SPARTECA	South Pacific Trade and Economic Cooperation Agreement
SPC	South Pacific Community
SPS	Sanitary and Phytosanitary
UN	United Nations
UNITECH	University of Technology
VEW	Village Extension Worker

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Foreword

It is my greatest pleasure to introduce to our valued clients and stakeholders, our corporate plan, which in essence is Fresh Produce Development Agency's (FPDA) strategy to move the fresh produce industry forward starting 2010. It is essentially aimed at assisting the government in achieving its development goals for Papua New Guinea.

Fresh Produce Development Agency Limited (FPDA) is a semi autonomous government agency established under the PNG Companies Act to develop a commercially viable and sustainable horticulture industry for Papua New Guinea. It is a small organization with a large mandate because it is tasked to develop an economic sub-sector that addresses the socio-economic livelihoods of more than 70% of the country's population. By investing in FPDA and the fresh produce industry, the government will significantly increase equitable distribution of wealth leading to increased Human Development Indicators for the country.

FPDA will do this by improving the efficiency and productivity of female and male farmers and other enterprises along the value chain. Our modus operandi is to focus our attention on players along specific value chains for the various domestic markets by building innovative production, processing and post harvest and marketing technologies and systems which will be used as a springboard to enter the stringent export markets in future.

The corporate plan through its six thematic program areas, will position the fresh produce industry to collectively address current and emerging global, regional and national issues and opportunities through innovative partnership arrangements with the public and private sectors.

The key challenges are infectious diseases such as HIV/AIDS, social issues including malnutrition and food insecurity, gender inequity, law and order, economic and climatic change that is affecting biological productivity of horticultural crops. The opportunities for which this plan wishes to address are due to increase in consumer demand for food crops as a result of the increasing urban population, the anticipated increased economic activities from development of mineral and petroleum sectors, the emerging tourism industry and finally the emerging niche export markets for specific crops which PNG has comparative advantage and organically grown produce for which a large international market exist. These challenges and opportunities will continue to influence our programs, projects and annual operational plans over the corporate period.

It is my hope that FPDA can significantly contribute to the improvement of livelihoods of 70% of the population in PNG who depend to a large extent on the food crop sub-sector for their sustenance and livelihoods through effective implementation of this corporate plan and the accompanying thematic program and project plans. Ultimately, this will make FPDA a worthy development agency and partner that can be counted on by the government and the international development agencies respectively, to deliver on their development goals and priorities.

Fabian Chow (Mr)
Chairman-FPDA Board of Directors

Executive Summary

The Fresh Produce Development Agency (FPDA) is a public corporation responsible for the development of the horticulture and fresh produce industry from production to marketing. It originated from the Marketing Fruit and Vegetable Project (MFVP), which was set up in 1986 to collate and disseminate market-related and technical information on fruit and vegetables. The project evolved into the Fresh Produce Development Company Limited (FPDC) which was registered under the Companies Act in 1988. The FPDC's mandate was to focus on information dissemination on fruit and vegetable production, identification of constraints to industry growth, to assist with technical information, to provide advice on improving the fruit and vegetable industry and help PNG achieve self-sufficiency in production and processing. Although FPDC changed its name to FPDA in 2005, it has retained its status as a public corporation.

FPDA's last corporate strategic plan was for the period 2005-2008. There was, therefore, a need to formulate a new corporate plan.

The Strategic Planning Framework and Process

The strategic planning framework was based on the Agricultural Research for Development (AR4D) concept derived from the Agricultural Innovation System (AIS) paradigm. Innovation systems thinking suggests that research and development organizations ought to be aligned to sub-sector, sector and ultimately, national development goals. The approach recognizes that achievement of people-level impact takes complex organisational and developmental processes, including interdisciplinary team work, partnerships, integration of technological, institutional and policy solutions and participatory processes.

This strategic plan was formulated through an action learning and participatory process comprising four stakeholder workshops, environmental analysis, synthesis and drafting of the strategy document, and endorsement by stakeholders. The workshops were attended by representatives of the board, senior management of FPDA and such other stakeholders as farmers, traders, processors, wholesalers, research and development institutions and relevant government departments.

Operational Environment

Papua New Guinea's national and sectoral development objectives are contained in the Medium Term Development Strategy (MTDS 2005 to 2010) and the National Agriculture Development Plan (NADP, 2007-2016). The MTDS recognises the importance of the primary sector, including agriculture, as the key driver of economic growth. Both the MTDS and the NADP promote the economic production of fresh produce for domestic consumption and export that would see PNG become a major regional supplier of fruit and vegetables. In addition, PNG recognises the need for the country to have food and nutrition security. This cororate plan is aligned to these national and sectoral development objectives as well as the Millennium Development Goals (MDG).

The main challenges facing the fresh produce and horticulture industry include pests and diseases, the high price and/or shortage of chemicals, fertilizer and seed, bad weather, a shortage of labour, poor security and lack of record keeping, high postharvest losses, limited access to cool chain facilities and poor transport. The marketing system is purely domestic, largely informal, with the needs of the top end of the market being met mostly from imports.

The approach for the horticulture industry should be to focus on developing quality assurance and marketing systems and infrastructure for the domestic market as a springboard for export markets. This can be achieved through a competent, highly motivated and responsive FPDA and strong industry institutions.

Vision, Mission and Values

The Vision of FPDA is:

Food and nutrition secure and prosperous communities in Papua New Guinea

The Mission of FPDA is to:

Maximize the efficiency and productivity of female and male farmers and others in the value chain to enhance development of a commercially and economically viable and sustainable horticulture industry.

FPDA is guided by six core values of service, sccountability, ownership, excellence, motivtion and teamwork.

Organisational Goal, Purpose and Outputs

Goal:

Improved food and nutrition security, quality of life, incomes and business opportunities for farming communities and others who depend on the horticulture industry

Purpose:

I***mproved efficiency and productivity of female and male farmers and others in the value chain and a commercially and economically viable and sustainable horticulture industry.***

Outputs:

FPDA's organisational purpose will be achieved through delivery of six corporate level outputs. These outputs inform and are equated to the six thematic program areas and their corresponding objectives.

Thematic Program Area 1: **Productivity Improvement**
Thematic Objective 1: Improved and sustainable productivity along the value chain

Indicators:

Enhanced efficiencies along the value chain; reduced production costs of horticultural products and services; enhanced natural resource base; resilient institutions and labour markets; competent and continuously learning actors.

Strategies:

Optimize resource utilization and sustainability through targeted research, extension, capacity building and brokering relationships

Thematic Program Area 2: **Scaling of Production and Supply**
Thematic Objective 2: Competitive scale of production and supply

Indicators:

Economies of scale along value chain; Increased consumer satisfaction along the value chain; Increased import substitution and value of exports; competitive value chain established.

Strategies:

Mobilisation of production and supply units to attain economies of scale through innovations in technology, resourcing and cooperative ventures.

Thematic Program Area 3: **Marketing Systems**
Thematic Objective 3: Vibrant, Efficient and Effective Marketing Systems

Indicators:

Supply chain responsive to market demands (volume, quality, consistency, variety and timeliness); domestic and export markets supplied and meeting consumer needs timely; cost effective and smooth flow of produce along value chain; increased value addition and product diversification (postharvest and downstream processing); Increased entrepreneurial activities by female and male farmers and other players along value chain; improved and coordinated formal and informal marketing chains.

Strategies:

Research and development in markets and marketing systems, and dissemination of real-time market information.

Thematic Program Area 4: **Information Management, Communication and Outreach**
Thematic Objective 4: Effective Information Management, Communication and Out reach

Indicators:

Improved access to information by players along the value chain; Increased awareness of horticulture production and industry issues; Informed decision making at all levels of horticulture industry and in institutions; increased adoption of technologies; improved image of institutions among the public.

Strategies:

Provide a responsive synthesis and supply of information and knowledge products and services to enhance decision making at all levels.

Thematic Program Area 5: **Enabling Legal and Policy Environment**
Thematic Objective 5: Enabling Legal and Policy Environment Influenced

Indicators:

Vibrant national policy forum for the horticulture industry; number and types of issues addressed; active participation and contribution to international fora.

Strategies:

Research and advocacy for informed policy formulation and regulatory oversight.

Thematic Program Area 6: **Institutional Capacity Strengthening**
Thematic Objective 6: Enhanced Capacity of FPDA and other Horticulture Industry Institutions

Indicators:

Good governance and leadership; increased responsiveness to stakeholder needs; performance-based culture; resource allocation aligned to organizational objectives; systems and processes aligned to organisational objectives; the organizational structure and institutional arrangements are aligned to organizational objectives.

Strategies:

Facilitate capacity building through action research and organizational learning, and capacity for brokering strategic multi-sectoral and multi-stakeholder partnerships.

Implementation and Management of the Corporate Plan

(i) Institutional Arrangements

The general manager will be responsible for implementing this strategic plan, with oversight from the Board. Implementation will be through thematic program leaders who will be responsible for planning each thematic program to identify projects. In turn, project leaders will prepare detailed projects under each program. FPDA will work with a range of partners along the value chain as appropriate. The organisational structure of FPDA will be aligned with the purpose and thematic objectives.

(ii) Monitoring and Evaluation

FPDA will develop a set of performance indicators based on the generic indicators of success identified for the goal, purpose and thematic objectives.This will require baseline studies and trend analysis in order to formulate quantitative, qualitative and time bound performance indicators to monitor progress towards achievement of purpose and thematic objectives a eventually assess people-level impact. The performance indicators will be used to design an impact assessment framework for the goal and a monitoring and evaluation framework that the general manager will use to track indicators of success for the purpose and delivery of thematic outputs necessary and sufficient to achieve the purpose.

(iii) Resourcing the Strategic Plan

The implementation of the corporate plan will need an adequately resourced FPDA and its partners. The funding requirements of the strategic plan will be determined after the formulation of thematic programs and their respective projects. Resource mobilisation will be through core funding, specific program/project funding, partner contributions and leveraged funds. These funding approaches will be facilitated by the innovation systems paradigm which requires that many stakeholders participate in delivering people-level impact.

1. Introduction

1.1 Outline of the Corporate Plan

This document is the corporate plan for the Fresh Produce Development Agency (FPDA) for the period 2010-2030. The document covers the origins and history of FPDA; the need for corporate planning; the corporate planning process; the development context; the vision, mission and values; the organisational goal, purpose and thematic program areas and their objectives and strategies; and the implementation and management of the corporate plan. The results framework summarises the goal, purpose and thematic objectives, with their corresponding indicators of success, important assumptions and implementable strategies.

1.2 Origins and History of the Fresh Produce Development Agency

The Fresh Produce Development Agency (FPDA) originated from the New Zealand funded Marketing Fruit and Vegetable Project (MFVP). This was a Public Investment Project (PIP) which focused on collation and dissemination of market related and technical information on fruit and vegetables. MFVP evolved into the Fresh Produce Development Company Limited (FPDC) and was registered under the Companies Act in 1988. It started operating in 1989. FPDC's mandate was to focus on information dissemination on fruit and vegetable production, identification of constraints to industry growth, provision of technical information and advice on improving the fruit and vegetable industry, and help PNG achieve self-sufficiency in production and processing.

Contrary to the original plan, FPDC was not dissolved after five years but instead assumed NDAL's role of the extension services and the Regional Horticulture Program and the Food Processing Preservation Unit at Unitech, Lae in 1996. Despite all these developments, FPDC's status remained as a PIP, making its recurrent funding position somewhat tenuous. It was put on the recurrent budget of the PNG Government in 2002, while its emphasis on marketing was restored in 2003. New Zealand has continued to fund specific projects.

FPDC created the Commercial Services Division (CSD) to earn revenue by focusing on potato seed production, and other potential revenue generating projects to supplement the annual government funding allocation which was considered to be insufficient to adequately implement its various programs. The projects and programs allocated under CSD did not operate wholly in a commercial sense and hence were not viable. Moreover, FPDA's engagement in these activities appears to put it in apparent direct competition with its private sector development partners.

This necessitated a change of name to Fresh Produce Development Agency in 2005 to signal to its stakeholders that it would not only focus on revenue generation, but would also develop the industry as originally intended. In recent years, the development of market infrastructure such as cold stores and bulking facilities has become an integral component of FPDA's work, although the market information function remains a major activity.

1.3 The Need for Corporate Planning

FPDA's last corporate strategic plan was for the period 2005-2008. There was, therefore, a need to formulate a new corporate plan. The corporate plan is the first level of organisational planning. It ends by identifying the necessary and sufficient programs to achieve the purpose that will enable FPDA to make a significant contribution to the goal. It will be supported by lower level planning to formulate programs and their projects.

2. The Corporate Planning Framework & Process

2.1 The Corporate Planning Framework

The corporate planning framework was based on the Agricultural Research for Development (AR4D) concept (Mbabu and Ochieng, 2006) which is derived from the Agricultural Innovation System (AIS) paradigm (Rajalahti et al, 2008). The AR4D perspective puts the needs of farmers and other actors along the value chain first, providing a frame work for a holistic approach to livelihood needs. The concept focuses on outcomes that positively impact farmers and other value chain actors. It requires a switch from a supply-driven, input-oriented and usually bio-physical research and development emphasis, to the development of a more balanced approach that understands the real needs of farmers and other value chain actors.

The innovation system paradigm ensures that a research and development institution's programs are aligned to sub-sector, sector and ultimately, national development goals. It also embraces the value chain concept. Value chain analysis recognises that all players that are involved in a particular production sector, from the producer to the consumer, may create and derive some value as transactions take place. Such an analysis helps to show that any change in one part of the chain may have a profound effect on another part, which may be far removed and seemingly unrelated.

The institutional arrangements that would best deliver people-level impact are complex. This includes interdisciplinary and participatory approaches, teamwork and partnerships, focusing on broader development goals as opposed to mere increases in productivity. Responses mustinclude social and economic aspects that integrate technological, institutional and policy solutions along the value chain if development impact is to be achieved. Strategic planning is a value-based transformational process in which the chosen paradigm shapes the vision and mission of the institution to which the programs identified in the strategic plan should contribute.

2.2 The Planning Process

The corporate planning was conducted through an action learning and participatory process comprising four stakeholder workshops, environmental analysis, synthesis and drafting of the corporate document and endorsement by stakeholders. The workshops were attended by representatives of the board and senior management of FPDA and other stakeholders such as farmers, traders, processors, wholesalers, research and development institutions and relevant government departments.

The stakeholders defined the vision, mission, core values and the results framework necessary to achieve the mission in pursuit of the vision. The results framework comprises the organisational goal and purpose, thematic programs and their objectives, and the key indicators of success that will be used to assess system-level impact and achievement of purpose and monitor implementation of the corporate plan.

3. The Development Context

Papua New Guinea's national and sectoral development objectives are contained in the Medium Term Development Strategy (MTDS 2005 to 2010) and the National Agriculture Development Plan (NADP, 2007-2016). The MTDS recognises the importance of the primary sector, including agriculture, as the key driver of economic growth. Both the MTDS and the NADP promote the economic production of fresh produce for domestic consumption and export that would see PNG become a major regional supplier of fruit and vegetables. In addition, PNG recognises the need for the country to have food and nutrition security and is committed to the Millennium Development Goals (MDG). This corporate plan is aligned to these national and sectoral development objectives as well as the MDG, inherent of the AR4D framework that guided FPDA in its planning.

The agricultural sector sustains the livelihoods of 85% of the country's population of 6.6 million people and provides employment to 80% of the labour force, while contributing about 27% of Gross Domestic Product (GDP). Locally produced food, mainly fresh produce, accounts for about 85% of the national population's food requirements. While the mineral and petroleum sectors comprise the bulk of the country's GDP, this has a positive impact on the development of the horticulture industry through increased consumption of fruit and vegetables, investment in productive physical assets such as roads and airports and improved social services. Demand for horticultural products is set to increase as the population grows.

The fresh produce and horticulture industry value chain can be categorized into three segments, namely primary farm production, postharvest and marketing. The main challenges faced by the primary production segment include pests and diseases, the high price and/or shortage of chemicals, fertilizer and seed, bad weather, a shortage of labour, poor security and lack of record keeping. There is, therefore, a need for increased farmer skills training, extension and technology development. The postharvest segment is characterized by high losses due to minimal cleaning of produce, lack of grading, in appropriate packaging materials, limited access to cold chain in the transport and storage facilities, non-customised transport and poor feeder roads in some producing areas.

The domestic markets are dominated by largely informal open markets, albeit with a growing and more discerning formal market through wholesalers and supermarkets. PNG has to meet some of the needs of the top end of the market from imports. There is no active export market for fruit and vegetables from PNG. The approach for the horticulture industry should be to focus on developing quality assurance and marketing systems and infrastructure for the domestic market as a springboard for export markets. This can be achieved through a competent, highly motivated and responsive FPDA and strong industry institutions.

4. Vision, Mission & Values

4.1 Vision

The Vision of FPDA is:

Food and nutrition secure and prosperous communities in Papua New Guinea

4.2 Mission

The Mission of FPDA is to:

Maximize the efficiency and productivity of female and male farmers and others in the value chain to enhance development of a commercially and economically viable and sustainable horticulture industry

4.3 Core Values

FPDA is guided by six core values of service, accountability, ownership, excellence, motivation and teamwork.

Service

We consistently engage with female and male farmers and other clients along thevalue chain, responding to their needs for quality service with respect and dignity.

Accountability

We commit to conduct ourselves in a transparent and honest manner in all our business dealings and to be accountable to our stakeholders for the correct use of resources and delivery of results.

Ownership

We uphold and respect the right of all stakeholders to enjoy ownership of FPDA programs and equal access to opportunities to participate in and benefit from the development of the horticulture industry regardless of age, gender and HIV status.

Excellence

We diligently seek innovative solutions to the challenges of the horticulture industry, strive to do our best always and focus on results.

Motivation

We are committed to providing an environment for highly motivated staff and other value chain players, availing opportunities for continuous learning.

Teamwork

Our method is teams. Therefore, we believe in working with all stakeholders in the horticulture industry, building innovative institutional arrangements and partnerships for the benefit of all value chain players.

5. Organisational Goal, Purpose & Thematic Program Areas & Objectives

5.1 Organisational Goal

FPDA will make a significant contribution to:

Improved food and nutrition security, quality of life, incomes and business opportunities for farming communities and others who depend on the horticulture industry.

5.2 Organisational Purpose

The Purpose of FPDA is:

Improved efficiency and productivity of female and male farmers and others in the value chain and a commercially and economically viable and sustainable horticulture industry The indicators of success for the purpose are an industry that is able to meet the needs of different consumers in the domestic and export markets; farmers and other value chain actors who are able to sell what they produce; competitive pricing of horticulture products; profitable horticulture enterprises; improved resource use efficiency along the value chain; and resilient institutions and labour markets.

5.3 Thematic Program Areas, Objectives and Implementable Strategies

FPDA's organisational purpose will be achieved through six thematic program areas and their corresponding objectives and implementable strategies.

5.3.1 Thematic Program Area 1: Productivity Improvement

Thematic Objective 1: Improved and sustainable productivity along the value chain

Productivity is defined as output per given input or factor efficiency. It applies along the different segments of the value chain from the farm to the market. Improved productivity should result in reduced production costs along the value chain, one of the major factors in determining the country's comparative advantage. The aim is to ensure that farmers and other actors produce efficiently in a sustainable way. To ensure that increased productivity is sustainable, it is necessary to have resilient institutions, competent and continuously learning players and stable labour markets.

Strategies: Optimize resource utilization and sustainability through targeted research extension, capacity building and brokering relationships

5.3.2 Thematic Program Area 2: Scaling of Production and Supply
Thematic Objective 2: Competitive scale of production and supply

The ability of the horticulture industry to respond to opportunities on the domestic and export markets will depend on its ability to take advantage of its comparative advantage in meeting the needs of consumers.

This goes beyond improved productivity by individual farmers but looks at the whole sub-sector or aggregates of it, depending on the products. It requires that the industry players achieve economies of scale in order to reduce the unit cost of production, meet the needs of consumers, reduce imports of horticulture products, increase the value of exports and establish a competitive value chain. These conditions will be achieved by out-scaling and up-scaling production in order to appropriately organise the supply chain from production on the farm to consumption. In addition, attention will be focused on development of a market responsive supply chain.

Strategies:

Mobilisation of production and supply units to attain economies of scale through innovations in technology, resourcing and cooperative ventures

5.3.3 Thematic Program Area 3: Marketing Systems
Thematic Objective 3: Vibrant, Efficient and Effective Marketing System

The levels of income that farmers and other actors along the horticulture value chain can make depend on the efficiency and effectiveness of markets and consistent supply of high quality products. While efficient markets can exert a pull effect on production, it is necessary that the supply chain is ready to respond to the needs of the market. Therefore, development of efficient markets must focus on both marketing and production issues.

Marketing systems can be described as vibrant, effective and efficient when the supply chain is responsive to market demands in terms of volume, quality, consistency, variety and timeliness of delivery; domestic and export markets are well supplied, meeting customer needs in a timely manner; there is cost effective and smooth flow of produce along the value chain; and there is increased entrepreneurial activities along the value chain.

Strategies:

Research and development in markets and marketing systems, and dissemination of real-time market information

5.3.1 Thematic Program Area 4: Information Management, Communication and Outreach

Thematic Objective 4: Effective Information Management, Communication and Outreach

Information management, communication and outreach are critical for effective functioning of all value chain actors as availability of accurate information is the basis for decision making and routine operations. The indicators of effective information management and communication include improved access to information, increased awareness of horticulture issues among stakeholders, informed decision making, increased technology adoption and improved image of FPDA and other institutions among the public. Information management comprises data collection, collation, analysis, interpretation, reporting and dissemination. It is a system of turning raw data into knowledge that can be acted on. Communication and outreach involve receiving and dissemination of information and knowledge. It is necessary that the information needs of both internal and external stakeholders are adequately met.

Effective information management, communication and outreach build trust and facilitate functional networking among stakeholders and value chain actors. As a research and development institution, FPDA is primarily in the knowledge business. Therefore, its main products are in form of information and the business is not concluded until the products, information and knowledge are effectively communicated to the various clients. The packaging of information must be customised for the different actors to derive maximum benefit out of it.

Strategies:

Provide a responsive synthesis and supply of information and knowledge products and services to enhance decision making at all levels

5.3.5 Thematic Program Area 5: Enabling Regulatory and Policy Environment

Thematic Objective 5: Enabling Regulatory and Policy Environment Influenced

The legal and policy environment at the organisational and industry levels should be supportive of the objectives of FPDA, partners and other value chain actors. In the past, legal and policy issues were considered to be out of bounds for research and development institutions. However, the research for development paradigm recognises this as a necessary component of the agricultural innovation systems. As a result, FPDA and its partners can influence the policies that give rise to certain legal and governance issues that can have a bearing on organisational and sub-sector performance.

As the enactment of laws and formulation of policies does not fall within the responsibilities of FPDA and its development partners, its role will be to ensure that the processes are appropriately influenced. The indicators of success in influencing policies include the establishment of a vibrant national policy forum, the number and type of issues addressed and active participation in international fora.

Strategies:

Research and advocacy for informed policy formulation and regulatory oversight

5.3.6 Thematic Program Area 6: Institutional Capacity Strengthening
Thematic Objective 6: Enhanced capacity of horticulture industry institutions

Achievement of the organisational purpose depends on an enhanced capacity of FPDA and other industry institutions. The indicators of enhanced institutional capacity include good governance and leadership, increased responsiveness to stakeholder needs, a performance-based culture and alignment of resource allocation, organisational structures and institutional arrangements to organisational objectives.

Strategies:

Facilitate capacity building through action research and organizational learning, and capacity for brokering strategic multi-sectoral and multi-stakeholder partnerships

6. Opportunities and Challenges

While the six thematic program areas are necessary and sufficient means to achieve our mission in pursuit of our vision; for the sake of clarity, we wish to list challenges and opportunities which we believe are of high relevance at this development stage of our corporate plan. We believe that they will remain relevant over this corporate period; however our plan is designed to allow for flexibility in accommodating any new opportunities and challenges that may arise in the very near future within the corporate phase.

At present, we perceive this list of opportunities and challenges as important to guide the focus of our program and project plans over the corporate phase.

6.1 Opportunities

- Increasing population growth of 2.7 percent per annum
- Increasing urban population and hence demand for food crops
- Increasing disposable income due to increasing developments in the mining and petroleum sector
- Increasing health and nutrition conscious population
- An emerging tourism industry
- Increasing consumer demand for organically grown food crops internationally
- Available windows of market opportunity for crops that PNG can have comparative advantage such as pineapple, lowlands pitpit (Sacharrum edule)
- The improvements in road, ports, transport and communication infrastructures
- Increasing realization by the government and international development agencies of the importance of the food crop sub-sector's importance in alleviating poverty and increasing food, nutrition and health statusPrice of local produce increasingly competitive against imported produce

6.2 Challenges

- HIV/AIDS and other infectious diseases
- Effects of climate change on production of food crops
- Deteriorating law and order issues
- Social issues associated with gender and age
- Malnutrition and health issues associated with diets and life styles
- Poor road, port and transport and marketing infrastructures
- Inefficient fresh produce value chain resulting in higher unit costs

- Declining soil fertility due to increasing population pressure and utilization of unsustainable production systems
- High costs of and poor access to agriculture inputs and supplies
- Low level of knowledge and skills of producers and other entrepneurs
- Poor agri-business skills and knowledge
- Relevant market information is lacking and difficult to access
- Difficult land tenure system
- Poor linkages between Research and Extension information and knowledge
- Lack of proper policy incentives for the horticulture sub-sector
- Changes in policy directions creating unstable policy environment
- High level of unemployment and diminishing employment opportunities
- Inequitable spread and distribution of national wealth

7. Implementation & Management of the Strategic Plan

7.1 Institutional Arrangements

The general manager will be responsible for implementing this corporate plan, with oversight from the Board. The general manager will implement the corporate plan through thematic program leaders who will be responsible for planning each thematic program to identify projects. In turn, project leaders will prepare detailed projects under each program. In addition to its oversight role, the board will be expected to make a significant input to the legal and policy environment thematic area.

The agricultural research for development paradigm recognises that the people level impact implied by the purpose and its thematic program objectives cannot be delivered by FPDA alone. Therefore, the general manager and the thematic program leaders will work with a range of partners along the value chain as appropriate. This means that, as the program leaders formulate the different programs, they will identify and involve relevant partner institutions and stakeholders. The organisational structure of FPDA will be aligned with the purpose and themat- ic objectives. This will facilitate interdisciplinary collaboration, team work and action learning within the organisation and among partners.

7.2 Monitoring and Evaluation

FPDA will develop a set of performance indicators based on the generic indicators of success identified for the goal, purpose and thematic objectives. This requires that FPDA conduct baseline studies and trend analysis in order to formulate quantitative, qualitative and time bound performance indicators to monitor progress towards achievement of purpose and thematic objectives and eventually assess people level impact. The performance indicators will be used to design an impact assessment framework for the goal and a monitoring and evaluation framework that the general manager will use to track indicators of success for the purpose and delivery of thematic outputs necessary and sufficient to deliver the purpose.

A participatory internal monitoring and evaluation system will be used to generate information to monitor implementation and results indicators and for action learning by FPDA and its partners. External mid-term evaluation and review of the corporate plan will be carried out half way into the third year, while an impact assessment will be conducted towards the end of year five.

7.3 Resourcing the Corporate Plan

The implementation of the corporate plan will need an adequately resourced FPDA and its partners. The funding requirements of the corporate plan will be determined after the formulation of thematic programs and their respective projects. Resource mobilisation will be through core

funding, internal revenue generation, specific program/project funding, partner contributions and leveraged funds. These funding approaches are facilitated by the innovation systems paradigm which requires that many stakeholders participate in delivering people level impact.

FPDA's core funding will continue to come from the Department of Treasury. The corporate plan will help to justify and argue for more resources in order to deliver the people level impact. Revenue generated from provision of commercial services such as sale of elite potato seeds and charging for services on potato seed certification will continue to make a contribution to FPDA's resources.

The thematic program leaders will formulate and mobilise specific funding for programs and projects from national, regional and international development partners. Sources of funding will include the Government of PNG public sector investment programs, private public sector partnerships, regional and international bilateral and multilateral donors, private foundations, response to requests for proposals from donors and the national private sector. Some of these funds may be used by FPDA through competitive grant systems.

Partner institutions will share resources by making financial and in kind contribu- tions for joint projects. In kind contributions will include technical expertise, staff time, research and training facilities at either reduced cost or no cost. Arrangements may be made with partner institutions who may share common interests and goals to use their own resources to independently implement projects and share results with FPDA.

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9. Annex I: FPDA Corporate Results Framework

Organisational Goal	Objectively Verifiable Indicators	Means of Verification	Important Assumptions
Improved food and nutritionsecurity, quality of life, incomes and business opportunities for farming communities and others who depend on the horticulture industry.	1. Number of households able to access a nutritionally balanced diet.	Department of Health Reports National Household Survey (National Statistics Office)	PNG Government and development partners recognise the agricultural sector as the driver of economic and rural development.
	2. Improved housing, water supply and health for horticulture farming communities.	Socio Economic survey every 3 years UN HDI Reports Bank of PNG Annual Bulletin	
	3. Increased per capita income for horticulture farming households.	Household income survey reports	
	4. Increased number of new business in the horticulture industry.	Investment Promotion Authority company registry records.	
	5. Increased employment opportunities in the horticulture industry for women, men and youth.	Horticulture Industry employment surveys	

Organisational Purpose	Objectively Verifiable Indicators	Means of Verification	Important Assumptions
Improved Efficiency and productivity of female and male farmers and others in the value chain and a commercially and economically viable and sustainable horticulture industry.	1. The horticulture industry is able to meet the need of different consumers in the domestic and export markets.	Horticulture industry reports Customer satisfaction survey reports Internal Revenue Commission Reports	Conducive business environment Politically stable and peaceful macro-environment.
	2. Farmers and other value chain suppliers able to sell what they produce. (market clearance)	Market Survey Reports	Consumers value horticulture products as an integral part of balanced nutrition,
	3. Competitive pricing of horticulture products.	Pricing Survey Reports	
	4. Profitable horticulture enterprise based on real costs	Socio Economic Reports	
	5. Improved Resource use efficiency along the value chain.	Productivity Survey Reports; Research Reports.	Demand for horticulture products remains high enough to encourage sustained investment into improved technologies.
	6. Resilient institutions and labour markets	Organisational review reports Department of Labour Reports	

Organisational Outputs(Thematic Objectives)	Objectively Verifiable Indicators	Means of Verification	Important Assumptions
Result 1: Improved and sustainable productivity along the value chain	1. Enhanced efficiencies along value chain.	Farm and industry productivity survey reports.	PNG Government and development partners recognise the agricultural sector as the driver of economic and rural development.
	2. Enhanced Natural resources base	Environmental Health Assessment Reports. Product quality and assessment reports	
	3. Resilient Institutions	Organizational review reports	
	4. Resilient Labour Market s	Department of Labour reports	
	5. Competent and continuously learning actors.	M & E reports Performance Appraisal	Partners willingly cooperate along the value chain. Adequate resourcing.

Result 2: Competitive Scale of production and supply	1. Economies of scale along horticultural value chain	M& E reports Socio-economic survey reports	Adequately resourced horticulture production system
	2. Increased consumer satisfaction along value chain	Consumer surveys	Macro-Economic conditions are favourable for consumers to afford horticulture products. Politically stable and peaceful conditions at local, provincial and national levels.
	3. Increased import and value of exports	Consumer reports	Policy interventions do not distort market forces.
	4. Competitive value chain established	Consumer price indices published by ICCC	Competition and Anti-monopolies laws functional.

Organisational Outputs (Thematic Objectives)	Objectively Verifiable Indicators	Means of Verification	Important Assumptions
Result 3: Vibrant, effective and efficient marketing systems.	1. Supply chain responsive to market demands (volume, quality, consistency, variety and timeliness)	Market survey reports	Farmers and other value chain players able to produce.
	2. Domestic and export markets well supplied and meeting customer needs timely.	Market survey reports- NSO and IRC reports	Domestic and export prices high enough to support producers
	3. Cost effective and smooth flow of produce along the value chain	Market Survey Reports	Transport services are priced competitively.
	4. Increased value chain addition and product diversification (post harvest and downstream processing)	Horticulture industry annual reports	Market responds favourably to new products.
	5. Increased entrepreneurial activities by female and male farmers and other players along the food chain.	Horticulture industry annual reports	Service providers support entrepreneurship development efforts.
	6. Improved and coordinated formal and informal marketing chains	Market Survey Reports	Legal and policy environment supports informal and forma; marketing systems.

Result 4: Effective information management, communication outreach	1. Improved access to information by players along the value chain.	Customer satisfaction survey reports	Macro-economic and social conditions support fair trade practices.
	2. Increased awareness of horticulture production and industry issues	FPDA Capacity assessment reports	
	3. Informed decision making at all levels of the horticulture industry and within institutions	Organizational and industry capacity assessment reports	
	4. Increased adoption of technologies	FPDA technology adoption survey reports	
	5. Improved image of institutions among public.	Stakeholder survey reports	

Organisational Outputs (Thematic Objectives)	Objectively Verifiable Indicators	Means of Verification	Important Assumptions
Result 5: Enabling regulatory and policy environment influenced	1. Vibrant national policy forum for horticulture industry	Resolutions and proceedings of forum	Policy makers and other stakeholders show interest in the horticulture industry
	2. Number and type of issues addressed	Resolutions and proceedings of forum Discussion papers	PNG remains in good international standing
	3. Active participation and contribution in international fora	Resolutions and proceedings of forum	Supportive political environment

Result 6: Enhanced capacity of horticulture industry institutions	1. Good governance and leadership	Capacity and performance audits Strategic/ Corporate plans	Supportive political environment
	2. Increased responsiveness to stakeholder needs	Stakeholders Satisfaction Survey Report	
	3. Performance based culture	Organisational capacity assessment report	High organisational capacities are achieved and efficient management systems and functional across all industry institutions
	4. Resource allocation aligned to organisational objectives	Organisational capacity assessment report	
	5. Systems and processes aligned to organisational objectives	Organisational capacity assessment report	
	6. The organisational structure and institutional arrangements are aligned to organisational objectives	Strategy monitoring and evaluation report	Board and management appreciate the significance of alignment of structure with thematic program areas.

10. Annex II: Principles of Implementation

Organisational Goal	Objectively Verifiable Indicators
Improved food and nutrition secure, quality of life, incomes and business opportunities for farming communities and others who depend on the horticulture industry	1. Number of household able to access a nutritionally balanced diet
	2. Improved housing, water supply and health for horticulture farming communities
	3. Increased per capita income for horticulture farming households
	4. Increased number of new business houses in the horticulture industry
	5. Increased employment opportunities in the horticulture industry for women, men and youth

Organisational Purpose	Objectively Verifiable Indicators
Improved efficiency and productivity of female and male farmers and others in the value chain and a commercially and economically viable and sustainable horticulture industry.	1. The horticulture industry is able to meet the needs of different consumers in the domestic and export markets
	2. Farmers and other value chain players able to sell what they produce (market clearance)
	3. Competitive pricing of horticulture products
	4. Profitable horticulture enterprises, based on real costs
	5. Improved resource use efficiency along the value chain

Organisational Outputs (Thematic Objectives)	**Objectively Verifiable Indicators**	**Implementation Strategies**
1: Improved and sustainable productivity along the value chain	1. Reduced production costs for horticultural crops 1. Enhanced natural resource base 2. Resilient institutions 3. Resilient labour markets 4. Competent and continuously learning actors	- Assess the needs of stakeholders for technologies - Develop a comprehensive research and development portfolio to address stakeholder needs - Increase the capacity for sustained adoption of technologies by farmers and others along the value chain - Increase the up-take of environmentally and socially sustainable farming and production practices along the value chain - Develop labour reducing technologies to mitigate the negative impacts of HIV/AIDS and gender dimension - Improve management and technical skills for industry players along value chain - Strengthen the research and extension competencies of FPDA and partners

2: Competitive scale of production and supply	1. Economies of scale along horticulture value chain 1. Increased consumer satisfaction along the value chain 2. Increased import substitution and value of exports 3. Competitive value chain established	- Develop market-responsive production and supply system - Set up productivity benchmarks for different processes and products along the value chain - Develop and implement out- and up-scaling production and supply models - Mobilise farmer groups and other actors along the value chain - Develop innovative models of financing the activities of different actors along the value chain - Develop and strengthen the capacity of FPDA staff and others to out- and up-scale

Organisational Outputs (Thematic Objectives)	Objectively Verifiable Indicators	Implementation Strategies
3: Vibrant, effective and efficient marketing systems	1. Supply chain responsive to market demands (volume, quality, consistency, variety and timeliness)	- Improve the availability of reliable market information - Promote the development of effective marketing infrastructure and transport systems - Promote value addition and product diversification - Set up a system of quality standards and regulatory framework for the formal and informal domestic market. - Promote the development of export markets - Strengthen market research, entrepreneurship and marketing skills among FPDA staff and others along the value chain - Conduct relevant market research
	2. Domestic and export markets well-supplied and meeting customer needs timely	
	3. Cost effective and smooth flow of produce along value chain	
	4. Increased value addition and product diversification (postharvest and downstream processing)	
	5. Increased entrepreneurial activities by female and male farmers and others along the value chain.	
	6. Improved and coordinated formal and informal marketing chains	

4: Effective information management communication outreach	1. Improved access to information by players along the value chain	- Develop an effective communication strategy - Develop and implement an information management system - Develop an effective outreach and extension system - Secure adequate information and communication technology equipment and software - Package and disseminate information and innovative technology equipment and software - Strengthen the capacity of personnel to competently run the information management, communication and outreach system
	2. Increased awareness of horticulture production and industry issues	
	3. Informed decision making at all levels of institutions and horticulture industry	
	4. Increased adoption of technologies	
	5. Improved image of institutions among the public	

5: Enabling regulatory and policy environment influenced	1. Vibrant national policy forum for horticulture industry 2. Number and type of issues addressed 3. Active participation in international fora 4. Recommendations by the for a influences change and environment	- Amend FPDA's constitution to support the development of an effective system of governance - Review FPDA's internal policies and regulations to ensure that they are supportive of its work - Advocate for the setting up of a Horticulture Industry - Authority to oversee and regulate the industry - Advocate for enabling market policies (input prices, tariffs etc) - Develop organisational and sub-sector gender and HIV/AIDS policies to facilitate mainstreaming of issues into programs - Strengthen capacity of FPDA and its partners to undertake policy analysis and socio-economic research - Strengthen capacity to engage with and influence policy makers - Advocate for the setting up of a horticulture industry policy forum

Organisational Outputs (Thematic Objectives)	Objectively Verifiable Indicators	Implementation Strategies
6: Enhance capacity of horticulture	1. Good governance and leadership 2. Increased responsiveness to stakeholder needs 3. Performance-based culture 4. Resource allocation aligned to organisational objectives 5. System and processes aligned to organisation 6. The organisational structure and institutional arrangements are aligned to organisational objective	- Align organisational structure of FPDA to the strategic plan - Develop transparent and accountable systems of governance for FPDA and horticulture industry institutions - Strengthen human resource policies and management systems, including staff performance appraisal, development and retention schemes. - Strengthen administrative and human resources policies and management systems, including staff performance appraisal, development and retention schemes - Design and implement relevant human resources learning and capacity building programs - Strengthen financial management and resourcing systems - Institutionalize planning, monitoring and evaluation in FPDA - Enhance the capacity of FPDA to develop and maintain partnerships - Strengthen FPDA's competency to integrate gender and HIV/AIDS dimensions into its programs - Strengthen horticulture industry institutions (farmer groups, transporters, wholesaler and retailer associations)

11. Annex III: Operational Environment for FPDA

1. Introduction

FPDA's operational environment comprises external and internal organisational factors. In general, FPDA has little or no control over the external environment, but has relatively more control over its internal organisational factors. The external environment includes the sectoral and national development objectives, PNG's socio-economic situation, the horticulture industry and different segments of the value chain. The internal environment entails institutional capacities in governance and leadership, operational and management systems, human resources management, financial management, program and service delivery, external relations and advocacy.

2. Papua New Guinea's National and Sectoral Development Objectives

PNG's Medium Term Development Strategy (MTDS 2005 to 2010) recognises the importance of the primary sector, comprising agriculture, forestry and fisheries, as the key driv- er of economic growth. MTDS aims to empower smallholders to mobilise their own resources for higher incomes by creating an enabling environment that will deliver higher rewards for productive effort. It also focuses on exploiting opportunities in the global market, which would see Papua New Guinea becoming a major regional supplier of fruit and vegetables. This calls for adoption of international best practices to meet the importing countries' quality standards and phytosanitary requirements. Papua New Guinea is well placed to capitalise on growing international demand for organically grown produce.

The Government of PNG's plans for the agricultural sector are contained in the National Agriculture Development Strategy, Horizon 2002-2012 and the National Agriculture Development Plan (NADP 2007-2016). Through the NADP, Government has made a long term commitment to invest about K92 million on the development of the horticultural industry over 15 years, starting in the year 2006. NADP's priorities for the development of the food and horticultural crops are to promote economic production for domestic consumption and export of crops where the country has comparative advantage; and downstream processing and value addition.

The PNG Food Security Policy (NDAL, 2000) recognises the need for raising levels of income and standards of living; improving the efficiency of production and distribution of all food and agricultural production; improving the condition of the rural population; and contributing towards the growth of the national economy and easing people from hunger.

This corporate plan is aligned to both sectoral and national development objectives as well as the Millennium Development Goals (MDG), inherent of the AR4D framework that guided FPDA in its planning.

3. Papua New Guinea's Socio-Economic Situation

3.1 Macro-Economic Situation

PNG is well endowed with significant reserves of oil, gas, gold, copper, timber, agri- cultural and marine resources. The agricultural sector sustains the livelihoods of 85% of the country's population and provides employment to 80% of the labour force, while contributing less than 20% of Gross Domestic Product (GDP). Agriculture contributes 14% of the country's foreign exchange earnings, largely reflecting the performance of the export tree crop sub-sector. Since the 1990s, mining and oil have become greater contributors to GDP, while the share of agriculture has been declining. The manufacturing sector contributes less than 10 percent of real GDP.

While revenue from current mineral and petroleum developments are projected to decline, the PNG economy will soon be receiving a boost from the Liquefied Natural Gas (LNG) Project. The LNG Project is expected to more than double PNG's GDP. The effects of this project will include increased consumption of products, including horticultural products, investment in productive physical assets such as roads and airports and improved social services. All these developments would favour the horticulture industry.

3.2 Health and Social Situation

The current population of PNG is estimated at 6.6 million, based on the year 2000 census and an annual growth rate of 2.7%. The population is expected to double by 2030. This will increase domestic demand for horticulture products and fresh produce.

Despite the performance of the resources sector, PNG's social development performance has fallen short of expectations. Current health, social and human development indicators leave a lot to be desired, when compared to less endowed countries in the South Pacific Region. For example, life expectancy at birth is 56 years, infant mortality is 55.2 per 1000 live births, adult literacy rate 57.3% of age 15 years and above and female adult literacy rate is 51%. In education, the rate of participation in primary education is improving, but it remains lower than in most other countries in the region. Although PNG does not exhibit the widespread abject poverty present in some developing countries, poor health and social indicators show that poverty is a real problem.

3.3 Food Security Situation

Food security exists when all people, at all times, have physical, social and economic access to sufficient, safe and nutritious food that meets their dietary needs and food preferences for active and healthy lifestyles (FAO, 1998). Food security in PNG is increasingly being defined in terms of food imports, particularly rice and wheat, although the levels of imports are not particularly high. Rural people consume an average of 24 kg of rice and 7 kg of flour per year. Imported foodstuffs provide about 17% of the total calories consumed by rural populations, with the balance being provided from locally grown fresh produce.

Therefore, the horticulture industry is a great contributor to food security.

Unlike in the past when rural communities were dependent on a narrow crop base, for example sweet potatoes in the highlands, food security has since improved due to an increased diversity of subsistence food sources and access to cash income with which to buy food when subsistence supplies are inadequate. However, malnutrition rates in PNG are considered to be high, principally as a result of seasonal shortages, dietary imbalances and occasional droughts. In 1997, the El Nino-associated drought resulted in up to one million people being given emergency food aid. The horticulture industry can make a significant contribution to ensuring national and household food security.

3.4 Contribution of the Horticulture Industry to the Economy and Food Security

The contribution of the horticulture sub-sector to national GDP is difficult to quantify because of the dominance of the subsistence and informal marketing systems. It is estimated that 4.5 million tonnes of energy foods are grown in PNG every year, equivalent to 0.85 tonnes for every rural person (Bourke, 2005). This production was valued at K2.8 billion in 2004.

The introduction of temperate vegetables in PNG in the early 1960s has dramatically transformed the rural subsistence economy. They have provided a nutritional supplement to the local food crops and alternative cash crops, in addition to the tradi- tional tree cash crops such as coffee, cocoa and copra. The growth in population, increased urbanization, expansion of the mining and petroleum industry, the growth of the hospitality industry and higher education institutions, has resulted in considerable demand for temperate fruits and vegetables. By the year 2000, the total value of the vegetable industry was estimated at K80 million (Kanua, 2000). However, there is a large informal market in this sub-sector which has not been quantified as yet.

4. The Horticulture Industry Value Chain

The fresh produce and horticulture industry value chain can be categorized into three segments, namely primary farm production, post-harvest and marketing.

4.1 Primary Farm Production

The main actors in the primary production segment include farmers and secondary players such as agricultural input suppliers, service providers, transporters, policy makers and financial institutions. Producers of fresh produce are classified into four categories: subsistence, semi-subsistence, semi-commercial and commercial growers.

Subsistence and semi-subsistence rural farmers account for 88% of the production for own consumption and sale, while institutions such as universities and schools account for 8% and all-year production individuals and groups account for 4%. More than 70% of the population is involved in semi-subsistence fresh produce pro- duction, selling over 40% of their produce. Semi-commercial farmers are making a transition to commercial production and mostly produce as individuals, with less than 20% belonging to a cooperative. They sell 80-90% of their production of fruits and vegetables. There are at least four commercial producers, mostly located in the Central Province and supplying the Port Moresby market. There are more than 200 input suppliers operating around the country, while extension, technical advice and marketing information are provided by public research, extension and development organisations (FPDA, NARI and DAL) and NGOs. Transporters move inputs to farming areas and produce from farms to the markets. Policy makers and financial institutions affect primary producers through policy decisions and provision of financial assistance.

The main challenges facing horticulture production include pests and diseases, the high price and/or shortage of chemicals, fertilizer and seed, bad weather, a shortage of labour, poor security, lack of record keeping and poor access to market information (FPDA, 2008). There is, therefore, a need for increased farmer skills training, extension and improved access to market information.

The profile of this segment implies potentially high transaction costs to reach individual producers and would require alternative ways of organising service provision and the supply system. Organising such farmers into cooperatives may be the way to go, while provision of extension services is moving towards the use of farmer- based approaches or village extension workers (VEW). Of late, there have been moves to improve access to market information through mobile telephony. These approaches need to be supported by action research and learning.

4.2 Post-Harvest

Postharvest handling deals with the treatment of fresh produce between the farm and the consumer. The number and types of actors depend on the type of commodity and distance of the farm from destined markets. The most common actors in a typical fresh produce post-harvest segment of the chain are semi-subsistence, semi- commercial and commercial farmers, air and sea freighters, trucking companies, public motor vehicle operators, supermarkets, markets, retailers, the hospitality industry, institutions, mines, processors and consumers. There is minimal processing of horticultural products in PNG, with only one notable processor who produces fruit wines, jams and dried fruits.

Post harvest handling is an important aspect of any value chain, particularly for fresh produce because of the highly perishable nature of the products. However, the horticulture sub-sector has tended to focus research and development efforts on primary production, paying little attention to postharvest handling processes (Choudhary, 2004). Considerable quantities of fruits and vegetables are wasted owing to improper postharvest operations and lack of processing. The horticulture industry is not regulated, as evidenced by lack of quality and food safety standards. The post-harvest practices used by farmers and middlemen traders are traditional and simple. These practices result in high losses of fresh produce and income for farmers, PNG's inability to significantly reduce imports and its failure to enter export markets.

Some of the specific challenges facing the postharvest segment include minimal cleaning of produce, lack of grading, inappropriate packaging materials, poor access to cold chain in the transport and storage facilities, non-customised transport and poor feeder roads in some producing areas. Transport-related losses of sweet potatoes can be as high as 22% (Pam, 2009). The absence of a horticulture council or authority to set industry standards is a major concern.

Opportunities exist for processing of fresh produce to increase market opportunities and minimize postharvest losses (Rolle, 2004). Without this intervention, farmers may get discouraged in seasons when supply is in excess of demand, resulting in marked wastage.

4.3 Marketing of Horticultural Products

4.3.1 Actors in the Marketing of Horticulture Products

The main actors in the marketing of horticulture products are the same as those in the postharvest segment and are involved in the buying, consolidation, sorting, grading, packaging, processing, storage, distribution and selling of fresh produce. Involvement of the different actors in the marketing segment depends on their location, accessibility to the market and logistics. Although men and women participate in horticulture production and marketing activities, women tend to play a bigger role in marketing, especially at open-air markets (FPDA, 2008). Therefore, the gender dimension should be considered when designing service provision.

The number of wholesalers has increased from six in 2003 to twelve in 2009 (Vinning, 2008). This is evidence of a maturing industry and increasing efficiency in the marketing chain (Bourke, 2005). Wholesalers consolidate pro-duce from farmers for forward sales to supermarkets, mining centers, institutions, hotels and restaurants. Although the exact volume of fresh produce consolidated and sold is not known, it is believed to be second to the volume of fresh produce sold to urban fresh produce open markets.

Retailers include supermarkets, urban markets, roadside sellers and small vendors. Papua New Guinea has about five large supermarket chains with branches in major urban centres of the country. They sell both local and imported fresh produce, require higher quality produce and greater consistency in supply.

They source their supply from wholesalers or directly from producers, especially peri-urban commercial farmers. Hotels, restaurants, caterers and fast food outlets are an emerging and growing market with increased growth in tourism (McGregor et al, 2003). Institutions such as schools, universities, prisons and military facilities are major buyers of local produce, especially from wholesalers, open markets or own production.

Urban open markets are the biggest outlet for local fresh produce because of their accessibility and the less stringent quality requirements (Martin and Jagadish, 2006). These markets are an integral part of the traditional business life in Pacific Island Countries, where many people commune and communicate on business matters. Sellers in these markets are often from surrounding local areas and districts. Where there is a good road and shippinglink, the produce sold in these markets may be sourced from outside the province. For example, the Lae, Madang and Port Moresby markets sell fresh produce from the Highlands because of good road and sea transport linkages.

4.3.2 Domestic Markets for Horticultural Products

The demand for fresh horticultural produce is increasing, largely due to increases in population growth, estimated at 2.7%. The total domestic demand for fresh produce, excluding coconut and sago, is estimated to be 585 kg per capita per annum (Gibson and Rozelle, 1998). With an estimated total population of 6.6 million, this translates to 3.861 million tonnes per annum. Consumption and supply levels are significantly higher in rural than urban areas.

PNG has a large and fast growing urban population, which requires an adequate supply of traditional staple crops (McGregor et al, 2003). With an estimated urban

population of about one million, the potential demand for horticultural products is 579,150 tonnes. Therefore, attention should be focused on production of traditional staples and vegetables for the domestic markets because of the country's comparative advantage in producing them.

There are many types of fruits and vegetables which are produced for the different markets in PNG. However, FPDA weekly market surveys monitor 43 vegetables and 16 fruits sold at eight open urban markets across the country. This does not include traditional fruits and vegetables and indigenous nuts. Vegetables of temperate origin such as potato, cabbage, carrots, and broccoli, among others, are grown in the highlands and sold in major low- land urban markets such as Port Moresby and Lae all year round. This has been facilitated by the development of the Highlands highway and a relatively good shipping service operating between Lae and Port Moresby. On the other hand, lowlands markets are being increasingly supplied with fresh produce either grown locally or in peri-urban areas close to the markets.

A recent study on the supply of horticultural products to Port Moresby showed that 50,000 tonnes of the capital's demand is supplied from peri- urban production, while 7,500 tonnes is either imported from abroad or comes from the Central Province areas with good road links (Vinning, 2008).

In terms of global and regional imports, PNG is a relatively insignificant importer of horticultural produce compared to Asian and some Pacific Island countries such as Fiji and New Caledonia. PNG has been importing most of its horticulture products from Australia and to a lesser extent, New Zealand, since the early colonial days. However, it does not feature prominently in the export statistics of Australia.

The value of PNG horticultural imports from Australia was around K17 mil- lion in 2002 (McGregor et al 2003). The largest single item was frozen potatoes (K3.8 million), closely followed by apples (K3.6 million) and onions (K2.4 million). Other significant items were peas in various forms (K1.7 million) and oranges (K1.1 million). The total volume of horticulture imports were: root and tuber crop imports - 2,870 tonnes valued at K7.1 million, vegetables - 800 tonnes valued at K4.3 million, fruit - 1,186 tonnes valued at K6.6 million.

These data show that, despite the 25-40% import tariff, PNG's domestic market is relatively open to imports of horticultural products, most of which are produced in the country. There is, therefore, an opportunity for PNG farmers and other actors along the value chain to supply the formal market with horticulture products, provided the quality and prices are competitive.

The role of FPDA is to facilitate this development by providing all value chain actors with market information and development of the supply and marketing systems.

4.3.3 Export Markets

Trade statistics show that PNG has no horticultural exports. This might be considered surprising given the superior agronomic conditions available for a range of fruits and vegetables. However, the absence of horticultural exports can be explained by an unfavourable fruit fly status which prevents export of fleshy fruits and vegetables; lack of information on PNG's comparative advantage in fruit and vegetable production; and the country's focus on export of traditional tree crop commodities (McGregor etal, 2003).

PNG is a member of a number of regional political and trading institutions and has bilateral agreements with several countries. Its memberships include the Asia Pacific Economic Cooperation (APEC), the Pacific Island Forum (PIF), South Pacific Trade and Economic Cooperation Agreement (SPARTECA), the Melanesian Spearhead Group (MSG) Economic Agreement and the South Pacific Community (SPC). As a member, PNG can get technical support from the Pacific Island Trade and Investment Commission (PITIC) to break into markets in the region, including New Zealand.

The implications of the challenges facing the domestic markets and existence of trade agreements and partnerships include the need for PNG to:

(i) develop production, quality assurance and marketing systems and infrastrture for the domestic market as a springboard for export markets;

(ii) focus on developing export markets for a few crops where the country enjoys comparative advantage, for example pineapple, pitpit, taro and ginger;

(iii) build capacity and systems to respond to global consumer demands for organically grown products, fare trade, food safety and affordable food prices in the face of reduced global supply; and

(iv) understand and develop systems to address quality and phytosanitary requirements of potential importing countries, focusing on Asian countries such as Singapore and Japan with relatively less demanding SPS regimes.

5. FPDA's Organisational Environment

5.1 Governance and Leadership

FPDA is wholly-owned by the Government of PNG, with the Departments of Agriculture and Livestock and Treasury holding equal shares in trust. Its constitution is registered under the Companies Act 1997. Oversight is provided by a nine-member board representing the two shareholder departments and stakeholder groups comprising commercial farmers, village farmers, women farmers, wholesalers, retailers, processors and manufacturers.

In a capacity needs assessment conducted in June 2007, FPDA scored very low on governance and leadership, indicating a need for urgent attention. The constitution of FPDA should be reviewed to address the tenure and competencies of board members, ensure representation of shareholder departments at senior level and define the respective roles of the board and management.

5.2 Operations and Management Systems

The organisational capacity needs assessment of June 2007 showed that operations and management systems needed urgent attention. The areas that need attention include accounting systems, asset management, changes to salary scales and terms and conditions of employment, a human resources development plan, a performance appraisal system, a communication strategy, an information management system (IMS), an operations manual and information and communication technology (ICT) systems and equipment. These shortcomings are being partly addressed with support from the New Zealand Aid-funded ISP.

FPDA has largely planned at the project level and occasionally at the program level. The organisation's management would like to institutionalize strategic planning, setting the framework for planning at the lower program and project levels. Similarly, monitoring and evaluation have been associated with reporting on donor- funded projects, with little if any attention paid to impact assessment. An M&E system that starts from the strategic level to programs and projects should be instituted.

Presently, FPDA does not have a system of job and task descriptions and performance targets, resulting in the confusion of roles and responsibilities, unnecessary overlapping and duplication of roles among officers and programs. The last corporate strategic plan (2005-2008) mixed strategic and program levels. The non separation of planning levels made it difficult to develop and implement performance based management and salary systems.

FPDA's core funding comes from the government, while project funding comes from the government, international and national development partners and internal revenue generation, particularly through the sale of seed potatoes and the market development project. The percentage composition of the annual budget is 60 percent from government, 35 percent from development partners and 5 percent from internal revenue generation, respectively. FPDA is shifting from dependence on government funding by increasing revenue from special projects and internal sources. Project funding from regional and international development partners increased from two projects in 2002 to six projects per annum in 2008. FPDA expects to mobilise significantly more funding with increased focus through this strategic plan.

5.3 Program and Service Delivery

5.3.1 Sectoral Expertise

FPDA's strength is in technical aspects of production. However, there is limited expertise in integrating production with marketing. As a result, extension has always been focused on production, with little attention to marketing issues. FPDA lacks expertise in post harvest management, marketing and marketing information. Similarly, there is limited expertise in helping farmers to scale production in relation to market requirements, socio-economic research and policy analysis and advocacy.

Planning, monitoring and evaluation have not been institutionalized in FPDA. Project management is weak and there has been no formal learning and capacity building in this area. This is an area that needs improvement across all levels.

Although there have been attempts to develop some capacity in gender, HIV/AIDS and youth, these issues have not been successfully mainstreamed into organisational policies and programs.

FPDA has an information and publication unit which produces a newsletter and other publications. However, this area needs improving by developing a communication strategy, an information management system and website, among other things.

5.3.2 Constituency Ownership of Programs

FPDA has had the greatest interaction with farmers in programming, but not so much with other value chain actors such as the private sector and other public sector stakeholders. Although there has been interaction with individual institutions at specific project activity level, this has not been main-streamed and coordinated. Delivery of people-level impact is going to take more coordinated interaction and industry-level ownership and participation in programs.

5.3.3 Past and Current Research and Development Efforts

FPDA's past and current research and development initiatives were organised on a project basis rather than by programs, although these were implemented through the three divisions of Corporate Services, Marketing and Infrastructure and Production and Supply.

Some of the notable projects include the following:

- The Institutional Support Project, funded by the New Zealand Government through New Zealand Agency for International Development, was designed to strengthen FPDA's capacity to implement its strategic plan

- Marketing and infrastructure development, including projects on the mobile telephone market information dissemination; the sweet potato marketing, post harvest and utilization; market research, postharvest research and development; market infrastructure; and market development

- Crop production, with projects on development of village extension workers; potato late blight management; sweet potato yield; fruit fly management; onion and ginger production; farmer groups development; seed potato production and mainstreaming of gender, HIV/AIDS and youth

5.3.4 Impact Assessment

There has been no history of conducting impact assessment of projects in FPDA. As a result, there is no capacity and skills for this function.

5.4 External Relations and Advocacy

FPDA is well known in nine provinces where it is currently providing services, including five provinces where it has branch offices. This is particularly the case in the Highlands where FPDA has maintained a heavy concentration of its activities. Knowledge of FPDA in the remaining ten provinces is limited.

There is interaction with the Departments of Agriculture and Livestock, Treasury and National Planning and Monitoring. All the three departments are represented on FPDA's board, and there is constant consultation with all three on budgets, policies and projects.

Extension services have now moved to provincial, district and commodity associations. With the implied drive on innovative partnerships, there should be increased interaction with more central government departments and local level government structures.

During the early years, FPDA actively collaborated with the private sector to address capacity building, wholesale marketing, post harvest, input supplies and production issues. Amongst all stakeholders, semi-subsistence farmers have remained the primary clients of FPDA. Recent attempts to engage the private sector players in the development of production and marketing systems, collation of data and capacity and systems development has been through the market development project (MDP). This project is responsible for coordination of the buying and selling of fresh produce between outlets in Port Moresby and Tabubil and Village Extension Workers (VEWs) and their contact farmers in the Eastern Highlands and Western Highlands. FPDA's collaboration with the private sector should increase to facilitate information flow along the value chain, development of domestic and export marketing systems and research to improve productivity and production along the value chain. Similarly, FPDA is collaborating with NGOs such as Volunteer Service Organisation, the Australian Volunteer Service and Community Base Health Center to implement a number of joint projects.

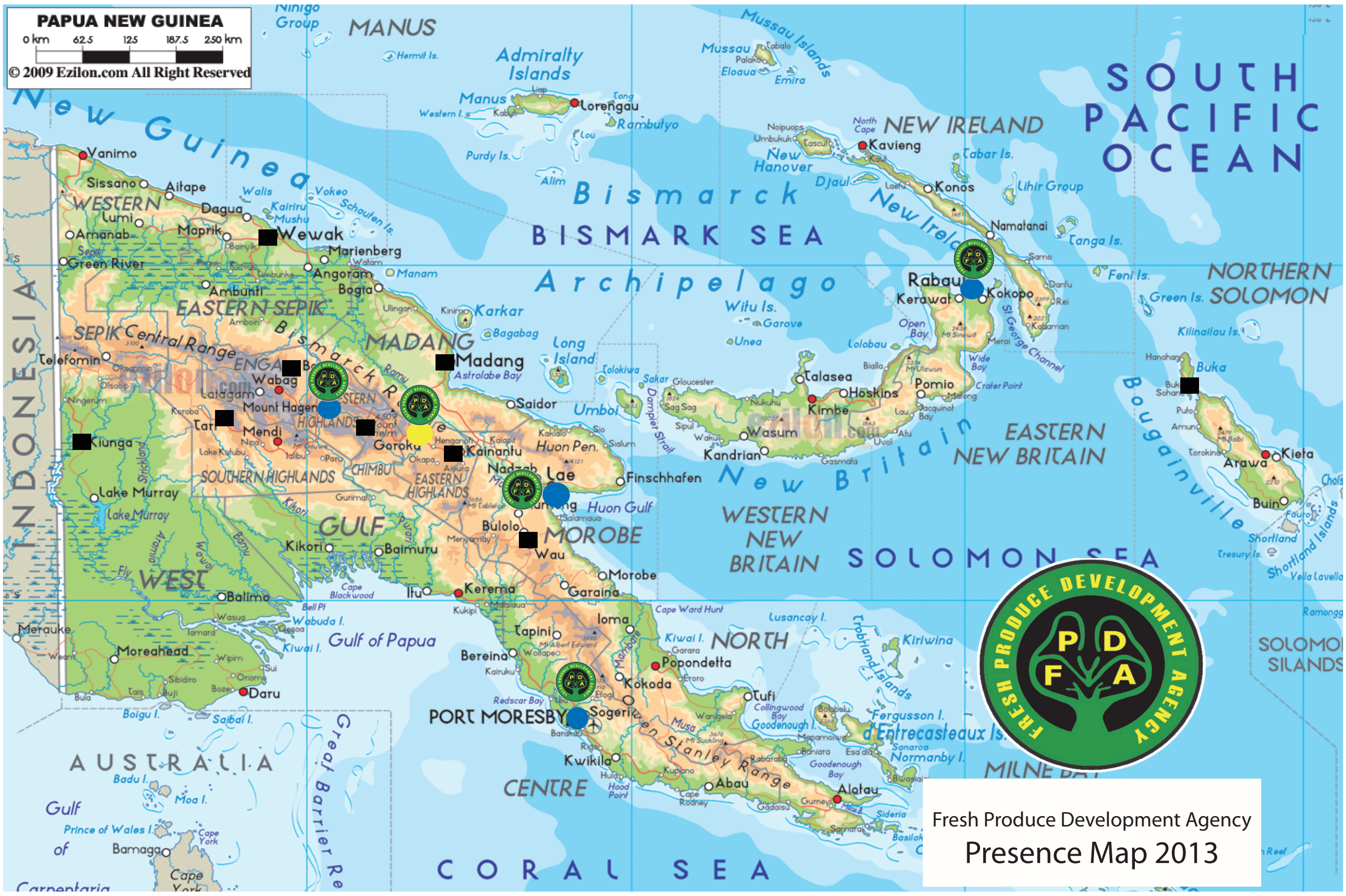
FPDA has not been involved in policy analysis and formulation but has participated in dialogue with policy makers. This has included the formulation of various White Papers on Agriculture, participation in the National Agriculture Council (NAC) meetings, contribution to formulation of NADP and provision of information on tariffs and organic pollutants relating to food crop safety and compliance standards. FPDA's role in policy analysis, dialogue and compliance with standards will increase in future as it develops more capacity.

Collaboration at regional level has been limited to participation in fora, workshops and training events held in Pacific countries such as Fiji, Solomon Islands and Vanuatu and Asian countries such as China and Japan.

Delivery of the results necessary to achieve people-level impact cannot be done by FPDA alone. FPDA will have to improve its ability to collaborate with many stake-holders who have potential to contribute to the success of the corporate plan.

12. Annex IV: FPDA Presence Map

The following map indicates the distribution of the presence of Fresh Produce Development Agency in Papua New Guinea



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- Branch Offices, Existance, Prospects & New Interventions