

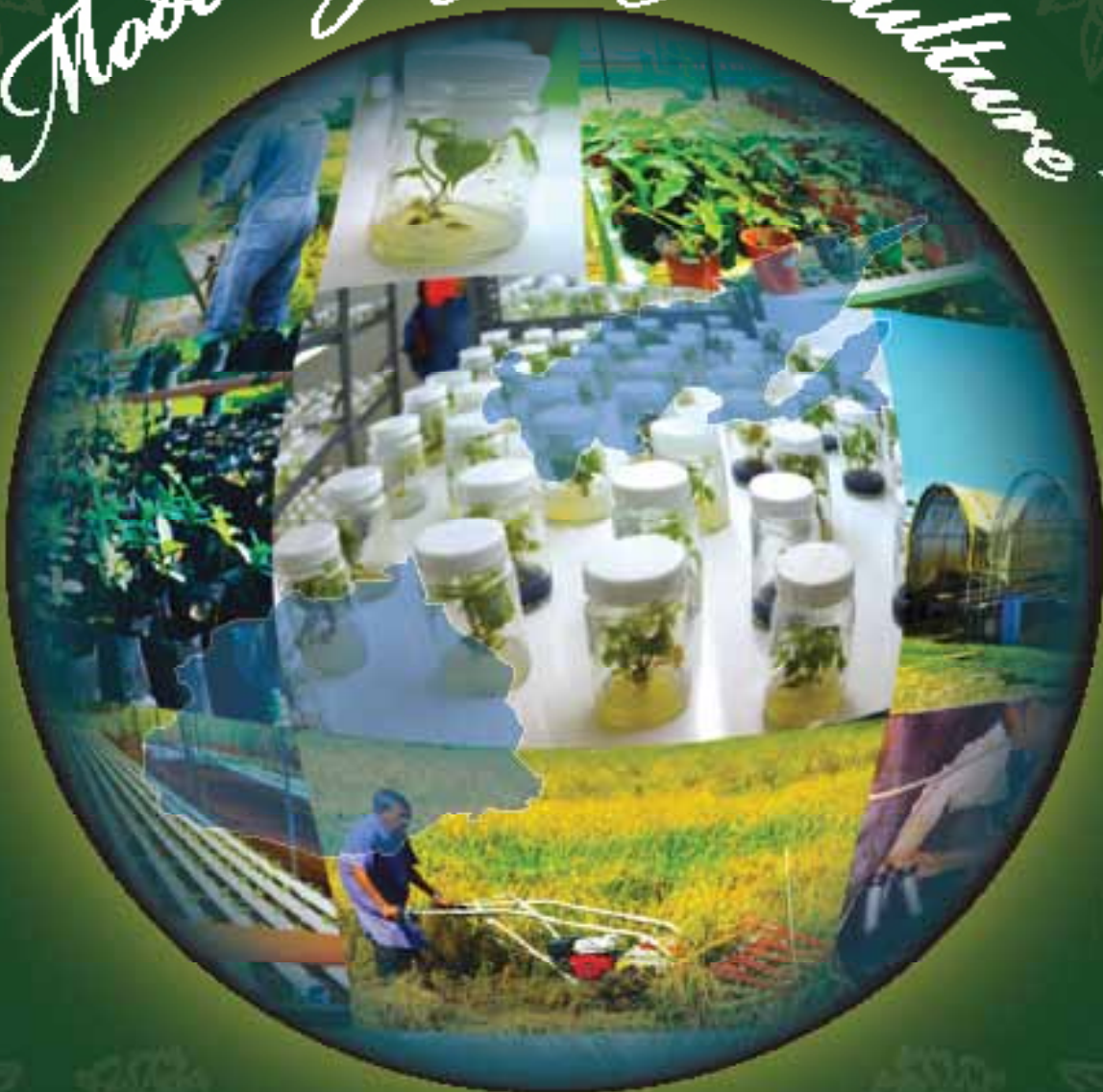


FIJI 2020

Agriculture Sector

POLICY AGENDA

"Modernizing Agriculture"



August 2014

FIJI 2020

AGRICULTURE SECTOR POLICY AGENDA

This document was prepared by the Ministry of Agriculture with the Technical Assistance from the Food and Agriculture Organization of the United Nations.

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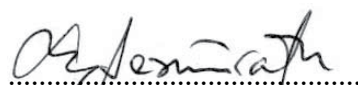
FOREWORD

The agricultural sector plays an important role in Fiji's economy. It offers both employment and opportunities for sustaining livelihoods, and there are strong linkages between the sector and the rest of the economy. Thus, Fiji requires an inclusive development framework for its agriculture economy to move forward by addressing new domestic and global challenges in line with food and nutrition security, climate change, feedstock for renewable energy, the utilization of water resources for aquaculture, agriculture export, and the rehabilitation of its traditional agriculture export industries, the sugarcane and the coconut industries. This led to the formulation of the Fiji 2020 Agriculture Sector Policy Agenda.

Fiji 2020 Agriculture Sector Policy Agenda compliments the National Green Growth Framework recently launched in Fiji. It provides new dimensions by opening up to global innovations for "climate-smart agriculture" that generate both adaptation and mitigation benefits. The policy also addresses the "sustainable intensification" that will increase production. The holistic and a focused vision of this policy pursue sustainable development with an inclusive approach that will modernize the Fiji's Agriculture Sector by 2020. It also creates the right atmosphere and incentive for stakeholders in particular the local farming communities and the private sector.

Fiji 2020 Agriculture Sector Policy Agenda has undergone multi-stakeholder consultations nationwide, with the technical assistance from the Food and Agriculture Organization (FAO) of the United Nations, to which the Ministry of Agriculture remains grateful.

We claim full ownership of this document, and we look forward to your active participation in the modernization of the Fiji's Agriculture Sector.



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ABBREVIATIONS & ACRONYMS

ADB	Asian Development Bank
BAF	Biosecurity Authority of Fiji
BQA	Bilateral Quarantine Agreement
BOT	Build Operate Transfer
CME	Coco Methyl Ester
DDA	Demand Driven Approach
EU	European Union
FAO	Food and Agriculture Organization of the United Nations
FAJ	Fiji Agricultural Journal
FAS	Farming Assistance Scheme
FDB	Fiji Development Bank
FEA	Fiji Electricity Authority
FIAS	Fiji Institute of Agricultural Science
FPL	Food Processors Limited
FFS	Farmers Field School
FM	Financial Management
FMIB	Fiji Meat Industry Board
FSC	Fiji Sugar Corporation
FJD	Fiji Dollar
FNU	Fiji National University
GDP	Gross Domestic Product
GHG	Green House Gas
GIS	Geographic Information System
IPM	Integrated Pest Management
IPPM	Integrated Production and Pest Management
KDV	Katalytische Drucklose Verolung
LFHP	Low-Fat High Protein Concentrates
MBRLC	Mindanao Baptist Rural Life Center
MOA	Ministry of Agriculture
MFF	Ministry of Fisheries and Forests
MITTC	Ministry of Industry, Trade, Tourism, and Communications
MSLR	Ministry of Sugar and Land Resettlement
MSPNDS	Ministry of Strategic Planning, National Development and Statistics

NGO	Non Government Organization
NZ	New Zealand
OECD	Organization for Economic Cooperation and Development
OTA	Organic Trade Association
PICOP	Paper Industry Corporation of the Philippines
PPP	Public Private Partnership
RBF	Reserve Bank of Fiji
RCDL	Rewa Cooperative Dairy Limited
RRL	Rewa Rice Limited
RTC	Rural Transformation Center
SAP	Sugarcane Action Program
SALT	Sloping Agriculture Land Technology
SBB	State Bond Banks
SFM	Sustainable Forest Management
SOM	Soil Organic Matter
SOPAC	Secretariat of the Pacific Community Applied Geoscience Commission
SPC	Secretariat of the Pacific Communities
SPV	Special Purpose Vehicle
SWOT	Strength, Weakness, Opportunity, Threat
TA	Technical Assistance
USAID	United States Agency for International Development
USD	US Dollar
USP	University of the South Pacific
VCO	Virgin Coconut Oil
WUR	Wageningen University and Research Center
WTO	World Trade Organization
YPCL	Yaqara Pastoral Company Limited

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EXECUTIVE SUMMARY

BACKGROUND

After more than four decades of changing agriculture development policies since gaining independence in October 1970, and succeeding plan preparations and policy studies carried out by international development agencies triggered by the Asian Development Bank (ADB) agriculture sector review in 1996, a new agriculture development agenda for Fiji must be crafted. The Prime Minister of Fiji, Rear Admiral (Retired) Commodore Josia Voreqe Bainimarama, has ordered the formulation of an inclusive plan for agriculture development of the country. The Minister of Agriculture, Lt. Col. Inia Seruiratu, eventually requested the Food and Agriculture Organization (FAO) of the United Nations for technical assistance in preparing the national agriculture development agenda. Fiji requires an inclusive development framework for its agriculture economy to move forward by addressing new domestic and global challenges in line with food security, climate change, feedstock for renewable energy, the utilization of water resources for aquaculture, agriculture export, and the rehabilitation of its traditional agriculture export industries, the sugarcane and the coconut industries.

OVERALL DEVELOPMENT FRAMEWORK

Guided by a multi-stage review and consultation process that analyzed the agriculture resources, supply chain, and institutional resources, coupled with the review of past agriculture policies and plans formulated, the framework for the agriculture development agenda of Fiji is crafted first. The goal of the development agenda is to contribute to the national goal as envisioned in the national government's agriculture policy in the Roadmap for Democracy and Sustainable Socio-Economic Development. This national goal for agriculture in Fiji is to ***Build Sustainable Community***. The national agriculture development goal alludes to the rural and urban communities because it is the national government's primary responsibility to ensure food security in conjunction with the primary economic development goal of increasing income and employment opportunities in the rural communities. Directly in line with this goal is the main purpose of the development agenda, which is the immediate result to be attained by the year 2020 and based on the analysis of identified development objectives. This underlying goal or purpose is to ***Establish a diversified and economically and environmentally sustainable agriculture economy in Fiji***. To attain this purpose, five agriculture development objectives must be attained together. These objectives are: a) To build modern agriculture in Fiji as an organized system of producing, processing, and marketing crops, livestock, and aquaculture products, b) To develop integrated production, processing, energy, and transport infrastructure support system for agriculture, c) To improve delivery of agriculture support services, d) To enhance capabilities to generate fund and secure investment through foreign investment, private public partnership, and other innovative business arrangements, and e) To improve project implementation and policy formulation capability within the Ministry of Agriculture (MOA) and its partner institutions. Each of the objectives has corresponding set of interrelated strategic actions to be carried out.

STRATEGIC ACTIONS

The strategic actions to achieve the five key result areas are as follows:

- a) **Build modern agriculture in Fiji as an organized system of producing, processing, and marketing crops, livestock, and aquaculture products**

A modern organized agriculture adopts the Rural Transformation Center (RTC) model from India and Malaysia. The Farmers Field School (FFS), which is a non-formal community based education initiated in Indonesia by FAO that has been adopted worldwide, serves as the operating system of every RTC. As the nucleus of modern Fiji agriculture, the RTCs in strategic locations in the entire country facilitate

the collaboration of different government agencies and other development organizations in the delivery of agriculture development services in the rural communities. RTC is a facility that promotes integrated rural development initiative. The RTC is established by the government, private group, international aid agency, or other sponsors. Collaborative undertaking among these institutional partners in the establishment and maintenance of the RTCs is highly desired.

A typical RTC has facilities for information on crops, livestock, and aquaculture products, credit assistance desk by partner banks, and information on new agriculture technology. Within the RTC complex, there is also a facility that sells and promotes agriculture inputs such as seeds, fertilizer, feeds, and farm implements. Training courses are available. Food processing and other off-farm livelihood enterprises are also established. The RTC also includes a farm machinery pool and Geographic Information System (GIS) based management system to be used in the integrated research, training, production, and processing system.

At the village level, there is a village center that directly links with the RTC. Sustaining the operations of the village centers and the RTCs is the most critical part. Financial sustainability of these facilities is a necessary parameter in the design and operations of every RTC. Nevertheless, building the RTC facilities is the main initiative of the Government under the leadership of the Ministry of Agriculture.

The second principal operating system to be employed in mass based modernization of the agriculture sector in Fiji is agroforestry in the upland areas where the forestry and agriculture sectors converge. There are two technologies that are going to be adapted. These technologies are the Sloping Agriculture Land Technology (SALT) and the Line Planting Technology. SALT is a form of alley farming in which field and perennial crops are grown in bands 4-5 m wide between contoured rows of leguminous trees and shrubs. On the other hand, Line Planting is a unique system in reforestation that profitably combines commercial trees and agriculture crops and incorporates site compatibility, optimum growth rates, competing land use, and rural income. Trees are planted in lines with a spacing arrangement of 10m x 1m or 15m x 1m, facing an East-West direction to maximize the sunlight entering the alleys. Root crops, legumes, sweet sorghum, and other biofuels crops are used as the intercrop.

For outer islands, the operating system is a self contained development strategy that also follows the RTC model. However, special focus is on outer island energy self-sufficiency, value-adding, and off-farm employment. In selected outer islands, organic agriculture is being proposed for international accreditation. On this basis, managed production and processing system for outer islands guide the formulation of the strategy for these communities in Fiji.

b) Develop integrated production, processing, energy, and transport infrastructure support system for agriculture

An integrated system of infrastructure support to agriculture is essential to modernize agriculture in Fiji. Central to this agriculture infrastructure system is the food park, with the central facilities to be established in Lautoka in Viti Levu and the second food park is to be established in Labasa in Vanua Levu. Smaller specialized food parks for coconut in Taveuni and for horticultural crops in Sigatoka are being envisioned. These food park infrastructure serve as the anchor of a network of food parks and processing and marketing system in the entire country wherein the various RTCs and village level centers are functionally linked.

From seed to shelf developed by Wageningen University and Research Center (WUR) in the Netherlands, food park facilitates end-to-end food processing with beneficial forward and backward linkages. The park has facilities for production, aggregation, segregation, dry storage, wet storage, biomass storage, biomass refinery, distribution, value-addition, and amenities. Ideally, the food park being proposed is easily accessible by road, rail, sea, and air. As its forward linkage, the food park is functionally linked

with such resources that include supermarkets, farmers' markets, gardens, transportation, and community based food processing ventures. With the food park at the center of this agriculture infrastructure system in Fiji, roads, irrigation, renewable energy, ports, and improved research and development facilities provide the support infrastructure.

Other vital components of the national integrated agriculture infrastructure system include water resources, renewable energy, and livestock processing. The national water use plan in Fiji includes uses for irrigation, energy, fish production, and potable water. In support of energy infrastructure development, agriculture in Fiji is geared toward the production of enough feedstock for the renewable energy. Renewable energy technologies include biomass gasification and ethanol, particularly small scale biofuels systems that are now affordable and more efficient. For the livestock sector, principal processing and storage infrastructure are provided by the Fiji Meat Industry Board (FMIB). The modernization of this corporation hinges on diversifying to other services by the establishment of subsidiaries for breeding, feed milling, and meat storage for the principal purpose of improving the FMIB's scope, profitability, and service to the livestock industry.

c) **Improve delivery of agriculture support services**

A strong support services in agriculture are anchored on the delivery of an integrated research, training, and extension services. With the FFS as the principal operating system, the integration of these services starts at the community level and becomes institutionalized through a system of integrated research, training, and extension first. This system is further strengthened by credit, marketing assistance, biosecurity, soil health and fertility, animal health and production, and statistics services. However, the first step in building a dynamic agriculture support services is the preparation of the country's land use plan. It provides the physical target, the locations the crops and livestock are best grown, and option for area expansion. The soil suitability plan is useful in the development of different agriculture industries.

Support services converge together through industry focused approach. The two traditional industries, sugarcane and coconut, receive renewed attention for rehabilitation. There are nine existing crops and livestock industries that need immediate attention for development that are inclined toward the domestic and international markets. These industries include the root crops, fruits and vegetables, Bilateral Quarantine Agreement (BQA) crops, pineapple, rice, livestock and small ruminants, swine and poultry, kava and nutraceutical, and aquaculture. The seeds and planting materials industry must be developed. The feeds and agriculture mechanization industries are also projected to grow as vital components of modern agriculture in Fiji.

The sugarcane action plan prepared by the Sugarcane Action Group (SAG) is based on a three way approach that promotes caution with regard to area expansion, a high degree of emphasis on productivity per hectare, and an approach of making the best use of available infrastructure with regard to milling. Long term strategic priorities relate to de-concentration of the industry from the Fiji Sugar Corporation (FSC) to allow it to focus on its core function of sugar cane processing and revenue generation from co-generation, ethanol production, and other value-added opportunities.

For coconut, the replanting program must target the year 1977 production level, with a production equivalent to more than 33 thousand metric tonnes of copra. The target replanting based on this annual copra production is 615,323 trees per year within 5 years. Alongside the planting program, the coconut industry proposes a radical but affordable technological approach in developing the industry in Fiji by opening a development plant right in the community. The coconut processing plant uses elements of the coconut plant to convert the meat, water, shell and husks into different viable products for the world market right in the farms at a sustainable scale of 5,000 nuts per day.

The development of each of the commodity industries and the support industries varies but in general, the RTCs as the community based facility and the FFS as operating system are used in the industry

development programs. Primary focus is on organized production and processing with a balanced domestic and export market concentration.

The animal health program direction in Fiji must gear toward efficient and sustainable animal health and production systems and producing healthy animals and safe products for food security and income generation. The principal activities of the program include surveillance, development and testing of plans, strengthened public health measures, and inclusion of more stakeholders in planning and implementation.

Adoption of climate change agriculture in Fiji can be introduced through conservation agriculture. Agroforestry is one option. Incorporating small livestock, such as poultry, sheep, and goats into the farming system brings additional income and food security in preparation for climate change.

The land use management practices priorities for research, extension, and training programs cover balance fertilization focused on micro-nutrient management, intercropping, multiple cropping, use of microbial fertilizer, and use of other technologies. The judicious use of fertilizer based on site specific recommendation is an important policy option rather than subsidizing fertilizer. In case there is a program to support the fertilizer needs of farmers, bulk blending, timely application of fertilizer, use of microbial fertilizer, and micro-nutrient management must be incorporated and supported through research and technology transfer in the FFS.

Fiji has no public cold storage facility. There are wastes accumulated during handling and these wastes can be used for value-adding. Fruit juice, puree, pickle, fruit wine, and jam are other value-adding options for fruits and vegetables. Adding value to horticultural products can be accomplished by developing new products from processing and packaging, as well as by enhancing marketing activities and services provided to customers. These assistances can be carried out using the FFS through the RTCs.

Adequate access to credit is needed. An overdraft facility with commercial banks has been recommended to meet working capital requirements of farmers. Appropriate mechanism can be put in place to safeguard the interests of government, farmers, and the commercial banks. A crop insurance scheme is also recommended. However, the efficiency in premium collection and processing of claims must be addressed. Option using automatic insurance remittance deductible from crop sales in cooperation with exporters, processors, and collection centers, inclusion of the premium in the purchase of fertilizer and other inputs, and inclusion also of the premium in loan released to farmers are other options of insurance enrolment and premium collection.

The agriculture statistics services are strengthened for purposes of gathering, organizing and analyzing agriculture data. The service unit provides support to various units, particularly the soil and water service through the GIS, planning and policy, and research, and information and communication services. Finally, agriculture statistics also provide actuarial support to a government bank or agency to be engaged in crop insurance.

The Fiji National University (FNU) must orient its curriculum development toward the needs of the vital industries. The capability of the FNU and other training institutions must be strengthened. On the other hand, the University of the South Pacific (USP), through its College of Agriculture in Samoa, needs also to cooperate by sharing research and development program. The FNU must look at the FFS implementation in the RTCs in the development of its curriculum and research programs. Through a more pro-active participation, the university's immersion, research and extension, and student recruitment program can also be community based.

Research, training, and extension linkage must start right in the early years of formal education in Fiji. While there is an initiative in the elementary and high school education curriculum program in the country of including the practical arts and science of agriculture, including introductory biotechnology in high school program, agriculture science laboratory must be available in every cooperating school.

Greenhouse laboratory and a tissue culture laboratory are ideal.

The Fiji Agricultural Journal (FAJ) that has been initiated through the Research Division of the MOA must be sustained and expanded to attract the participation of the agriculture research community in Fiji. This forum provides a facility to engage in quality scientific publication that meets international standards. The scientific journal also serves as a venue for interaction within the agriculture science community in Fiji and including the neighboring Pacific Island countries. The Fiji Institute of Agricultural Science (FIAS) is being proposed as a specialized organization of professionals in the field of agriculture, life sciences, social science and economics, and other related fields. This organization handles the publication of the journal.

d) Enhance capabilities to generate fund and secure investment through foreign investment, public private partnership, and other innovative business arrangements.

In line with enhancing capabilities to generate fund and to secure investment, strategies include public-private partnership, innovative business models, the promotion of business arrangements with farmer ownership and accountability, the investment in new ventures, strengthening international trade and marketing, and the creation of investment fund for retirees, women, and youth are being proposed. Innovative business models can be generated through interaction with farmers. The government corporations must be transformed as model corporation doing service to the farmers and entrepreneurs and also helping government agencies deliver their services. These corporations become model for the future joint venture projects to be established in line with the development of various industries. A public-private partnership (PPP), which is a term used to describe a government sponsored initiative or scheme that involves the use of private finance to facilitate the provision of services that can be used for agriculture infrastructure is a sound fund alternative. PPP includes a bidding process, the establishment of project company, a project sponsor which is the project company, contractors responsible for managing and building the project, and private funder. To market and sell the agriculture products globally, international marketing capability must be strengthened and there must be a responsible agency that seeks the collaboration of both the government and the private sectors. The Agriculture Marketing Authority of Fiji has this role and mandate as well.

One area that must be improved is the educational and professional competence of farmers and fishermen. The strategy of attracting professionals and retirees in the farming business contributes significantly in improving the level of professionalism in the agriculture and sector. Setting up an investment fund for retirees, for women, and for youth promotes the participation of these sectors in agriculture.

e) Improve project implementation and policy formulation capability within the MOA and its partner institutions

Strengthening the organizational capability in project planning, implementation, and policy formulation starts with the reorganization of the MOA, which must be guided by the five core objectives. The Ministry, therefore, organizes itself along these lines, thus creating three line functions for organized agriculture, agriculture support services, and integrated infrastructure. The MOA further solidifies its two staff functions separately. One is for investment planning and fund generation, and the second is for project development, project management, and national agriculture policy.

The Fiji Agriculture Council is created as an umbrella council and becomes responsible for policy formulation and direction setting with defined powers and mandates. The council has a multi-sectoral representation with the Office of the Director for Planning, Management, and Policy at its own Technical Secretariat. The member councils for crops, livestock and poultry, root crops, and seed sectors and other industries or concerns become members of the umbrella council. The main purpose of this council is to ascertain participatory broad-based decision making in the agriculture sector by providing guiding structure to various private sector-led consultative councils.

FUNDING AND IMPLEMENTATION

To secure funding and to be prepared for implementation require well crafted studies first. On this basis, feasibility studies preparation must be initiated by the MOA after the priority investment projects are identified.

As the initial follow up action in the preparation of the development agenda, the development framework and funding and implementation strategies are then translated into an investment agenda. The investment agenda is posted in the internet with information video. A total information campaign using print, broadcast, internet, and social media is then used in promoting the Fiji 2020 Agriculture Development Agenda. Investors, funding agencies, market, and other stakeholders in agriculture development are the target clientele. Formal launching is essential. However, this activity must be invested with appropriate technical preparation, negotiation, and mass based information campaign so that the agenda gains adequate support.

The national government budget allocation for 2014 must be structured properly. Government allocation is usually based on incremental budgeting and it is recommended that the Ministry must immediately spend its 2014 budget based on this new agriculture development agenda. The industry plan for priority industries must be immediately allocated funding.

International development agencies have their own priorities. However, they can be asked to align their priorities to be consistent with the strategies outlined in this agriculture development agenda. By this cooperation, the implementation of projects is streamlined and in effect, it avoids overlapping.

Other possible funding sources include bilateral funding, private bank, bond, and other funding sources. Projects that are identified in development agenda can be proposed for bilateral agreement. Private bank operating in Fiji and other international banks based in the US, Europe, and Asia can also be explored for funding. The Fiji Government can issue bond to finance various projects. Following the pooled financing model, projects in the agriculture development agenda can therefore be pooled for one funding negotiation. In the same manner that the grants being given to government corporations by the national government can be used to leverage external funding through this pooled bond financing model. State guarantee can be an option as fund enhancement option since the guarantee provides incentives, reduce private companies' costs or increase the potential for profits in activities that would, in their absence, seem too risky or unprofitable. However, state guarantee must be exercised with caution as both government officials and the private sector can abuse the guarantees and incentives. Transparency and careful monitoring and supervision must be exercised.

The MOA is currently responsible for over 33 pieces of legislation. It is foreseen that all the acts specified under the ministerial assignment must be reviewed and be ensured that there is no conflict between policy interpretations of existing acts. The consolidation of the law into an omnibus legislative act provides a better structure for common understanding so that anything that is in line with agriculture development can be put together in just one piece of legislation. Special focus of the proposed omnibus law is the adjustment of the proposed infrastructure, rural transformation, and industry focused approaches toward the existing land ownership and leasing system in Fiji. On the other hand, the use of water resources, in particular the use of rivers, catchment areas, and ground water, is also given attention in the omnibus law.

The agenda has four phases (stages) of implementation, which are the transition phase, the preparation phase, the implementation phase, and the review and evaluation phase. The review phase overlaps with the implementation phase. The planning period covers the years 2014-2020. By the mid of 2020, a new development agenda review is carried out for purposes of improving the existing policies to ensure continuity and sustainability. At the middle of the planning period in 2017, a mid-term review is carried out for policy adjustment, expansion of coverage, and further improvement in the strategies being followed in the development agenda.

CONCLUSION

To establish a diversified and economically and environmentally sustainable agriculture economy in Fiji, the strategic actions cluster around five key result areas, which are identified from the translated objectives. These are a modern organized agriculture, an integrated support infrastructure, a strengthened agriculture support services, an improved capability in planning and policy formulation, and an enhanced capability in investment and international cooperation. These key result areas require synchronized collaborative efforts. Furthermore, this inclusive approach to agriculture development must be supported by adequate investment and the application of sound technology and management systems. However, the development agenda formulation process considers the limitation of government resources and the best way is to present the development agenda as a package of worthy projects for domestic and international investment. Furthermore, it is only when the Fiji 2020 Agriculture Development Agenda is operationalized as massive community based development agenda that real agriculture modernization in Fiji has to take off progressively. Agriculture eventually becomes the most important piece of the national economy equitably spreading income and employment opportunities to every stakeholder, particularly the farmers.

FIJI 2020

AGRICULTURE SECTOR POLICY AGENDA

1.0 INTRODUCTION

1.1 Background

1.1.1 Justification in Formulating the Fiji 2020 Agriculture Sector Development Agenda

Fiji is a country consisting of a group of 330 islands in the South Pacific. Its agriculture, forestry, and marine resources are already threatened by population pressure and climate change. Fiji's export of sugar, fish, crude coconut oil, root crops, and horticultural crops is facing stiff international competition. The country is still importing many of its basic food requirements. These food products include rice, meat, milk, the needs of the tourism sector, and around 90 percent of the food lines in the supermarkets. While Fiji's agriculture is struggling to be internationally competitive, it is more prudent to give attention to the domestic market, which offers the greatest opportunity for the sector. There is also a very challenging opportunity to produce the feedstock for biofuels to reduce the country's petroleum fuel importation bill. Renewable energy is therefore a huge market of agriculturally produced feedstock because the technological advancements in ethanol and gasification are now leading to renewable energy facilities being affordable and viable at smaller scale.

The country's pace of transformation from subsistence to commercial scale agriculture is still slow and the current quarantine regulated export sector is inadequate for the agriculture of the country to move forward. A firm decision to embrace forward looking development agenda is needed. On this basis, Fiji requires a long term agenda that provides the framework in using the agriculture resources more productively through sound technology and financing and management strategies. The agenda is eventually used to generate the fund and attract investment necessary to bankroll the modernization of Fiji's agriculture.

1.1.2 A Unified Policy Agenda for Agriculture Development in Fiji: The FAO Technical Assistance

This agriculture development agenda for Fiji is prepared with technical assistance from the Food and Agriculture Organization (FAO) of the United Nations provided to the MOA. The main report includes the methodology, historical overview of agriculture policy, review of policy papers, situational analysis of the resources and stakeholders, formulation of the agriculture development framework that identifies the overall goal and the vital strategies, and the implementation strategies under the core objectives.

It is now time to look at agriculture development and investment reforms in an inclusive approach to fully explore the natural resource endowments of the country. Inclusive approach disregards separate administrative responsibility over agriculture on the one hand, and fisheries and forestry on the other hand. These three sectors form a single mass. Agriculture converges with both the fisheries and forestry sectors, and also with the sugar sector, at the physical resources and the farmers. Furthermore, the only way for Fiji to ensure food security and face global competition is to view all the available resources and opportunities related to agriculture as a whole.

The agriculture development framework is formulated by employing site visits and consultation with key informants. Agriculture policy papers particularly those prepared independently by the MOA, the Ministry of Strategic Planning, National Development and Statistics (MSPNDS), the Asian Development Bank (ADB), the European Union (EU), and the Secretariat of the Pacific Community (SPC) are reviewed. This undertaking considers the findings and recommendations in the policy papers prepared

for Fiji in the identification of policy objectives.

1.2 Translating Agriculture Development Policy into Investment

The agenda for agriculture development serves two principal purposes. First, it guides the government in formulating its development direction for the allocation and use of its resources. Second, the development agenda document is used to promote domestic and international investment for the development of agriculture in Fiji. Finally, from the agriculture development agenda, a set of functionally interrelated action projects that can be implemented immediately using available financial resources are proposed for appropriate action by the MOA.

1.3 The 2014 Agriculture Budget in line with Long Term Agriculture Development Agenda

The recently announced budgetary allocation to the MOA for the year 2014 appears to be inadequate for an effective agriculture development agenda in Fiji. Despite this inadequate budget, and given the nature of agriculture projects that are attractive for investment, the MOA is willing to explore domestic and international funding. There is therefore a need to realign the development initiatives of the MOA toward seeking investment that could be best done over a long term period. These initiatives are forward looking as well.

2.0 METHODOLOGY

This agriculture development agenda formulation follows an eight step process that also considers efforts that have been carried out in the last 15 years in Fiji, particularly those initiatives involving stakeholders consultation. The methodology starts with the assessment of vital agriculture land and water, infrastructure, agriculture supply chain, and institutional resources. While assessment of resources is proceeding, a review of government policies according to recommendations by international development organizations follows immediately. Policy and project papers are reviewed and from these papers, ten are chosen. Consultation with stakeholders follows. From the consultation, problems, gaps, and long term development objectives are also identified using SWOT analysis. Every identified Strength, Weakness, Opportunity, and Threat is translated into agriculture development objective. Core objectives are then identified from the list. Every development objective is placed in each of the selected five core objectives, and the grouping of the development objectives within the core objective forms a specific strategy or approach.

The selected core objectives with the vital chosen strategies are then further developed for action agenda formulation. The strategies are aligned with proven technologies and development approaches that are practiced or applied in countries with similar agro economic system as Fiji. This action agenda formulation serves as the principal part of the report. Public consultation is then carried out to validate the report and seek for further suggestions. Finally, this undertaking proposes the Fiji 2020 Agriculture Development Agenda for investment. Table 1 shows the procedures followed with corresponding objectives and results attained.

Table 1. Summary of the Methodology Employed in a Matrix.

Procedure	Purpose	Desired Outcome Attained
1. Assessment of Physical and Organizational Resources of The Agriculture, Fisheries, and Forestry Sectors in Fiji	<ul style="list-style-type: none"> Gathered information regarding the existing situation Analyzed the information for policy and investment purposes Employed SWOT technique in problem analysis and analysis of stakeholders 	<ul style="list-style-type: none"> Brief analysis of the agriculture resources, including land use, forestry resources, and marine resources presented. Supply chain profiled and analyzed Institutional resources profiled and analyzed
2. Historical Overview of Government Policies	<ul style="list-style-type: none"> Reviewed the history of agriculture development policy in Fiji since independence in October 1970 Analyzed the existing agriculture development policy in the context of national development 	<ul style="list-style-type: none"> Chronology of policy changes since being granted independence presented
3. Review of Policy Papers	<ul style="list-style-type: none"> Identified relevant agriculture development policy papers that are consistent with the present trend in international development 	<ul style="list-style-type: none"> Ten papers identified with relevant data for policy formulation (Please see Section 2.2)
4. Consultation with Stakeholders	<ul style="list-style-type: none"> Validated agriculture development policy documents Gathered primary information Validated the acceptance of new policies 	<ul style="list-style-type: none"> Findings and recommendations in the agriculture development policy papers validated
5. SWOT Analysis	<ul style="list-style-type: none"> Identified the entities for policy analysis (Physical resources and infrastructure, supply chain, and institutional resources) Identified agriculture development objectives by translating SWOT into objectives Selected the core objectives Identified strategies 	<ul style="list-style-type: none"> Profile of the entities SWOT completed Strategies selected and further developed with technology support and organizational approaches
6. Preparation of Agriculture Development Agenda Framework	<ul style="list-style-type: none"> Agriculture development framework prepared 	<ul style="list-style-type: none"> National agriculture development framework approved by the MOA to proceed with public consultation
7. Public Consultation	<ul style="list-style-type: none"> Agriculture development framework updated based on the result of the public consultation 	<ul style="list-style-type: none"> National agriculture development agenda finalized
8. Formulation of the Fiji 2020 Agriculture Development Agenda	<ul style="list-style-type: none"> Prepared Fiji 2020 Agriculture Development Agenda 	<ul style="list-style-type: none"> Fiji 2020 Agriculture Development Agenda accepted by the MOA

3.0 SITUATIONAL ANALYSIS IN LINE WITH AGRICULTURE DEVELOPMENT OBJECTIVE FORMULATION

3.1 Agriculture Sector Overview¹

3.1.1 Contribution to Gross Domestic Product (GDP)

In the past decade (2001-2011), the agriculture sector had an average contribution equivalent to 10.6 percent of Fiji's total GDP. The sector has actively employed close to two thirds of the labor force. In the 1990s, the contribution of agriculture was close to 16 percent of GDP. However, the decline in the performance of the sugar industry, the inability to cope with trade liberalization, the occurrence

of natural disasters and pest and disease outbreaks, export trade restrictions, political instability, and inconsistent public sector support have all contributed to the decline in the growth of the sector. In 2012, the sector contributed only 9.2 percent of GDP.

As the agriculture sector and other natural resources sectors contracted in their share of total economic activity, other sectors grew, in particular the tourism sector as demonstrated by the growth in hotels and restaurants.

Subsistence farming and sugarcane production have traditionally been the mainstay of Fiji's agriculture sector. Over the past ten years, these subsectors have shrunk while the shares of other crops, livestock, and the public sector have increased. The doubling of the shares of other crops subsector is an indication of increased transformation from subsistence to semi-commercial farming. The other crops subsector has now surpassed sugarcane as the dominant subsector in primary agriculture. The share of sugar subsector in the primary agriculture GDP shrunk by 50 percent.

The other crops and livestock sector have contributed an average 6.8 percent of GDP in the past decade. The sector includes traditional food crops (dalo, cassava and yaqona), tropical fruits (pineapple, pawpaw and mango), vegetables, spices, cocoa, coconut products, beef, dairy, pork, poultry, and goat and bee stocks. The sector generates close to 5 percent of domestic exports and accounts for 19.6 percent of total food imports.

The other crops subsector is mainly driven by the root crops and horticulture industry. The major commodities are dalo, ginger, papaya, pineapples and BQA commodities such as eggplant, okra, and breadfruit. Dalo and cassava are the most planted root crops with the former geared mainly for the export market. Small scale processing of cassava into chips has provided an additional local market for the root crop. The production of fruits and vegetables and BQA commodities has been erratic mainly due to the impact of natural disasters.

The livestock subsector is dominated by the beef and dairy production. Both industries have been in decline in the past decade due to low private sector investment, impact of diseases (TB and Brucellosis), and poor quality breeding and milking stock. The industry relies on imports to meet domestic demand. On the other hand, pork, poultry and goat production have performed reasonable well and are growing on their capacity to meet domestic market demand.

3.1.2 Trade Performance

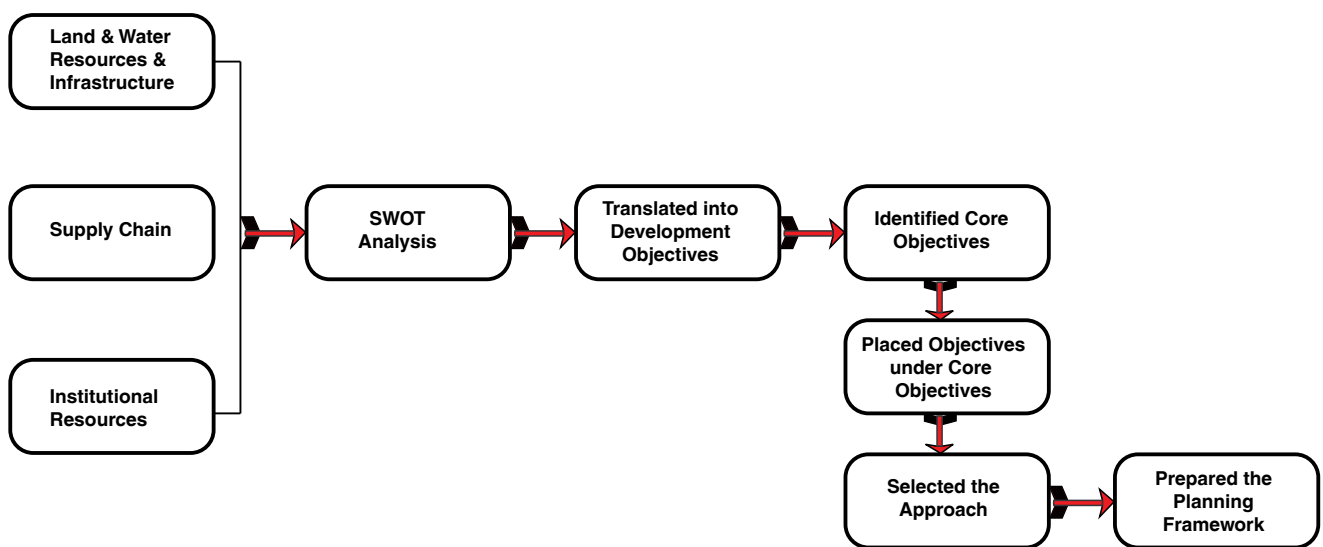
Fiji has existing agreements and favorable quarantine arrangements that allow the trade of agriculture produce with countries such as Australia, NZ, US, Europe, Canada, China and neighboring Pacific Island countries. Over the period 2001-2011, the total value of agriculture trade exceeded USD 12.4 billion of which USD 6.78 billion accounted for exports and USD 5.65 billion for imports. The main agriculture commodities that are being traded include sugar, dalo, cassava, kava, copra, coconut oil, papaya and an assortment of other fruits and vegetables. The favorable terms of trade is due to earnings from processed sugar, which is sold at preferential prices in the EU market and has earned an average of USD 195.5 million annually in export receipts. The agriculture sector's terms of trade is negative.

¹Excerpt from Policy Paper Series 04/2013, Review of the Non Sugar Agriculture Sector, Compiled by the Ministry of Strategic Planning, National Development and Statistics, April 2013.

3.2 Setting the Entity

The first step in any development agenda formulation is to define the entity for planning purposes. The first entity covers the physical resources and infrastructure. The second entity is the agriculture supply chain and the third entity is the institutional partner. Each of these entities has parts or components analyzed for national agriculture development agenda formulation. The three entities, when aggregated, provide the overall picture of the agriculture environment and economy of Fiji. Identification of Strengths, Weaknesses, Opportunities, and Threats or better known as SWOT for the analysis of the resources and stakeholders involved follows. Every identified Strength, Weakness, Threat, and Opportunity is translated positively into desired objective and all translated objectives are placed in the group of agriculture development objectives. Core objectives are identified and every objective is placed under a core objective they have logical relationship (means and end). Section 11.0 shows the SWOT Analysis for each of the party.

Figure 1. The Agriculture Development Objective Formulation Process.



The benchmark information in the situational analysis (Section 11) are generally taken from four documents. These documents are the Fiji Strategic Agriculture Plan (2012-2014), the Fiji Agriculture Investment Guide, the Alternative Livelihood Project, and the Review of the Non Sugar Agriculture Sector, and other related literature.

3.3 The Entity for Policy Formulation

3.3.1 Agriculture Resources and Infrastructure

The agriculture resources include agriculture land, river and water resources, coastal marine resources, forestry resources, and outer islands. The infrastructure resources cover irrigation and drainage, roads and transportation, seaport and airports, postharvest infrastructure, and electricity and energy.

3.3.2 Supply Chain

Based on the supply chain analysis conducted by the Ministry of Strategic Planning, National Development and Statistics, the agriculture sector is broken down into five components that are interrelated – Farm Level, Middleman, Processing Sector, Financial Sector, and Markets (local and export).

3.3.3 Institutional Resources

This entity includes the MOA and its partner institutions in the government, government corporations, farmers' organization, development organizations, international development organizations, the private business sector, and the universities and other training institutions.

Summary

Each of the resources and stakeholders identified has its own Strengths, Weaknesses, Opportunities, and Threats. Other resources share common SWOT. However, in the final SWOT Analysis, the fundamental ones are only identified for better structured analysis.

*The physical system, the supply chain, and the institutional stakeholders are interrelated under the inclusive agriculture, fisheries, and forestry sectors. That relationship builds the whole integrated agriculture system in Fiji. In Annex 2, the detailed SWOT Analysis is shown, which ends in the identification of agriculture development agenda objectives. From these development objectives, the **main purpose** of the development planning and policy formulation is crafted. The **core objectives** are also identified. The policy framework is then established based on the identified development objectives that resulted from the SWOT Analysis.*

4.0 HISTORICAL ACCOUNTS OF AGRICULTURE DEVELOPMENT POLICIES²

The national agriculture development agenda formulation first looks at the history of agriculture development policy in Fiji since being granted Independence in October 1970. There are vital factors that explain the inability of the changes in policies in attaining the desired agriculture development objectives in the country. These factors include land ownership, the predominance of subsistence agriculture, inadequacy to explore larger export market due to inability to be consistent in quality and volume, over dependence on the sugar industry that enjoyed price protection from the EU that led to inefficiency, government direct intervention resulting in dole out mentality, the establishment of government corporations that did not perform well in vital industries and agriculture processing and marketing services, and the lack of organizational capacity of government institutions that are responsible to lead agriculture development. However, there was no conclusive evidence that every policy failed because of inadequate technical merits of the policies. Apparently, all of the policies adopted have their own bright spots and can be still considered because development policies are also not effective based on their technical merits alone, but based on their appropriateness for the time. Thus, the present Demand Driven Approach (DDA) can be combined with deregulation, government support, commodity focused, and import substitution approaches that still have strong technical merits. A new policy may eventually evolve as a result of this development agenda formulation undertaking.

4.1 Import Substitution Policy in the 1970s

Policies on import substitution and direct government investment in agriculture development projects were vigorously pursued during the two decades following Independence in October 1970. This policy focused on growing local food to directly replace products being imported, which include rice, beef, dairy, and feed grains.

4.2 Deregulation Leading to Private Sector Lead Development That Resulted From The Asian Development Bank (ADB) Agriculture Sector Review 1996 Private Sector Led Development

Reform that started in 1989 and triggered by the ADB sector review in 1996 focused on reducing cost of business, providing flexibility in pricing, and exposing domestic firms to international pricing.

² Excerpt from McGregor and Goneimatuba (2002), *Fiji Agriculture Marketing a Policy Framework and Ministry of Strategic Planning, National Development Statistics (2013), Review of the Non Sugar Agriculture Sector.*

Profitable opportunities have been identified for exporting traditional exports and certain high value niche products. The most important export commodities identified are dalo, ginger, and papaya. Reports have also noted that there remains significant untapped export potential in cassava, breadfruit, copra, pineapple, yaqona, organic produce especially vegetables. Low levels of these exports are partially attributable to poor quality and inconsistency of supply of local producers.

Deregulation represented a fundamental change in the agriculture sector after decades of protection and government led investment projects. The farming community and private sector, which had grown dependent on government, suddenly found themselves faced with unfamiliar responsibilities and unprecedented challenges in the wake of trade liberalization.

4.3 Commodity Development Framework Late 1990s Government Led Development

In spite of initial success of deregulation, successive government intervention has seen shifts back toward government led agriculture development and dependency on hand outs. The commodity development framework is an example of increased public expenditure in the sector, which resulted in widespread abuse and losses due to lack of clear guidelines, the absence of meaningful performance indicators during implementation, and the lack of transparency and economic criteria for allocating resources.

4.4 Farming Assistance Program (FAS), Distribution of Free Inputs

The FAS was intended to subsidize inputs such as fertilizer and mechanization. Like the Commodity Development Framework (CDF), this policy was also characterized by government spending that resulted in inefficiency.

4.5 Demand Driven Approach (DDA)

A review of these demand driven programs over the past three years has noted a deviation from their original intention and diversion of funds to boost MOA operations. Some programs have duplicated areas of assistance and a majority of the project proposals have not been properly prepared and checked by supervising officers. Given the lack of qualitative data such as proper gross margin analysis and proper pricing surveys, the Technical Working Groups and National Steering Committee have not been able to undertake proper due diligence or make objective decisions on proposals. The lack of commodity and industry plans is also affecting implementation. A review by the MOA in 2012 noted that a significant number of unsustainable proposals were funded and these projects have failed.

Findings

The review concludes with a negative finding on the implementation of Demand Driven Approach³. The said review cites in particular the diversion of fund to boost the MOA operations. The absence of technical and administrative control in the implementation of the program is probably due to the broad meaning of the policy itself, which gives wide room for flexibility in using the approach as justification to boost funding for the Ministry operations.

All the policies before the DDA have their own negative reviews as well. While deregulation has gained momentum, government intervention resulting in direct involvement is always attractive because there are government funds available. In addition, the enthusiasm of the government in directly serving the people on the assumption that the government is the best provider of services was very common in developing world at the time of the policy implementation. However, both the Commodity Development Focus (CDF) and Farmers Assistance Program (FAS) failed to attain the desired results of helping farmers adopt new farming technologies through government assistance. What is surprising though is that despite failure of these policies, subsidies and grants are still common in the design of the agriculture projects until today.

Starting in the 1970s, all the policies have common objectives, which are food self sufficiency and the expansion of export of root crops and horticultural crops. The full transition from subsistence to

³Review of the Non Sugar Agriculture Sector: Reinigorating Through Competitive Exports And Food Security” Policy Paper Series, April 2013, Ministry of Strategic Planning, National Development and Statistics.

commercial scale agriculture, particularly in the non sugar sector, was expected to be attained due to the policies. Until now, the twin goals of import substitution and food security remain elusive while transition to commercial agriculture is slow.

While the first years in the 1970s are part of a young nation's experiment toward an ambitious import substitution, every policy change in the succeeding years has been intended to correct a failed experiment, not to sustain progress. Fiji agriculture, like an organism, adjusts and survives until today. Whatever the trend of the time and the demand trend, a resilient private sector moves on to explore export and domestic opportunities.

In search for the most appropriate agriculture development policy in Fiji, looking back at the real strength of Fiji agriculture, which is the structured based sugar industry and the root crops industry, is a sound option. The right policy of introducing structured based agriculture system and exploring wider uses of root crops such as ginger, cassava, yam, and taro, will be an area of opportunity toward transforming subsistence agriculture to commercial agriculture. The subsistence agriculture communities are in these industries. Furthermore, not so much attention has been focused on the biomass potential of the country for renewable energy because a little attention is given to futuristic technological advancements in renewable energy development.

There is glaring approach that that may need attention, which is the industry focused approach. This approach is based on sound soil and climate suitability where support services such as seeds, feeds, and mechanization integrate with physical and postharvest infrastructure.

Finally, the new policy agenda must focus on a balanced approach to sustainable agriculture development. Food security, value adding to satisfy domestic demand, and efficient production for import substitution remain the main focus of attention. Furthermore, import substitution must be inclusive and redefining it, for instance, producing feedstock for biofuel to reduce importation of petroleum product, is an indirect import substitution that can be considered. Agriculture is an encompassing sector and the policy for the agriculture sector of Fiji must be formulated, not the policy within the administrative domain of the MOA.

5.0 REVIEW OF RELEVANT POLICY PAPERS

Ten papers reviewed are as follows:

- 5.1 Agriculture Strategic Development Plan 2010-2012, Department of Agriculture Fiji, December 2009.
- 5.2 Alternative Livelihood Project, TA No. 3887-FIJ, Asian Development Bank, Technical Assistance to the Republic of the Fiji Islands, May 2003.
- 5.3 Rural and Outer Islands Project, MOA, Sugar and Land Resettlement, Asian Development Bank, Technical Assistance to the Fiji Islands, September 2005.
- 5.4 Livestock Sector Review and Identification of a Livestock Support Project, November 2009.
- 5.5 Rural Land Use Policy for Fiji, Prepared by David Leslie and Inoke Ratukalou on behalf of the MOA, Sugar and Land Resettlement. Supported by Secretariat of the Pacific Community (SPC)/ Deutsche Gesellschaft für Technische Zusammenarbeit (GTZ) GmbH.
- 5.6 Fiji Agriculture Marketing: A Policy Framework Andrew McGregor and Waisiki Gonemaituba, December 2002. Fiji Agriculture Investment Guide: Discovering Opportunities Harvesting Potentials.
- 5.7 Republic of Fiji National Climate Change Policy, Prepared by the Government of the Republic of Fiji, in consultation with the National Climate Change Country Team and national and divisional stakeholders Published by the Secretariat of the Pacific Community Suva, Fiji, 2012.
- 5.8 Review of the non Sugar Agriculture Sector, Ministry of Strategic Planning, National Development and Statistics.

- 5.9 Sugarcane Industry Action Plan 2013-2022 Prepared by the Sugar Industry Stakeholder Action Group, Lautoka Fiji, December 2012. Secretariat of the Pacific Community.
- 5.10 Potentials for Liquid Biofuels in Fiji, Community Lifelines Program, Secretariat of the Pacific Islands Applied GeoScience Commission, March 2009.

Summary and Findings

- *The initiatives to develop program due to the contracting of the sugar industry was first initiated as early as 2003 by the ADB. The proposal was to implement a project that would create increased and diversified on and off farm livelihood opportunities for people in rural areas to offset adverse effects of sugar restructuring and lease expiry and support poverty reduction. The project would comprise four components to be implemented over six years i) Agriculture Diversification, ii) Offfarm livelihoods; iii) Rural Financial Services, and iv) Project Management. All components are directed toward the overall objective of increased and diversified livelihood opportunities. The proposal that would cost around 104 million FJD was not implemented.*
- *Ten years later, the Sugar Industry Action Plan, is an attempt to revitalize the industry. According to the Action Plan, Long term strategic priorities relate to de-concentration of the industry from the Fiji Sugar Corporation (FSC) to allow it to focus on its core function of sugar cane processing and revenue generation from co-generation, ethanol production, and other value added opportunities, provided commercially viable business plans can be developed and project financing secured. Long term consideration is also given to the eventual re-privatisation of the FSC. No specific recommendations are provided at this stage as it is considered premature to do so.*
- *There was also specific focus on the Outer Islands, which have been receiving less assistance in the past. The project would comprise four components to be implemented over six years i) Agriculture Diversification, ii) Off farm livelihoods; iii) Rural Financial Services, and iv) Project Management. All components are directed toward the overall objective of increased and diversified livelihood opportunities. The proposal was not also implemented for a total proposed budget of 183 million USD.*
- *Climate change agenda for Fiji focuses on using conservation and environmentally sound agriculture technologies for the best use of land and water resources and prepare for possible climate changes.*
- *The study on marketing of Fiji crops would be also sufficient to initiate the formulation of a policy framework for national agricultural development. For each product group, the industry situation is outlined, market opportunities are identified, marketing arrangements and performance are evaluated, marketing problems constraints and requirements were discussed, and recommendations were made on government's role in facilitating improved marketing. The policy recommendations were generally not put into action. Furthermore, the recommendations must be updated based on current developments. The marketing study could have been the basis of the preparation of an industry focused program for the priority commodities.*
- *Very recently, The Ministry of Strategic Planning, National Development and Statistics (MSPNDS) examined the agriculture supply chain link, but their recommended courses of action is first the realignment of existing resources of government in line with strengthening organizational capacities that can be attained within two years. There are also long term capital investment allocated but this investment appears to be inadequate to have an impact or there is a lack of plan from the MOA.*

- *All the policy papers identified the problems and proposed corresponding solutions. Failure of government programs and the lack of the capability of the various research and extension units were clearly spelled out. Apparently, there was no clear approach on what would be the new structure after sugar. Furthermore, the revitalization of failed programs in rice, coconut, and dairy industry development remains vague.*
- *Most of the policy agendas are initiated by a party with future interest of providing development assistance or loan. Funding and implementation, therefore, would still follow the international development modality of grant or tied up loans. While private investment was being pursued by all the policy papers, no project was initiated that would really explore commercial funding and private sector participation.*
- *In general, most of the policy papers were not translated into projects for funding.*
- *The land use policy study has been initiated but it was not sustained toward a land use suitability plan for the entire country.*
- *To arrest the declining livestock industry, there was an EU proposal but also was not given funding support.*
- *The biofuels policy must further look at cassava and other root crops as possible feedstock for ethanol. The MOA must be prepared for new crops as small scale ethanol plant is the future of ethanol technology. In biomass gasification, there are already commercially available model for small scale plants. Therefore, research must focus on biomass crops.*
- *While most of the policies were prepared by foreign independent consultants for development funding agencies like the Asian Development Bank, the Secretariat of the Pacific Communities (SPC), and the European Union, the source of funding was narrow and have basically similar modalities.*
- *It is not the policy that is lacking, but the implementation of the policy. The government's law did not adjust to policy changes and there are existing acts in agriculture development that are no longer relevant. In a country characterized by a mix farming system, a combination of trade liberalization, import substitution, government intervention, and private sector intervention would work as long as there is a community based national program that is sustainable.*

6.0 CONSULTATION WITH STAKEHOLDERS

6.1 Consultation Process

The consultation with various stakeholders in Fiji starts with one-on-one meeting with the various units in the MOA and partner institutions. Consultation with farmers, private sector, international development organizations, nongovernment organizations, and educational institutions follows. After the one-on-one consultation, two public consultations were held in Nadi and Suva. The draft of the agriculture development agenda is presented and comments and suggestions are gathered through open discussion. These contributions from the participants are then included in the final development agenda.

6.2 Analysis of Resources and Stakeholders Involved Using SWOT

The SWOT Analysis assesses the situation for agriculture development agenda formulation purposes and then translates every identified Strength, Weakness, Opportunity, and Threat into policy objective. Annex 2 shows the SWOT Analysis and the agriculture development objective formulation.

Annex 3, on the other hand, shows the logical placement of development objectives that eventually serves as a guide in the preparation of the national agriculture development framework and the selection of strategies. Not all identified objectives were considered. On the other hand, there are other related or similar objectives and strategies that do not appear through the SWOT analysis but are also considered in the agriculture development agenda formulation. In general, however, the procedure results to a more objective approach as the SWOT Analysis provides a balanced assessment of the defined entities for development agenda formulation as a solid guide for framework formulation.

7.0 THE AGRICULTURE DEVELOPMENT FRAMEWORK

7.1 Goal and Objectives

7.1.1 Goal of the Agriculture Development Agenda

The goal of the agriculture development agenda is the national government's agriculture sector goal according to the Roadmap for Democracy and Sustainable Socio-Economic Development. This national goal is to ***Build Sustainable Community***, which alludes to the rural and urban communities because it is the national government's primary responsibility to ensure food security alongside the primary economic goal of increasing income and employment opportunities in the rural communities.

7.1.2 Purpose of the National Agriculture Development Agenda

The purpose of the policy agenda, which is the immediate result to be attained, is to establish ***a diversified and economically and environmentally sustainable agriculture economy in Fiji***.

7.1.3 Core National Agriculture Development Objectives

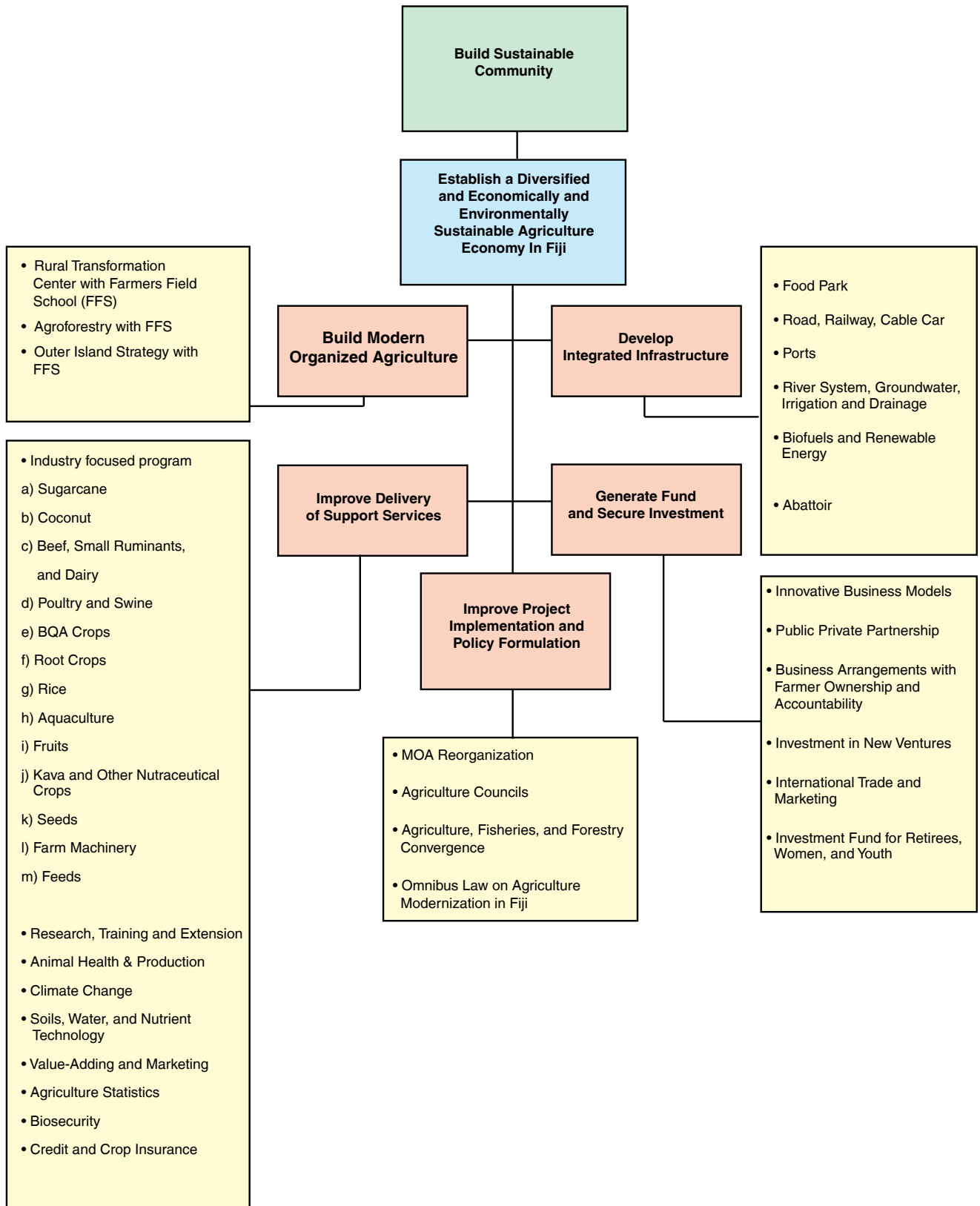
After analyzing the translated agriculture development objectives, the core objectives identified are as follows:

- a) Build modern agriculture in Fiji as an organized system of producing, processing, and marketing crops, livestock, and aquaculture products.
- b) Develop integrated production, processing, energy, and transport infrastructure support system for agriculture.
- c) Improve delivery of agriculture support services.
- d) Enhance capabilities to generate fund and secure investment through foreign investment, public private partnership, and other innovative business arrangements.
- e) Improve project implementation and policy formulation capability within the MOA and its partner institutions.

Figure 1 shows the overall goal and underlying objectives and strategies. All the strategies identified lead toward attaining the five core objectives, and the five core objectives are integral components of an inclusive development agenda for the agriculture economy of Fiji. The logic in the framework is that together, a) a modern organized agriculture, b) a developed integrated infrastructure support, c) an improved delivery of support services, d) an enhanced capabilities to generate fund and secure investment, and e) an improved project implementation and policy formulation result toward establishing ***a diversified and economically and environmentally sustainable agriculture economy in Fiji***. This purpose then, together with other programs of the government, contribute to ***Build Sustainable***

Community, which is the agriculture sector goal according to the Fiji’s Roadmap for Democracy and Sustainable Socio-Economic Development. The national agriculture development goal alludes to the rural and urban communities because it is the national government’s primary responsibility to ensure food security alongside the economic goal of increasing income and employment opportunities in the rural communities.

Figure 2. The Goal, Objectives and Strategies Actions, Fiji 2020 Agriculture Development Agenda.



7.2 Strategic Action

7.2.1 Build Modern Agriculture as an Organized System of Producing, Processing, and Marketing Crops, Livestock, and Aquaculture Products

a) Rural Transformation Center (RTC) Approach

- Definition and Initiatives

The nucleus of the modern Fiji agriculture is the proposed Rural Transformation Centers (RTCs), which are now operational in India and Malaysia. RTC is a facility that promotes integrated rural development initiatives. To be established by any party or through collaborative undertaking by multiple parties that include government sector, the private business sector, international development agencies, and other sponsors, the RTC is a venue that facilitates the collaboration of different parties engaged in promoting agriculture development. The RTC also serves as a one-stop information center that combines information and services offered by various ministries, government corporations, private corporations, banks, and other agencies. Every RTC has a service area, and in Fiji, it can be a 25-50 kilometer radius from the RTC.

The study carried out by Veit (2009)⁴ supports the establishment of RTCs in Fiji. The study is about evaluating the fiscal viability of collection centers. In the study, the quantitative analysis shows that under certain assumptions, collection centers are fiscally viable and with greater returns than the current system. Furthermore, the functions of the collection centers as proposed in the said study by Veit are as center for technology transfer information, market price and information, technical assistance and training, project negotiation, and grading system for greater market access. These other functions are not included in the Sigatoka collection center and the apparent failure in this center does not suggest that a more inclusive center would not work in Fiji. Furthermore, there are other factors to be considered. In the RTC, the approach is holistic and functions as proposed in the said study are all addressed in the RTC model being proposed. Furthermore, the RTCs are functionally linked with marketing and processing infrastructure clustering around the food park.

Proposed initiatives in the RTCs in Fiji include the following:

- Information on crops, livestock, and aquaculture products
 - Credit assistance desk by partner banks
 - Information on new technology on seeds, fertilizer, and machinery
 - Training courses available
 - Food processing and other off farm livelihood enterprise
 - Geographic Information System (GIS) based management system to be used in the integrated research, training, production, and processing system
 - Other initiatives that are in line with improving the delivery of agricultural support services in the rural communities
- Functional link with village center

At the village level, there is a village center that directly links with the RTC or with any of the food parks, markets, or processors. These centers at the village are built using simple building materials. The village center also serves as the technology and price information center. The center also becomes a venue for meeting, training, and the delivery of other services, including social services. A group of 20 farmers is ideal to be served by a village center.

⁴A Feasibility Study of Collection Centers in Fiji, Richard Veit, All ACP Agriculture Commodities Program with funding by the European Union, May 2009.

- Sustainability

Sustaining the operations of the village centers and the RTCs is the most critical part. Placing them totally under government control is not recommended. However, the role of the government, particularly the MOA, must be largely facilitative. Financial sustainability of the RTCs is a necessary parameter in the design and operations of every RTC. Nevertheless, building the RTC facilities is the main initiative of the government under the leadership of the MOA.

- Community Participation Through the Farmers Field School (FFS)⁵

The accountability of local communities in maintaining the facilities and reciprocating the services provided to them by the government must be guided by a process or an approach that builds a strong local community participation. One approach that has been found effective globally is the Farmers Field School (FFS) initiated in Indonesia by the FAO as Integrated Pest Management (IPM) for rice. FFS is a community based non-formal education approach used in training farmers. FFS now covers organic agriculture, animal husbandry, soil husbandry, groundwater management, human health, to income-generating activities such as handicrafts.

As a result of the popularity of the IPM-FFSs in Asia, there was a strong movement to copy and adapt the approach to other situations. The concept has now developed far beyond IPM in rice. FFSs are now active in Asia, Sub-Saharan Africa, Latin America and the Caribbean, Near East and North Africa, and Central and Eastern Europe, United States and Western Europe (Denmark), reaching a total of 87 countries by 2008. Further spread has taken place with the focus of the FFS moving from primarily rice. The geographic spread has been accompanied by local cultural and socio-economic adaptations by local facilitators. In the case of moving from Asia to Africa, the focus moved from IPM to Integrated Production and Pest Management (IPPM) due to an emphasis on production and already low levels of pesticide use in most crops since structural adjustments look place.⁶

In Fiji, the Tutu Training Center in Taveuni follows the same non-formal education principle being used in the FFS. In 2005, the ADB Rural and Outer Island Study⁷ recommended to strengthen this facility and to support Tutu graduates to develop a farmer-to-farmer network aimed at promoting farming techniques and pride amongst the farmers in the community. The project proposal further added the development of a sustainable farmer-to-farmer NGO for a community volunteer farmer-to-farmer support network. The institutionalization of FFS in Fiji, therefore, is based on a training program that is locally successful. While the non-formal training approaches are aimed at fully adjusting to the existing situations in Fiji, a more pro-active approach of focusing on the successful implementation of the training approach in other countries is recommended. Cost cutting is not always the solution, but efficiency and effectiveness must always be the norm. Finally, the FFS becomes the principal operating system of all the RTCs.

- Private sector participation

The private sector must also support the use of the RTC. For instance, the vertically integrated production in poultry and swine can be initiated and maintained through the RTC for more efficient participation of contract growers. This vertical integration strengthens tie up with the RTCs. Attaining efficiency through government support in the training of contract growers, production of feed crops, and poultry and swine husbandry are activities that are recommended. This model is also applicable in other industries. Supplier of agriculture inputs and agriculture machinery can make use of the RTCs in their technology transfer programs. Development banks and commercial banks can initiate their credit and collection programs through the RTCs.

⁵*The Farmer Field School Approach – History, Global Assessment and Success Stories, Arnoud Braun and Deborah Duveskog, (Unedited draft Paper) commissioned by The International Fund for Agriculture Development 3rd Draft 6 October 2008.*

⁶ *Ibid.*

⁷ *Rural and Outer Islands Project, MOA, Sugar and Land Resettlement, Asian Development Bank, Technical Assistance to the Fiji Islands, September 2005.*

- Farm machinery pool and agriculture input store

An RTC can be a good site to place and operate a farm machinery pool. The pool provides access to equipment for farming operations, harvesting and postharvest handling, and other land and water works in agriculture that need machinery for timely, efficient, and cost effective farming operations. This venture is viable as a partnership with the private sector or through a cooperative. The farm machinery pool provides greater efficiency, access to new technology, and access to pool of resources such as labor, experience, and ideas. If owned and managed by a farmers' cooperative, the cooperative owns the machinery and deploys it through a schedule according to the needs of members and can be leased to non members.

b) Agroforestry

Agroforestry is an approach that also strengthens agriculture and forestry convergence and it also becomes an operating system in the RTCs in upland communities in Fiji. There are two technologies both developed in the Philippines and already being applied in other countries that are highly recommended. These technologies are the Sloping Agricultural Land Technology (SALT) developed by the Mindanao Baptist Rural Life Center (MBRLC), which has been introduced in Fiji, and the Line Planting Technology developed by CARESS Technology Group in the Philippines that has been tried commercially at the Paper Industry Corporation of the Philippines (PICOP).

- Sloping Agricultural Land Technology (SALT)

SALT has been included in the land and soil management technologies that the MOA is experimenting and promoting. SALT is a form of alley farming in which field and perennial crops are grown in bands 4-5 m wide between contoured rows of leguminous trees and shrubs. The latter are thickly planted in double rows to form hedgerows.

SALT is part of a menu of soil management practices. The strategy of using tree legumes to improve the fertility and stability of agriculture soils is becoming popular in developing countries. It provides a means for resource-poor farmers to achieve sustainable production without the use of expensive chemical fertilizers. SALT is a simple, applicable, low-cost method of upland farming. It is a scheme developed for small farmers with few tools, little capital, and little knowledge of modern agriculture.

- Line Planting⁸

Line Planting technique is a unique system in reforestation that profitably combines commercial trees and agriculture crops and incorporates site compatibility, optimum growth rates, competing land use, and rural income. Trees are planted in lines with a spacing arrangement of 10m x 1m or 15m x 1m, facing an East-West direction to maximize the sunlight entering the alleys. Root crops, legumes, sweet sorghum, and other biofuels crops can be initially used as the intercrop. There is minimal or zero cost of maintenance for forest trees because while managing the intercrop, the principal trees are already taken cared of. Thinning of trees to maintain the carrying capacity of the land is practiced in the third and seventh years of the life of the trees.

c) Outer Island Strategy

- Special strategy for outer islands

A special development strategy for outer islands of Fiji is necessary. The ADB study for the development of the rural areas including the outer islands indicates that the immediate purpose of the project is to increase opportunities to access markets and enable beneficiaries in the rural areas and outer islands to exploit those opportunities.⁹ While the RTC is still the most appropriate in the outer islands, the identified objective of introducing a managed production and processing system for outer islands guides the formulation of the strategy for these communities in Fiji.

⁸New Lowland & Upland Agroforestry Project Alternative, A National Social-Economic Program for the Philippines, CARESS Technology Group, Los Baños, Philippines (Power Point Presentation, Updated 2012).

⁹Rural and Outer Islands Project, MOA, Sugar and Land Resettlement, Asian Development Bank, Technical Assistance to the Fiji Islands, September 2005.

Outer island communities are engaged in multiple livelihood activities, which include fishing, farming, handicraft, and off farm livelihood. Recently, the communities are having interest in food processing for value adding and handicraft. Their energy needs can already be supplied domestically using village level technologies such as solar technology and biomass gasification. Using biomass gasification in supplying their own energy needs, they also earn in supplying the feedstock requirements. It is therefore the establishment and operations of the RTCs in the outer islands that are recommended but the initiatives in the outer island RTCs may suit to the own needs of the communities.

Primary postharvest handling such as drying and storage, production of feedstock for a gasification plant, and other self sufficiency strategy in the outer islands must be supported to ensure better productivity.

- Organic agriculture in outer islands

According to the Organic Trade Association (OTA)¹⁰, organic production is based on a system of farming that maintains and replenishes soil fertility without the use of toxic and persistent pesticides and fertilizers. Organically produced foods also must be produced without the use of antibiotics, synthetic hormones, genetic engineering and other excluded practices, sewage sludge, or irradiation. Organic foods are minimally processed without artificial ingredients, preservatives, or irradiation to maintain the integrity of the food.

In outer islands and in remote areas that are not yet exposed to commercial agriculture, organic agriculture must be promoted. The FFS is also the best approach to be employed in the establishment and maintenance of these organic farms.

7.2.2 Develop Integrated Production, Processing, Energy, and Transport Infrastructure Support System in Agriculture

a) Food Park

- The Wageningen University and Research Center (WUR) model¹¹

From seed to shelf developed by WUR in the Netherlands, food park facilitates end-to-end food processing with beneficial forward and backward linkages. Designing metropolitan food clusters and agroparks is based on an integrated approach of chain development and regional development in a creative research by design process. WUR offers detailed expertise in production chains, logistics, processing, environmental aspects, spatial planning and co-design in a participatory approach. WUR has since 2000 been elaborating the concepts of agroparks and metropolitan food clusters. On the one hand, the agropark means spatial clustering of different agro-production chains and the spatial combination of agro-processing and non-agro functions, which is called horizontal integration. On the other hand, it aims at improved co-operation of different parties in value chains, which is called vertical integration of production, processing, logistics, and trade. In combination, the results are many prosperous scenarios, including not only the production of food, feed, vegetables and fruits, but also of fuels, fibers, fermented products, flowers, fragrances, flavours, functional molecules and pharmaceuticals. The park's facilities are outlined as follows¹²:

- **Production** – Green houses, tunnels and nurseries for plant production, and livestock farms etc.
- **Aggregation** – Market terminal, loading and unloading yards, sorting, grading and auction halls
- **Segregation** – Sorting-grading-repacking facilities for wet and dry cargo
- **Post Harvest** – Pre-cooling, ripening, irradiation and vapor heat treatment
- **Storage (Wet)** – Multi-chamber cold rooms, commodity cold storage and sub-zero chambers
- **Storage (Dry)** – Modern warehouses, silos, oil tanks and fumigation services

¹⁰ <http://www.ota.com/definition/quickoverview.html>

¹¹ *Greenport Shanghai Agro Park, Working Paper No. 7. WUR, Transforum Agrogarden, and SHC.*

¹² *YES Bank of India and Wageningen University. Chennai Food Park Model, Project Management Office, Ground Floor- Nehru Center; Discovery of India Building, Mumbai, India. February 2009.*

- **Biomass Storage and Bio-fuel Refinery** – this will serve as the “sanitary landfill” for all farm wastes that are properly segregated according to classification. This includes warehousing for feedstock, contract production of feedstock and waste collection, and centralized bio-refinery and barge transport of fuel.
- **Distribution** – Inward and outward logistics and distribution/consolidation centers and container handling facilities etc.
- **Value Addition** – Food processing zone and built-to-suit units for large, medium and small processing units for meat and poultry, dairy, juices, cereals, snacks, pickles, confectionary, nutraceuticals and food additives and feed manufacturing and units as desired by the tenants
- **Quality** – World class quality control lab, research and development center and pilot plant-incubation facilities
- **Amenities** – Administrative center, information technology center, banking facilities guest rooms, dormitory and canteens
- **Training** – Agri-polytechnic, horticulture training center, agri-clinics, farmer training center and retail training
- **Social Infrastructure** – education, health care, rural mart, motel/hotel, rural tourism, residential zone, leisure and entertainment zone
- **Common Infrastructure Utilities** - Power generation, transmission and distribution, water sourcing, generation, supply and recycling system, telecom and info-com infrastructure, sewage / effluent treatment system, solid waste management system

A very vital identified objective, which is to develop appropriate infrastructure support like cold storage, aggregation, segregation, pre-ripening, and other logistics services are served by the food park. It also paves the way for the introduction of new products or expansion of the production of existing products.

Funding options in establishing and operating the food park include Public Private Partnership (PPP), Build Operate Transfer (BOT), and international development loan. In India, the government has recently announced the establishment of 12 food parks.¹³ In India at present, securing land to establish the food parks is the main problem as it takes time in negotiating for the land to erect the food park. In Fiji, land to put up the food park is available.

The food park is an edifice that portrays a solid structure toward building an internationally competitive agriculture economy in Fiji. Farming and fishing communities served by the food park infrastructure become the major production units of the agriculture economy of the country. The park also addresses concerns such as job training, business skills development, and community revitalization.

The food park may be functionally linked with such resources that include supermarkets, farmers’ markets, gardens, transportation, and community-based food processing ventures. The food park also focuses on self-reliance and empowerment and is capable of establishing better links between farmers and consumers. The food park also focuses on the food system, by focusing on collaboration among many partners involved in farming, processing, distributing, marketing and consuming food products. The food park, therefore, is the anchor of an integrated agriculture infrastructure system in Fiji.

Lautoka in Viti Levu is the most ideal site for the food park due to the presence of an international sea port, the proximity to international airport in Nadi, and the availability of land for the facilities. Lambasa is in Vanua Levu is the second option.

- The Commodity Food Park

Smaller food park for major crop in the area, for instance for horticultural crops in Sigatoka Valley, is recommended. This smaller facility serves communities directly where the industries are situated, particularly those that are far from the main food park. A coconut park is also recommended and Taveuni is the ideal site.

¹³ <http://www.newindianexpress.com/nation/Cabinet-approves-12-mega-foodparks/2013/08/08/article1724874.ece>

b) Rural Roads, Cable Car, and Railway

- Rural roads

Part of the integrated infrastructure support to modernize agriculture in Fiji is the farm to market road for easy marketing of products and easy delivery of integrated research, training, and extension services. The rural road improvement is currently addressed by the national government. However, rural roads are vital to agriculture development and the construction and maintenance of these roads must be properly coordinated as a part of agriculture development program.

- Cable car

A cable car in the context of mass transit is a system using rail cars that are hauled by a continuously moving cable running at a constant speed. In effect, it is a railway up the side of a mountain pulled by a moving cable and having counterbalancing ascending and descending cars. In areas where bridge construction is expensive to cross rivers and in remote mountainous areas, cable car is ideal. The MOA must initiate the identification of areas where cable car is feasible for the establishment of the cable car transportation system.

- Railway line

The 720 kilometer railway owned by the Fiji Sugar Corporation (FSC) is going to serve as the foundation in the establishment of the country's national railway. The FSC can possibly forge partnership with other agencies in building railway system. Funding options include PPP, BOT, and other arrangement between FSC and the private sector. The railway line is important for the rehabilitation of the sugarcane industry and the proposed food park for its interconnection with the production areas through the RTCs. The tourism importance of railway must be considered.

c) Ports Improvement

The Rural and Outer Islands Project¹⁴ prepared by the ADB identifies ports for development. This includes Savu Savu Port in Balaga Bay. In 2003, the ADB initiated Alternative Livelihood Project¹⁵ recognises that the growth on Vanua Levu could not be sustained because all products have to be transshipped to Suva before they could be re-loaded on container ships for overseas markets. The cost of transshipment within Fiji, from Vanua Levu to Suva, is almost equivalent to the cost of freight to New Zealand or Australia from Suva. The study also proposes the establishment of the international common user facility at Balaga Bay in Savusavu.

The proposal in port development in Fiji also includes improvement to existing jetty structures and facilities on existing sites including structural upgrade, extension, reclamation, coastal protection, berthing, and mooring facilities, lighting, and services. The port development proposal also includes the improvement to navigational aids and systems including lighting, marking, signage, indicators, passage and approach improvements, and day night access. Updating of existing navigational charts and equipment to comply with minimum international standards are also necessary. Furthermore, establishing and extending the national geodetic data base to include the outer and remote islands to enable instrument guided navigation is also included. All these planned development must be addressed for sea ports development in Fiji in order to build a modernized agriculture.

¹⁴ *Rural and Outer Islands Project, MOA, Sugar and Land Resettlement, Asian Development Bank, Technical Assistance to the Fiji Islands, September 2005.*

¹⁵ *Alternative Livelihood Project, TA No. 3887-FIJ, Asian Development Bank, Technical Assistance to the Republic of the Fiji Islands, May 2003.*

d) Irrigation and Drainage

Dredging of rivers that are heavily silted is one of the identified objectives based on siltation problems in the river systems. However, the root problem of siltation is the improper land use practices and improving these practices can reduce siltation. An integrated plan on the use of water is therefore necessary and while reducing siltation, using the river system for irrigation and aquaculture practices using river ways can be applied. The water resources in Fiji then have multiple uses, which include irrigation, energy, fish production, and potable water. There is therefore a need for a comprehensive water use plan in Fiji to be included in the proposed Omnibus Agriculture Development Law as proposed in Section 8.3.1.

e) Biofuels and Renewable Energy

- Renewable energy feedstock

The problem on ensuring adequate electricity is more glaring in outer islands and remote villages. However, in the main islands where there are opportunities for alternative energy, the Fiji energy policy of supporting ethanol and the use of biomass for renewable energy requires agriculture development initiatives. The most difficult to secure in renewable energy is feedstock. Therefore, technologies on agroforestry, root crops production, and the introduction of other crops with high biomass must be studied in agroforestry and other cropping systems. Renewable energy feedstock crops can be grown as secondary or even primary crops.

In Fiji, one of the products that is already existing is biomass wastes from pines that are grown for logs and wood chips. Converting the wood wastes into feedstock using the most advanced plasma gasification technology is an option. There are crops that can be grown as feedstock like bamboo that grow fast for biomass. The rain tree and the African tulips that are growing wild in Fiji offer also biomass potential through efficient harvesting using selective cutting and using mobile shredder.

Agroforestry can also be introduced through FFS for the cultivation of biomass crops or for the gathering of biomass. The village centers are then used as the biomass collection centers.

- Exploring all options to reduce dependency on importation of petroleum fuel

The Government of Fiji after the fifth increase of the year in fuel prices in November 2005 considered itself 'forced' to focus on the exploration of developing renewable energy sources, including those from agriculture by products. In early 2006, the largely government owned Fiji Electricity Authority (FEA) unveiled an intensive and ambitious (\$350 m) capital investment program to be a 100 percent renewable energy power utility in 2011. The investment program included the production of energy from bagasse and ethanol fuel from sugar, to involve the Fiji Sugar Corporation and during the course of 2006 approved both a National Energy Plan, and Sugar National Adaptation Strategy to usefully revive the sugar industry by changing its primary focus so that of extracting a locally produced alternative to the expensive imported diesel fuel.¹⁶ However, the ambitious program of the FEA was not able to take off. With the advancement in gasification technology combined with biorefinery for synthesis gas, which is the main product of biomass gasification, the agriculture and energy program of Fiji must be consolidated to renew the ambitious goal of FEA.

In Fiji, crude oil makes up about 30-40 percent of the retail price for unleaded and diesel fuels. More important, almost 40-45 percent of the cost of unleaded and diesel fuels are determined in the world markets, with the remaining 56-60 percent being controlled by the local economy.¹⁷ Serious effort therefore must be exerted to produce substitute for liquid fuel using biomass through gasification technology and complementing technology that transforms synthesis gas into diesel.

¹⁶ *Potentials for Liquid Biofuels in Fiji, Community Lifelines Program, Secretariat of the Pacific Islands Applied GeoScience Commission, March 2009.*

¹⁷ *Ibid.*

- Biomass gasification and ethanol

Biomass gasification is the partial oxidation of a solid fuel which produces a synthesis gas. Biomass gasification can be used for hot air generation purposes in coconut processing sector as a renewable, low cost, and environmental friendly energy alternative. The gas is a combustible gas that can also be a fuel itself. Small scale co-generation is possible for the syngas to feed a heater and a chiller in one.

Based on the report of the Secretariat of the Pacific Community Applied Geoscience Commission (SOPAC) in 2009¹⁸, ethanol for butane could be produced from either cassava or sugarcane. Butanol is considered to be a better fuel than ethanol; however it is yet to be produced on a large scale, economically. The production of ethanol using cassava as feedstock is profitable when crude oil prices are over USD 100 a barrel. In the same report, the use of waste to biomass is also an alternative to food crops for biofuel production as it provides a unique opportunity to reuse waste to produce fuel. The report refers to Katalytische Drucklose Verolung (KDV) process that utilizes the catalytical depolymerisation method to turn waste biomass into high quality diesel. Similar technology is already in use elsewhere, for example the award-winning Etanolix-technology by St1 Biofuels Oy in Finland, which is portable and small production plants can be close to the waste raw materials stockpile.

The development in small scale biomass gasification technology is very promising, particularly smaller plant using plasma gasification. In ethanol, the possibility of scaling down the distillery plant, and using other high yielding ethanol crops aside from cassava, is the future of ethanol technology. Biofuels policy must be updated in the context of technological advancement and availability of alternative sources of capital, which the country's energy policy is considering. The MOA needs to follow this technological advancement. Consequently, research on renewable energy crops must be sustained. Furthermore, the agroforestry approach must look also at trees and other annual and perennial crops that can be used as biomass.

The competition between crops for food security and crops for biofuels in using agriculture land must be managed and must not be a hindrance to a positive renewable energy development outlook in Fiji. Land, water, and labor must be shared for crops and biofuels. Small scale biofuel production must be compatible with food production. Significant government input in terms of policies, incentives, and finance must be required for major replanting and industry restructuring. SOPAC estimates the regional potential in 2010 for biofuels (ethanol and biodiesel) is about 30 percent of all transport fuels.¹⁹

f) Abattoir

The Fiji Meat Industry Board (FMIB) must also modernize. The modernization of the corporation hinges on diversifying to other services by the establishment of subsidiaries for breeding, feed milling, and meat storage for the principal purpose of improving the FMIB's scope, profitability, and service to the livestock industry. However, FMIB must ensure that it remains a financially sustainable corporation once fully diversified.

7.2.2 Improve Delivery of Agriculture Support Services

a) Industry Focused Program

- Priority industries

At the center of the industry focused agriculture development are the two traditional industries, which are the sugarcane and coconut industries. There are also nine existing industries that need immediate attention. Other infant industries are also recommended to be given support.

¹⁸ *Ibid.*

¹⁹ *Ibid.*

The seeds and planting materials industry must be supported to grow in Fiji. Together with the feeds and agriculture mechanization, these support industries are very vital for agricultural modernization.

With the exception of the sugar industry, there are no available industry plans for the priority commodities and support industries. Coconut industry development plan preparation has been initiated both by the government and the various coconut industry stakeholders. Although there is an instruction from the Minister of Agriculture to prepare the various industry plans to be incorporated in this development agenda, the various teams created were not able to cope with the instruction. Nevertheless, this section of the agriculture development agenda provides the strategic direction of the priority industries as a guide for the MOA to further prepare the industry plans. The industry plans currently being prepared are supposed to include the target areas based on soil suitability, the priority areas, and possible partner farmer organizations and private sector. The scale of every industry plan must consider both the domestic and export market potentials.

i) The Sugar Industry²⁰

The sugarcane action plan prepared by the Sugarcane Action Group is based on a three way approach that promotes caution with regard to area expansion, a high degree of emphasis on productivity per hectare, and an approach of making the best use of available infrastructure with regard to milling. Satisfactory achievement of targets over the next three years provides the basis for greater long term financial investment, provided this is supported by a positive external market environment and sugar price.

Long term strategic priorities relate to de-concentration of the industry from the FSC to allow it to focus on its core function of sugar cane processing and revenue generation from co-generation, ethanol production, and other value added opportunities. The action plan, however, sets a condition provided that commercially viable business plans can be developed and project financing secured. Long term consideration is also given to the eventual re-privatisation of the FSC. No specific recommendations are provided at this stage as it is considered premature to do so.

Commitments to improve crop performance and milling efficiency are the core of the Sugarcane Action Program (SAP). If the agreed sugarcane production targets cannot be achieved for each of the first three years of the SAP, the SAP quickly becomes redundant and it is unlikely that further subvention of this industry could be justified.

The SAP sets-out detailed action plans and schedules under six headings: Crop Production; Cane Quality; Harvesting and Transport; Revenue Generation; Milling and Processing; Industry Restructuring and Legislation.

Commercialization of the sugar industry in Fiji is now a priority. Government-ownership must not be allowed to destruct the industry stakeholders from the immediate pressure to respond to market forces and compete as sugar producing country. There is a narrow window of opportunity for the industry; the industry stakeholders must be pragmatic, action oriented and relentless in improving its efficiency.

ii) The Coconut Industry

The One Million Coconut Trees Planting of the MOA must also follow a structured approach using the FFS model. However, the one million tree is short of the ideal target if the copra production is supposed to be brought back to the 1977 level, with a production equivalent to more than 33 thousand metric tonnes. Based on the fact that 6,000 nuts are needed to produce a ton of copra, planting 615, 323 trees per year over the next 5 years produces 6,666 tonnes of Copra per year from year 5 onwards.²¹

²⁰ *Sugar Cane Industry Action Plan 2013-2022 Prepared by the Sugar Industry Stakeholder Action Group, Lautoka Fiji, December 2012. Secretariat of the Pacific Community.*

²¹ *From Mr. Ilisoni Taoba, Executive Chairman, Copra Millers of Fiji Limited.*

The same proponent proposes coconut new planting and re-planting program that gives Fiji a three pronged approach and opportunities, as it revitalizes the coconut, dairy, and beef industries at the same time in the same area. Considering that in the 1950's until the 1960's, these forest lands were cleared for agriculture development, the planting and replanting of coconut in these open pasture land restores the original forest cover. The intercropping between coconut trees through line planting technique is seen as the solution.

The MOA's projection of one million compared to bringing back the production of copra to the 1977 is rather very conservative because the Ministry considers only the national budgetary allocation. Apparently, the government budget can be available but major restructuring and program facilities improvement within the Ministry must be undertaken. The most important to be addressed is the apparent lack of capability in producing planting materials. The establishment of tissue culture laboratory coupled with technical assistance from foreign parties with the necessary experience, and training of staff of the MOA, are on top of the priorities under the coconut replanting program.

Together with the replanting program, the coconut industry proposes a radical but affordable technological approach in developing the industry in Fiji by opening a development plant right in the community. The coconut processing plant uses elements of the coconut plant to convert the meat, water, shell and husks into different viable products for the world market right in the farms at a sustainable scale of 3000-5000 nuts per day.²²

These products are: from meat and water - virgin coconut oil (VCO) 357 liters, low-fat high protein concentrates (LFHP) 105 kilos, vinegar 2,602 kilos, feed meal 460 kilos, coco methylester (CME or bio-diesel) 105 kilos and glycerin 39 kilos; from shell –charcoal 225 kilos; from husk – geo textiles 1000 square meters and organic plant media 200 bags (60 kilos each). The operation of the development plant will prepare the set up of prospective enterprises by coconut farmers in different coconut villages in Fiji. The marketing will be assisted by the Agriculture Marketing Authority.

The farmers' households are then provided employment and livelihood enterprises that the development plant creates. At least 30 professionals who will operate the plant and at least 1000 village workers are contracted. Ancillary industries such as special soaps, massage and aroma therapy oils, and various food items from low fat high protein as meat extenders are created. The price of the coconut will also be stabilized as the price of coconut can no longer just be determined by the world market price of coconut oil. These projections need further verification under Fiji condition. However, adjustments can be made in the size of the plant for economies of scale in Fiji communities.

The plant also provides free heat out of its activated carbon production for purposes of drying and village power or electricity. For the development plant's own production processes, the heat can be used for pasteurisation of skim milk, distilling water and drying coconut fibers and peat on 24/7 basis and thus be liberated from the production effects of wet season weather. Agriculture, fishing and seaweed villages can make use of the free heat for its production processes requirements.

Revenue for the plant comes from the buyers of the health, food and beauty markets products such as: virgin coconut oil (VCO), low-fat high-protein concentrates (LFHP), and vinegar; from the buyers of the livestock and industrial markets products such as: feed meals, CME (bio-diesel), charcoal and activated carbon; and from the buyers of the agriculture and environmental markets products such as geotextile and organic fertilizers.

²² *Innovative Coconut Technologies For Villages: An Investment Agenda*, Simplicio L. Endaya & Romulo R. Mesias, Manila, 18 February 2013 (A Business Proposal).

Total investment for one development plant is estimated at 500 thousand US dollars. The investment is projected to provide an acceptable financial return. Profits to be generated will be used to further disseminate the technologies to other coconut villages in Fiji.

iii) Pineapple

The pineapple industry in Fiji has already taken off in commercial scale plantation in the 1920s through the Colonial Sugar Refinery (CSR). CSR was already engaged in canning pineapples at Votualevu, Nadi and by the early 1950s the company was already exporting 1,000 tons of canned pineapples annually. West Coast Pines Ltd. (a fully owned CSR subsidiary) ceased operations in 1956, with the loss of estate land for the new international airport and the increasing focus of CSR on sugar monoculture. It is interesting to ponder what the structure of the agriculture sector might have been today had CSR persevered with pineapple production. Remarkably in the late 1920s, the Hawaiian Pineapple Company operated a cannery on the Dreketi River. In spite of obvious potential, there is no pineapple processing undertaken today.²³

The pineapple industry in Fiji can be developed with diversified product lines intended for the local market first. The RTCs for pineapple can be put up initially in three locations, which are in Lautoka, Rakiraki, and Labasa. Profit margin analysis indicates that pineapple is one of the highest earning crops and considering its suitability to various types of soil and climate in Fiji, and for being a good crop that is not heavily damaged by cyclone, the industry must develop with diversified products. Processing right in the community using table top juice processing and dehydration are good options to be pursued. The scale of the facilities in the area depends also on other fruits that can be processed together with pineapple into juice, jams, and dehydrated product. Mango is seen as the best mix.

iv) Root Crops

The root crops industry in Fiji includes yam, ginger, taro, and cassava. The country has higher technical efficiency in the production of these crops being a traditional crop in the region grown for years already. However, the export market for roots crops is highly competitive, with India and Vietnam in Asia and Ecuador in South America offering lower prices. The recent approach in root crops is value adding, using flour and chips as the main products. To ensure efficiency in local marketing, collection centers that are linked with the RTC must be properly set up.

Root crops for export require cold storage for more efficient postharvest handling. The existing collection centers must be aligned with the proposed RTCs. Value adding products for root crops using village level processing is also recommended. The Kaiming Agro²⁴ has proven it for ginger. From semi-processed ginger, the company now is producing finished ginger products such as ginger confectionery from the semi-processed ginger that the company used to supply. This has helped us make bigger profits, as finished ginger products do not need to be processed further and are ready to be sold directly on the export markets. There are more possible finished products from ginger and root crops to be explored and the processing can be done also at the village level. If processing is integrated with renewable energy, the value adding venture can be more viable.

v) Fruits and Vegetables

The fruit industry, which at present is dominated by mango and bread fruit, requires cold storage support services and value adding. Mango also requires introduction of new variety as the most common pickled mango in Fiji has limited market niche. However, possible value adding uses that include fruit juice,

²³ *Fiji Agriculture Marketing: A Policy Framework Andrew McGregor and Waisiki Gonemaituba, December 2002.*

²⁴ *Kaiming Agro Processing Ltd (KAPL) is located in Navua and currently buys ginger from 350 and 400 farmers, mostly concentrated in Fiji's Central Division.*

dried, and jam are worth exploring considering the existing adaptability of this variety of mango under Fiji condition. Other Southeast Asian fruits such as mangosteen, rambutan, and durian are also worth exploring and these fruits can have a niche market in the tourism sector and for export. On the other hand, the vegetable industry, which has been expanding into greenhouse agriculture needs further infrastructure support. The cold storage and processing facilities can be integrated in the industry. Pipe irrigation system for the use of sprinkler and drip irrigation can be introduced. Mechanization and postharvest handling infrastructure are also necessary.

The availability of commercial nurseries that will support the planting of fruits must be put in place. This support to the fruit industry also justifies the need for tissue culture laboratories that can be even commercially operated. In enhancing flowering of mangoes and other fruits, flower inducing technologies must be applied using a sustainable system.

vi) Rice

Rice production in Fiji can be competitive because the potential yield has not been reached. If the rice farming communities are able to increase the yield to 6 tonnes per hectare from the present 2 tonnes, the industry becomes competitive. At present, the low yield is not due to the existing environmental condition, but due to the application of poor management practices. The common perception that rice production in Fiji has no competitive edge does not take into account the existing production practices by farmers, but looks only at yield and cost of production and compares it at the prevailing world market price of rice. However, the 2008 international rice crisis has already provided a lesson that the rice traded in the international market is very thin and Fiji may face the problem of not being able to buy rice in case of any global rice shortage.

The FFS, which started in rice farming in Indonesia, can be immediately tried in Dreketi. With the success of FFS in other countries, there is no doubt that rice yield in Fiji increases. Furthermore, the implementation of the first FFS for rice in Fiji becomes useful in designing other FFS in other industries.

There is no need to increase the existing rice production areas in Fiji for the country to become self sufficient in rice. It is only through the rehabilitation of existing irrigation systems. However, expansion is attractive once production efficiency is attained and the introduction of hybrid rice and quality rice like the Basmati variety is worth exploring both for the tourism sector and export markets.

vii) Beef, Dairy, and Small Ruminants

In dairy, the chilling centers can be expanded to become the RTCs. The development of these industries must be inclusive also, taking into account pasture development, feeds and feeding, breeding, veterinary health, and processing. The production of quality meat acceptable to the tourism industry must be given attention. The industry must promote the holding of annual fair for educational, commercial, and tourism purposes. Energy cost in the chilling center must be addressed through biogas or gasification technologies.

viii) Swine and Poultry

The growth of the vertically integrated swine and poultry industries needs support. There is still room for efficiency, which can be brought by further competition and the introduction of better facilities. The development in the feed industry is also crucial in the further development of these industries. The holding of fairs is also vital to the development of these swine and poultry industries.

ix) BQA Crops

The BQA crops are highly dependent on the export market. In New Zealand, these crops are confined to the flea market. The problem on volume, consistency, and quality are still to be addressed to explore the larger mainstream market in Australia and New Zealand. On this basis, the BQA industry must focus on consistency and quality. The industry also needs seed production, farm mechanization, nutrient management, and cold storage support. Introducing the RTC through the existing private collection centers and exporters is an option.

x) Kava and other Nutraceutical Crops

The development of Kava industry must also follow an organized approach. The industry needs also processing support for extraction and processing into different value adding products like drink. To maximize the use of processing facilities and to gain better access to marketing intermediaries or processors engaged in multiple product lines, the Kava industry must be developed together with other nutraceutical products such as Noni, Moringa, and medicinal herbs. There will be an RTC that will have this industry as the primary concern.

xi) Aquaculture

Based on the FAO and OECD (Organization for Economic Cooperation and Development) global agriculture outlook with focus on China, the global aquaculture industry will grow and new areas will be explored.²⁵ Fiji has advantages as unexplored lands are abundant. A business model for aquaculture proposes the establishment of aquaculture complex with integrated operations from hatchery to fish processing and marketing. Fish farmers are participants as out-growers. Through the grow-out system, farmers obtain the fingerlings, feeds, and other inputs from the center and they grow their fish on their own farms. The proposed integrated fisheries business is a model that can be replicated nationwide for the culture of tilapia, milkfish, and other fish species that are grown in commercial aquaculture that have export market. It can be a model also for private and farmer sector collaboration. Furthermore, the complex can serve as the nucleus in the development of local aquaculture industry and to be serve also by the FFS as the operating system.

xii) Seeds

Strengthening the capacity of Fiji to make good quality seeds available and affordable primarily through local production is necessary. This initiative contributes to the maximization of both agro biodiversity and productivity in order to achieve national food security while reducing environmental degradation and the depletion of natural resources. Fiji seed policy must be primarily directed toward the establishment of a local seed industry, which engages in seed production, explore the importation of genetic materials, explore the production of seeds particularly in disease free islands of the country for outsourced production, and ensure the availability of seed and planting materials for biodiversity. The establishment of a home grown seed company must be supported by access to breeding materials through the outside sources that the MOA establishes collaborative relationships.

The nursery and tissue culture laboratory support to ensure the availability of planting materials must be also invested with assistance from the MOA.

The development of the seed industry is guided by a national seed policy, which is still under the initial stage of preparation inspite of previous efforts exerted by the MOA. The leaders in the industry, particularly those from the private sector, must actively participate in the national seed policy formulation. Important concerns such as seed propagation and distribution are areas the private sector are more concerned. The technical concerns in the industry such as seed purification and breeder stock maintenance, seed health, adaptation trial, seed buffer stocking, adaptation of new varieties, and facilities upgrading and new development must be the primary responsibility of the Research Division of the MOA.

²⁵ *OECD-FAO Agriculture Outlook 2013-2022, OECD Publishing, 2013.*

xiii) Feeds

The feed industry in Fiji must include the expansion of areas planted to corn, the use of cowpea as a rotation crop after rice, and the planting of leguminous crops within the existing cropping systems. Sweet sorghum, a grass crop similar to sugarcane, which can be used as a feed crop, ethanol crop, and biomass crop, is an option in the sugarcane belt. The feed industry development includes the use of existing by products from coconut, sugarcane, and fish processing. While other ingredients remain to be imported, the reduction in feed cost by locally producing some ingredients is very important. The development of the feed industry also ensures preparedness not only for the poultry and livestock industries, but also for the aquaculture industry development in Fiji.

The existing feed mill plant in Kornivia must be activated in partnership with the private sector using toll milling concept. In the proposed toll arrangement, the private miller uses the property for certain fee arrangement and the MOA specifies the product output and may use also materials to be indented by other parties. By way of this collaboration, the model feed milling arrangement can be expanded in other areas. Furthermore, private sector initiative in the development of the feed industry must be supported.

Research support to the feed crops industry also includes feed formulation and the trial of improved varieties of the identified feed crops, cowpea for instance. The toll milling arrangement also supports this research.

xiv) Farm Machinery

The lessons learned in the Dreketi rice milling center is considered in the development of farm machinery industry in Fiji. The combine harvester promotes efficiency but the maintenance and repair become a problem. A shift to light harvester, for instance the rotary reaper brush cutter type and the light thresher is an option. For the other industries' use, machinery and implement must be compact, light, low-powered, and multi-purpose. Available materials must be used in local fabrication to reduce price. Manufacturing procedures and manufacturing of parts must be precise. Small size tractor, power tillers, and small farm equipment must meet the needs of small farmers. Operators safety and comfort must be considered.

The Korean lesson is worth following in Fiji due to smallholder farm and the predominance also of upland farms in Korea. Because the farming scale in Korea is small with an average farming area of 1.5 hectares, investment in machinery by every farm is excessive due to increase in production cost. Therefore, mechanization through cooperative is the best way to avoid excessive investment and to reduce production cost. With this, the mechanization plan in Korea adopted the joint utilization system of farm machinery, which is divided into three categories namely operated by a group of farmers, farmers association, and pilot farm operated by farm association.²⁶

xv) Other Industries

While the soil suitability studies in Fiji recommend crops that are not yet grown in commercial scale, there are other industries with potential. These industries need assistance for development and similar forward looking industry plans must be also prepared. For instance, the MOA has already looked at the mushroom industry development for the tourism market. The development of the potato industry is also worth exploring even it is difficult to compete with New Zealand. The trend toward the development of crops for feeds and biomass for the renewable energy infrastructure must be carefully followed also.

²⁶ *Agriculture Mechanization and Postharvest Technology in Korea*, Kyu Hong Choi and Sukwon Kang, www.unapcaem.

- Preparation of a national land use plan

The first step in industry development is the land use plan. It provides the physical target, the location the crops will be grown and option for expansion. The SOPAC has completed the soil suitability in Viti Levu and for Vanua Levu, it will be completed soon. The soil suitability is based on the study conducted by Leslie in 1997²⁷. The study has identified outcomes that should evolve from the development of a rural land use policy and from the establishment of sustainable land use system in Fiji. The land use policy paper for Fiji has outlined that: 1) land resources, including soil, water and flora are independent and must be sustainably managed in an integrated way and the individual land user and the community have a responsibility for preventing and or mitigating land degradation; 2) Increased public awareness of the values of trees and forests; 3) Regulatory framework for the protection and sustainable development and management of rural land resources: a) the indigenous forest will be protected and managed for their biodiversity, conservation and protection values by adopting Sustainable Forest Management (SFM) principles; b) protection of the environment and management of water, land, forestry and other natural resources will be conducted in an ecologically sustainable manner; c) the planning process need to outline strategies for prevention of land degradation as well as the symptoms; d) the plantation forests must be managed and administered in a manner that sustains site quality. e) sound land use practices to maintain and sustain soil qualities; 4) Appropriate mechanisms to protect farmlands and forests from fire, pests, and pathogens. 5) Research, training, and education to improve land assessment and evaluation; land husbandry practices; farm and forest productivity and values; and land use planning; 6) Institutional reform to support and enhance capabilities in all rural sector activities; 7) Protection of water and soil values; 8) Good governance strategies to expand and diversify sustainable economic activity, increase employment, added value earnings and promotion of social development goals; and 9) An effective Fiji involvement with and contribution to global issues and laws related to the environment, rural development, and sustainable land management²⁸.

- Improve competitiveness through high yield and better efficiency

The demonstration of appropriate technologies through training and extension delivery supported by a more focused adaptive research program and farmer-to-farmer interaction are effective means of attaining high yield and improving postharvest handling efficiency. These services can be carried out through an integrated research, extension, and training system anchored on the FFS. There is no doubt that this non formal education as a training approach is applicable also in Fiji.

Research, Training, and Extension Convergence

- Convergence approach

Research and extension linkage involves focused coordination among research specialists, technical committees, extension workers, and farmers groups. Through the FFS, farmers' problems are identified. With the assistance of the university, research committees, and study meetings, and supplemented with problems identified by researchers and subject-matter specialists, a participatory research programs are then formulated. In the FFS, extension workers are already involved in identification of research objectives. In effect, there is a linkage that is established right in the early planning.

The Alternative Livelihood Project and the Rural and Outer Island Project proposed a strong research, training, and extension coordination. The most recent review by the Ministry of Strategic Planning, National Development and Statistics also identifies the problem on the lack of coordination among these services within the MOA. These three vital agriculture support services must converge for more

²⁷ *Suitability Maps for Selected Fruit, Vegetable and Root Crops in Fiji, Secretariat of the Pacific Community, 2013.*

²⁸ *Rural Land Use Policy for Fiji, Prepared by David Leslie and Inoke Ratukalou on behalf of the MOA, Sugar and Land Resettlement. Supported by Secretariat of the Pacific Community (SPC)/Deutsche Gesellschaft für Technische Zusammenarbeit (GTZ) GmbH.*

efficient and effective agricultural development project implementation. They are separate functions requiring different expertise and specialization but they must be functionally integrated to efficiently and effectively serve the ultimate beneficiaries, which are the farmers and other private stakeholders.

i) University research and extension services delivery

The Fiji National University (FNU) must orient its curriculum development toward the needs of the vital industries. The capability of the FNU and other training institutions must be strengthened. Outstanding students must be attracted to enroll in the agriculture programs and outstanding graduates must be recruited to form the future backbone of the integrated research, training, and extension services. On the other hand, the University of the South Pacific (USP), through its College of Agriculture in Samoa, needs also to cooperate by sharing expertise.

The FNU must look at the FFS implementation in the RTCs in the development of its curriculum and research programs. Through a more pro-active participation, the university's immersion, research and extension, and student recruitment program must be also community based.

ii) Agriculture education starting at the primary education

Research, training, and extension linkage can also start right in the early years of formal education. While there is an initiative in the elementary and high school education academic program in Fiji to include the practical arts and science of agriculture, including introductory biotechnology in high school program, agriculture science laboratory must be available in every cooperating school. A greenhouse laboratory with a tissue culture laboratory is ideal. Most schools in Fiji have the available space for the establishment of these learning facilities. The MOA and the Ministry of Education must cooperate in putting up these facilities.

iii) Scientific research forum

The Fiji Institute of Agricultural Science (FIAS) is being proposed as a specialized organization of professionals in the field of agriculture, life sciences, social science and economics, and other related fields. The members' common interest is agricultural development through science and technological advancement. The Research Division of the MOA serves as the initiator and the technical secretariat during the inception stage of the organization. The organization has the option to become independent once it is already capable. The institute publishes the Fiji Agricultural Journal and maintains the holding of regular scientific forums.

The Fiji Agricultural Journal (FAJ) that has been initiated through the Research Division of the MOA must be sustained and expanded to attract the participation of the agriculture research community in Fiji to engage in quality scientific publication that meets international standards. By having a publication facility like this journal, a venue for interaction within the agriculture science community in Fiji including the neighboring Pacific Island countries is thus established. The Fiji Agricultural Journal must be also supported by the government and the private sector.

iv) Research council

The agriculture research council is the policy making body that provides strategic direction to agriculture research. The council then is primarily responsible in the approval of research budget. Private sector donation, international aid, and other funding sources for research then passes through the council.

v) Industry focused research and extension

Industry focused projects through product development approach must be the guiding strategy to modernize the country's agriculture research and development services. The country's agriculture research and development agenda must seriously consider the advancements made in information and communications technology as important research tool. There is a need for the preparation of a long term national research and development agenda in Fiji to be approved by the council.

However, the researches to be carried out by these institutions must be what the agriculture industries recommend. Strict assessment of capability of researchers must be imposed to produce quality and relevant research works. Priority areas of research are postharvest handling and food products development, soils and water management, mechanization, crop management and protection, agribusiness management, and information and communications technology in agriculture. However, the Research Division of the MOA must establish and maintain reliable data base to avoid possible repetition and even duplication of research works. The research council, through its technical secretariat in the MOA, must therefore prepare the national agriculture research and development agenda following the needs of the various industries.

Animal Health and Production

According to the SPC Land Resources Division²⁹, livestock plays an important role in the social, cultural, and economic environment of Pacific Island communities. The animal health direction of Fiji must follow the Animal Health and Production theme of SPC in the Pacific region, which are to develop prosperous, efficient and sustainable animal health and production systems and to produce healthy animals and safe products for food security and income generation. Furthermore, the SPC Land Resources Division also identifies priorities by regional government, which include surveillance, development and testing of plans, strengthened public health measures, and inclusion of more sectors/stakeholders in planning and implementation. The Animal Health and Production services must be in line with these priorities.

The Animal Health and Production Program, therefore, must coordinate with the RTCs for dairy, beef, and small ruminants in providing its animal health and production services. The program must also coordinate closely with the research, training, and extension services in the research on feed and pasture crops. The RTCs can also serve as the site for better delivery of services like artificial insemination and possibly embryo transplant.

Climate Change

The application of climate change agriculture in Fiji can be introduced through conservation agriculture. Agroforestry is one option as presented in Section 7.2.1 (b). Incorporating small livestock, such as poultry, sheep, and goat, into the farms brings additional income and food security.

Other climate change agriculture activities focus on the management of natural resources. In areas where soils are prone to water-logging, new drainage techniques can get rid of flood waters more rapidly; while in dryer villages particularly the outer island rainwater harvesting is important. More effective management of soil carbon, precision application of fertilizers and nutrient, the use of energy-efficient machinery all play a part in the community. The primary goal of all the interventions is to help farmers to be prepared and ensure better productivity when facing climate change thus ensuring food security. More important, however, is that farmers are also contributing to the broad goal of climate change agriculture, which is to decrease Green House Gas (GHG) emissions.

Fiji must focus also on trainor's training. The trainers then must be equipped with knowledge on soil, land, and water conservation technologies, efficient and effective use of fertilizer, agroforestry, and other climate change cropping systems. Farmers from different communities, researchers from different disciplines, non-governmental organizations and other partners must also work together to experiment on the application of different cropping systems. This effort then shows how food security and resilience can be improved in preparation for climate change and at the same time suggests ways in which smallholder farmers are able to adjust their agriculture practices.

²⁹ <http://www.spc.int>

Soil, Water and Fertilizer Technology

- Land management technologies

The land use management practices priorities for research, extension, and training programs cover balance fertilization, intercropping, multiple cropping, use of microbial fertilizer, and use of other technologies.

- Cropping systems using legume as feed crop

Cowpea (*Vigna unguiculata*) is an important grain legume throughout the tropics and subtropics that must be given attention in Fiji because of its value as a feed crop for the livestock and poultry industry. It has some properties which make it an ideal cover crop. It is drought tolerant and can grow with very little water. It can fix nitrogen and grows even in very poor soils. It yields eatable grains and can be used as an animal fodder rich in protein.

Designing cropping systems in such a way that the soil is almost permanently covered with plant canopy is an option, particularly in rice areas and other suitable areas. In arable crops, careful timing of sowing and planting can help to avoid uncovered soil being washed away during the rainy season. After the main crop is harvested, a green manure crop may be sown. On slopes, crops should be grown in contour lines across the slopes (along the contour lines) rather than vertically. This can contribute enormously to reduce the speed of surface water.

- Fertilizer and nutrient management

The judicious use of fertilizer based on site specific recommendation is an important policy option rather than subsidising fertilizer. In case there is a program to support the fertilizer needs of farmers, bulk blending, timely application of fertilizer, use of microbial fertilizer, and micro nutrient management must be incorporated and supported through research in the FFS.

- River and ground water resources³⁰

There are laws pertaining to irrigation and drainage in Fiji that are already recommended for review. The first is the Irrigation Act (Cap 144A). It covers the Declaration of Nausori Irrigation Area and Declaration of Navua Central Irrigation Area Land Conservation. The Agriculture Strategic Development Plan 2010-2012, Department of Agriculture Fiji, December 2009. The second is the Land Conservation and Improvement Act (Cap 141). The third is the Land Development Act (Cap 142). These are area specific acts that need to be studied. Any legislative agenda on river and groundwater use must be supported by adequate technical studies both for economic and environmental considerations. A national law on the use of river and groundwater is essential. The law then opens the use of these resources for agriculture, aquaculture, potable water, and recreation purposes.

Value Adding, Product Standards, and Marketing

Fiji has no public cold storage facility. Most of the fruits and vegetables are sold in the local market and for export in fresh form. Rejects are sold in the local market. There are wastes accumulated during handling and these wastes can be used for value adding. Papaya, mango, and pineapple can form the part of dried mixed fruit. Fruit juice, puree, pickles, and jam are other value adding options for fruits and vegetables. Tropical fruit wine making must be also developed in Fiji for the hotels and restaurants.

³⁰ *Agriculture Strategic Development Plan 2010-2012, Department of Agriculture Fiji, December, 2009.*

Adding value to horticultural products can be accomplished by developing new product lines from processing and packaging, as well as by enhancing marketing activities and services provided to customers. The stakeholders in the horticultural industries in Fiji need assistance in improving their ability to add value to their products and business practices to improve profitability. They also need technical support to perform market analysis and strategic planning for their specific value-added projects. These assistances can be carried out by employing the FFS using the RTC.

Credit and Crop Insurance

- Develop and diversify financial products for small and medium scale

The Ministry of Strategic Planning, National Development, and Statistics reported that a feasibility study on establishing a collateral system with commercial banks to meet the working capital requirements of commercial farmers has been completed. Based on the study, an annual allocation can be made and be held as a fixed deposit at commercial banks and act as security for targeted commercial farmers to allow them to access an overdraft facility with the bank to meet working capital requirements. Appropriate mechanism can be put in place to safeguard the interests of government, farmers, and commercial banks.³¹

The Fiji Development Bank (FDB) is the government bank that provides lending facilities to farmers and agribusiness entrepreneurs. There are still some lending programs that are available from the bank. For instance, the Import Substitution Facility and Export Facility with funding provided by the Reserve Bank of Fiji (RBF) aims to assist exporters, large scale commercial agriculture farming, and renewable energy business to obtain credit at a concessional rate of interest is available. The bank has also the Export Credit Facility, which is an initiative of the Ministry of Industry, Trade, Tourism, and Communications (MITTC) and the bank itself. To become more competitive, the Fiji Development Bank must institute efficiency measure to serve small farmers without sacrificing repayment target.

- Crop Insurance

The occurrence of cyclone and pestand disease infestation affect the whole agriculture economy of Fiji, particularly small farmers. A crop insurance facility under the Fiji Development Bank, if allowed in the charter of the bank, is recommended. However, the efficiency in premium collection and processing of claims must be addressed. Option using automatic insurance remittance deductible from crop sales in cooperation with exporters, processors, and collection centers, inclusion of the premium in the purchase of fertilizer and other inputs, and inclusion also of the premium in loan released to farmers are other options of insurance enrolment and premium collection. The Agriculture Statistics unit within the Support Services Group of the MOA must be given the mandate to provide statistics and actuarial support to the bank.

Biosecurity

Improved agriculture export performance relies on a capable and service oriented Quarantine Service focused on facilitating exports and access to important planting materials while maintaining biosecurity to protect agriculture industries and natural resources. Fiji Quarantine must meet commitments under WTO and there must be effective linkages between quarantine and MOA entomologists and plant pathologists on issues of market access and quarantine. Established pest risk analysis procedures need to be updated to ensure maximum access to improved planting materials, while maintaining an acceptable level of quarantine security. Quarantine surveillance procedures and capability and response capability could be improved. Development of bilateral Quarantine Agreements must be done in consultation with industry to facilitate exports.³²

³¹ *Review of the Non Sugar Agriculture Sector: Reinvigorating Through Competitive Exports And Food Security” Policy Paper Series, April 2013, Ministry of Strategic Planning, National Development and Statistics.*

³² *Alternative Livelihood Project, TA No. 3887-FIJ, Asian Development Bank, Technical Assistance to the Republic of the Fiji Islands, May 2003.*

The original definition of biosecurity that is analogous with health security must not constraint the Biosecurity Authority of Fiji (BAF) in providing facilitative functions to the various industries it serves. Biosecurity encompasses much more than health security. It requires the cooperation of scientists, technicians, policy makers, exporters, farmers, and law enforcement officials. Furthermore, training, international linkage, and updating itself on the latest development in biosecurity, must be the primary concern of the biosecurity.

BAF ensures that various industries are served in line with ensuring that plant, animal health, and human health securities are ensured. While BAF must also sustain its operations by earning its own income at reasonable fee rates, the authority, however, has to ensure pro active research in collaboration with the MOA in preventive and timely response to plant, livestock, and fisheries disease outbreak.

BAF must take a look at providing transshipment facility services considering that Nadi is an air shipment hub and with a facility of the Natures Way Cooperative that remains underutilized, transshipment with treatment services can be explored.

The BAF must be provided with adequate facilities. The establishment of quarantine islands for livestock and animals by closely working with the Research Division of the MOA must be pursued.

Agriculture Statistics

The agriculture statistics services is strengthened for purposes of gathering, organizing, analyzing, and reporting agriculture data. The new Agriculture Statistics unit provides professional statistical services to research, price information monitoring and dissemination, regular farm survey, contribution of agriculture to national income accounting, and actuarial studies for crop insurance. The service unit has also the principal responsibility in organizing, analyzing, and reporting of data pertaining to natural disaster.

The agricultural statistics unit cooperates with the FAO in using the CountryStat system to be developed and maintained at national level in order that the public, private, and international sector decision makers and planners have easy access to timely and regularly up-dated data on the primary production sectors as a new benchmark for sustainable planning and development programs. The CountryStat system contains computerized web based system providing key variables on the agriculture sector and ready to be used and a decentralized and harmonized database for the Ministry accessible to users on the regional and provincial levels. With the CountryStat system is a training that improves the capacity of staff on the importance of data and methods of collecting timely and reliable data. Finally, the use of the system improves the flow of reliable and timely statistical information on the agricultural sector, and strengthens the agriculture statistical system within the MOA.

7.2.3 Enhance Local Capabilities in Attracting Domestic and Foreign Investment, Public Private Partnership, and other Innovative Business Arrangement in Agribusiness

a) Innovative Business Models

Innovative business models can be generated through interaction with farmers. For instance, the FFS in Africa has been proven to contribute in the development of innovative business models due to its participatory approach. From its early focus on participatory plant breeding approaches, FFS now covers participatory marketing approaches, value chain analysis, and enterprise development³³. Innovative business models, therefore, can be developed starting from the farming community. Through the assistance of MOA and its partner institutions, innovative business models of different scales are developed and tried. For partnership ventures between private business groups and farmers groups in projects that require new technologies, innovative business models can be also developed through participatory approach. For instance in a farm machinery pool, partnership with the private sector and the farmer as user of the technology is recommended.

³³Revitalising African Agriculture Through Innovative Business Models and Organizational Arrangements: Promising Developments in The Traditional Crops Sector, Cosmas Milton Obote Ochieng, *Journal of Modern African Studies*, 45, 1 (2007), pp. 1–27. 2006 Cambridge University Press.

- Government corporations as earning venture

The government corporations must be transformed as model corporation doing service to the farmers and entrepreneurs and also helping government agencies deliver their services. These corporations become model for the future joint venture projects to be established in line with the development of various industries. As a model to be emulated, new business initiatives eventually become guide for better delivery of services.

- Committing financial and economic returns to the government

Every investment by the government must be recovered in the form of direct revenues and indirect revenues through taxations. This objective can be realized if projects become financially sustainable.

b) Innovative Business Arrangement with Farmer Ownership and Accountability

As identified by Veit (2009) in his study of the collection centers, contract arrangement with processors and traders can be arranged in the center. Similarly, the RTC can be a venue to develop and forge business arrangement. In the presence of skilled facilitators in RTC provided by government agencies, nongovernmental organizations, and private participants, a multi stakeholder learning platform is the best approach for innovative business arrangement with farmer ownership and accountability.

The development of business arrangement evolves through working together, for instance through institutional action research and innovation. Cooperative approach to ownership of project governance must be taken into account. This approach provides a mechanism for equal access and distribution of benefits.

c) Private Public Partnership³⁴

A Public-Private Partnership (PPP) is a term used to describe a government-sponsored initiative or scheme, which involves the use of private finance to facilitate the provision of services to the public and/or the delivery of social infrastructure assets. PPPs have been used to deliver infrastructure assets in the education, transport, defense and health sectors. There is no doubt that this business arrangement is applicable to the agriculture sector in Fiji.

There are usually two fundamental drivers for PPPs. First, PPPs enable the public sector to harness the expertise and efficiencies that the private sector can bring to the delivery of certain facilities and services traditionally procured and delivered by the public sector. Second, a PPP is structured so that the public sector body seeking to make a capital investment does not incur any borrowing. Rather, the PPP borrowing is incurred by the private sector vehicle implementing the project and therefore, from the public sector's perspective, a PPP is an "off-balance sheet" method of financing the delivery of new or refurbished public sector assets

A PPP may work in Fiji as follows:

- Bidding process.

The MOA identifies the need to deliver a particular project, such as food park, an ethanol plant, or a cold storage. The Ministry advertises the need for such a project and then runs a competitive process under which private sector entities bids in order to win the right to deliver the project. The winning private sector bidder is then awarded a concession to implement its solution.

³⁴ PPP Definition from *Advocates for International Development*, Virginia Tan, Allen, and Overy. June 2012.

- Project Company.

A private sector entity contracts with the public entity and raises funds from investors and lenders in order to deliver the project (the **“Project Company”**). Usually, a new and separate private company is set up to be the Project Company in order to insulate the private sector sponsors of the project from the risk of insolvency if the project fails. This new company is known as a “special purpose vehicle” (an **“SPV”**).

- Sponsor

The activities of the Project Company are then managed by one or more private sector companies (the **“Sponsor”**). Typically, the Project Company is set up as a direct/indirect subsidiary of the Sponsor. The Sponsors are usually the equity investment divisions of large construction or facilities management companies who want their construction or facilities management divisions to deliver the project. This arrangement will be documented in a **“Shareholders’ Agreement”**.

Documentation. The Project Company enters into a contract with the public sector (the **“Concession Agreement”**). This is the key document detailing the terms and conditions of the project.

- Contractors

The Project Company enters into contracts to enable it to implement the project as it typically has no employees. Usually, there is an entity who is made responsible for the delivery of the facilities management services detailed in the Concession Agreement (the **“FM Contractor”**), and another entity who is made responsible for the provision of the construction works detailed in the Concession Agreement (the **“Construction Contractor”**). Certain responsibilities may be sub-contracted to other more specialist entities (the **“Sub-Contractors”**).

- Funding

The Project Company obtains private funding in order to finance the PPP. Usually, funds are made up of a mix of investments by Sponsors (usually a small proportion of the overall debt) and loans from outside lenders (the **“Lenders”**). The Lenders enters into **“Financing Agreements”** and **“Security Agreements”** with the Project Company, under which they agree to lend in return for security over the project. There will also be **“Direct Agreements”**. Project finance is provided on the strength of the cash flows of the Project Company, therefore the Concession Agreement is key. The payments made by the public sector entity are the sole income stream into the Project Company so if the Concession Agreement is terminated, the Project Company will have no means of repaying its debts. If a project starts to go wrong and the Project Company’s right to deliver the contract is in danger of being terminated by the public sector entity then Lenders can rely on Direct Agreements to prevent the Concession Agreement from being terminated until the Lenders have had a chance to “step in”.

d) International Trade and Marketing

International trade and marketing include the use of market intelligence, promotional strategies, and e-marketing to market and sell the agriculture products globally. Currently, the marketing or scoping studies is being undertaken by the MOA.

International trade and marketing are influenced by culture, politics, law and regulatory considerations on the international market environment. How to determine target markets for the agriculture products of Fiji must be entrusted to one agency, which becomes responsible in seeking the participation of cooperating parties. The Agriculture Marketing Authority (AMA) of Fiji has this role and mandate as well. Preparation of promotional strategy and development of an international agriculture marketing

plan to achieve the international marketing and sales goals must be prepared.

International trade and marketing also covers the nature and scope of international trade finance, including payment facilitation, risk management, financing, and the provision of information related to a global trade transaction. There are commercial and country risks that may be encountered during import-export operations. These risks must be managed and mitigated. International trade finance covers the legal implications of risk-mitigation techniques as well as the appropriate use of them. The development of a financial plan for the marketing strategy is essential.

Expertise on international agriculture trade must be enhanced through training and actual exposure using participatory training. It must be done in such a way that the possibility of gaining in international transaction is more beneficial to the economy.

e) Investment in New Ventures

New business ventures must be fully explored also to further diversify agriculture in Fiji. For instance, mix aquaculture and tourism uses, machinery parts fabrication, nursery and tissue culture, and other new ventures that have been proven in other countries but only need application of sound management and marketing strategies can become prosperous business ventures when implemented in Fiji.

f) Investment Fund

- Investment fund for retirees, women, and youth

One area that must be improved is the educational and professional competence of farmers and fishermen. The strategy of attracting professionals and retirees in the farming business contributes significantly toward improving the level of professionalism in the agriculture sector. These professionals are equipped with the management skills and appear to be more receptive to innovations, more credit worthy, and have the business network for more efficient marketing and easy access to technology and management tools. Special fund for retirees, including women and youth must be created to provide these sectors adequate access to financing.

Both domestic and foreign investment in the Agriculture of Fiji must be improved. New credit facilities must be established. For instance, in the development of a particular industry like pineapple, an investment fund can be established through different modes to be applied in the industry.

In industries that the private banks desire to extend services, the idea of new innovative funding facilities must be already a part of the industry plan.

In the international funding arena, capabilities of Fiji in project development must be strengthened. Initially, feasibility studies for projects must be commissioned to reputable institutions and private consulting groups, for instance in the establishment of international food park following the model of the Wageningen University and Research Center (WUR) in the Netherlands.

7.2.4 Improve Project Planning, Implementation, and Policy Formulation Capability within the MOA and other Institutional Partners

a) Organization and Management

i) Reorganization

The reorganization of the MOA must be guided by the five core objectives. The Ministry, therefore,

organizes itself along functional lines. Its basic operational philosophy is that a generalist agriculture officer deployed on the ground must carry out the activities and when specialists are needed, the officer coordinates the implementation of research, training, extension, infrastructure, credit, and other specialized responsibilities. The Rural Transformation approach is an integrated delivery of services focused on the target groups, who are the principal stakeholders in the development of the priority industry in the areas.

The second line function is infrastructure support, which deals with the planning, implementation, and maintenance of food processing center, irrigation, roads, ports useful for agriculture, abattoir, and other related infrastructure. It requires a highly trained infrastructure group with multidisciplinary expertise in engineering and infrastructure planning, and management.

The third line function is agriculture support services, which include research, extension, training, soil health and water use, animal health and production, credit assistance and cooperative coordination, and statistical services. Similarly, the office requires trained specialist. The important research, training, and extension convergence and with other specialized agriculture services takes place in this office. The Agriculture Statistics is then transferred to the support services group as an independent division to expand its function in support of providing professional statistical services to research, price information monitoring and dissemination, regular farm survey, contribution of agriculture to national income accounting, and actuarial studies for crop insurance.

There are two staff functions. These are the project planning, implementation, and policy formulation that manned by trained economists and planners and the investment and international development responsible for investment, international cooperation, and marketing.

The organizational chart in line with the recommended restructuring is shown in Figure 3.

ii) Delineation of Responsibilities

- Minister

The Minister assumes the principal responsibility of handling the Agriculture portfolio in the cabinet. It is under his direction that the programs of the Ministry are delivered to its target clientele in the agriculture sector of the country. The primary duties of the Minister in the operations of the MOA include the approval of plans and programs in the cabinet and the release of budget. On the other hand, the Minister is accountable to the cabinet and to the Prime Minister to deliver programs for the agriculture sector to generate employment, improve food security, and contribute to national economy. Under the new agriculture development agenda, the Minister must be entrusted with the authority to negotiate for alternative sources of funding outside the regular international development assistance that Fiji is traditionally using.

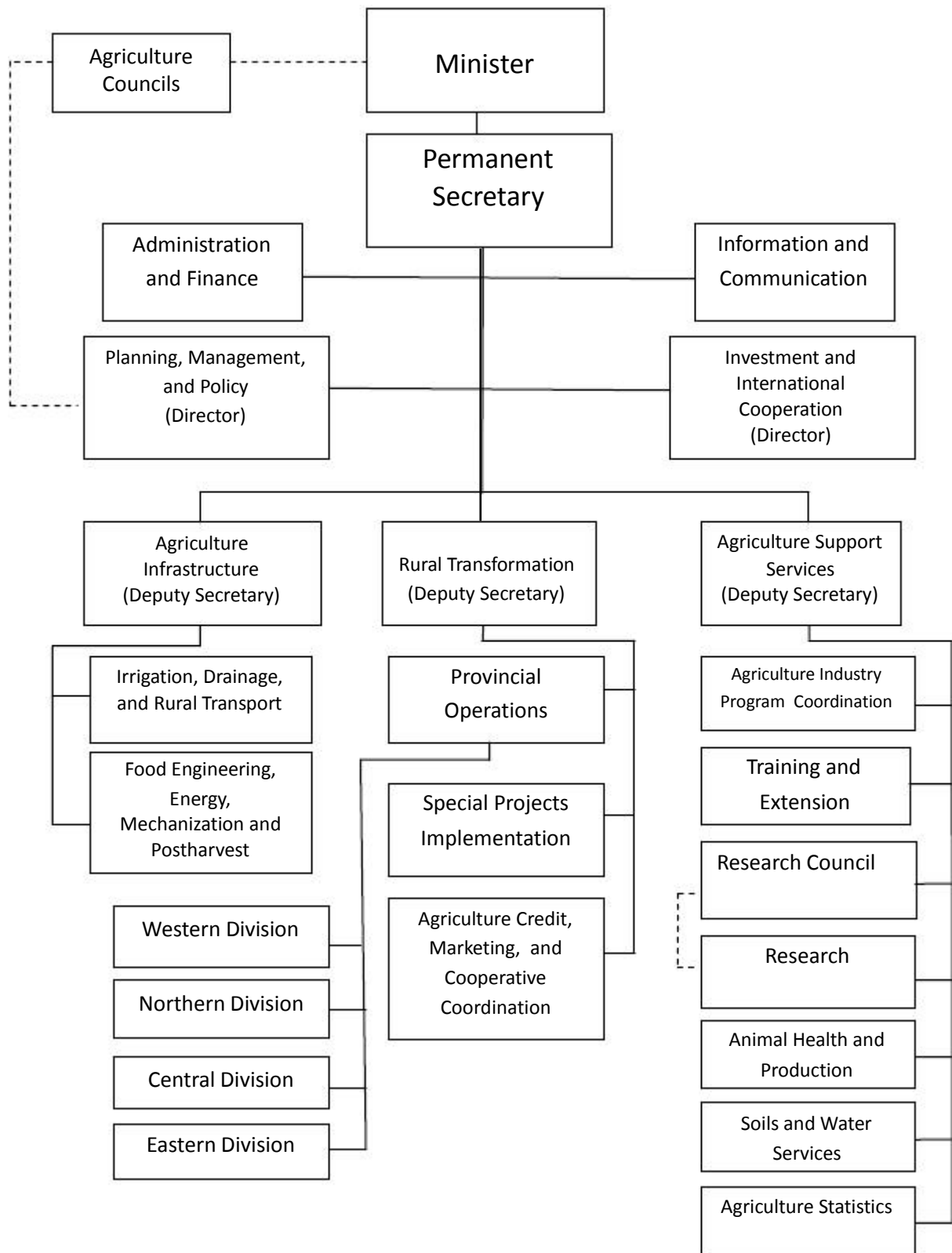
- Permanent Secretary

The Permanent Secretary is the day-to-day in charge of the operations of the Ministry. He handles both administrative and technical responsibilities. The Permanent Secretary, therefore, provides the planning, implementation, and project monitoring and evaluation support to the Minister. Under the Permanent Secretary are three Deputy Secretaries that perform line functions with the following designations and responsibilities:

- Deputy Secretary for Infrastructure

This designation is responsible for the planning and operations of agriculture infrastructure projects. These projects include the food park, cold storage and related systems, irrigation and drainage, farm

Figure 3. Proposed Oragnizational Chart, Ministry of Agriculture.



to market roads, cable car, renewable energy infrastructure that utilize agriculture feedstock, and other agriculture related infrastructure to be assigned to the office. The infrastructure projects in the RTCs and the research stations are supported by this section. Even if these infrastructure are already owned and managed by the private sector, the office provides facilitative and monitoring services to ensure that the facilities are serving the various agriculture industries' interests and for planning and policy purposes, thus ensuring the Ministry and the public of adequate technical information regarding the existing infrastructure.

- Deputy Secretary for Rural Transformation

As in-charge of a frontline function in the Ministry, this office delivers the rural development services and the overall provincial operations of the Ministry. It is primarily responsible in the establishment of the RTCs, the mobilization of farmers, and the coordination with private sector participants. The office implements industry focused projects in partnership with the Agriculture Support Services, which provide the planning and technical services to the industry focused approach. This office is also responsible in the implementation of special projects like integrated rural development projects and area focused projects.

- Deputy Secretary for Agriculture Support Services

This office is a line function that provides integrated services, which include research, training and extension, animal health service, soils and water management services, and agriculture statistics. The Deputy Secretary supervises the planning and operations of these specialized divisions.

- Director for Planning, Management, and Policy

The Director for Planning, Management, and Policy provides staff support function to the Permanent Secretary for the regular preparation of Ministry budget in close coordination with all the units in the Ministry. It has a unit that carries out policy analysis of agriculture development in Fiji in the context of local and international agriculture. This unit serves as the technical secretariat of the national agriculture council.

- Director for Investment and International Cooperation Division

The Director for Investment and International Cooperation is responsible for planning and coordination of investment strategies for agriculture development. It has an investment research unit that explores various funding sources and partnership like the PPP and BOT. On the other hand, the office assumes the responsibility in coordinating international development grants and commitment of Fiji in international agriculture.

- Staff Support

Providing the Administrative and Finance support and information and communications support to the entire Ministry are two staff units under the Permanent Secretary. The Administrative unit delivers human resources, logistics, and other support services to employees. The Finance unit includes the regular accounting, auditing, and cashiering and can be adjusted subject to regulations of the Government of Fiji. The Information and Communications support provides the press, publication, and information technology support to the various units of the Ministry.

- The Councils

The agriculture development council serves as an advisory council to the Minister. Its technical secretariat is the proposed Office of Planning, Management, and Policy. It has multi-sectoral

representation, primarily from the farmers' group, financial sector, and the international development community and non government organization. Section 7.2.4 (c) describes the functions and mandates of the council.

There is an autonomous research council that provides the policy direction to the Research Division. Its membership includes units within the Ministry, private sector, farmers group, and international donors.

Other commodity councils must be consolidated under a unified agriculture development council in Fiji.

iii) Staffing and training

For long term building of national capability in the MOA, recruitment of fresh deserving graduates who can be immediately sent for postgraduate studies and non degree training must be considered. During the transition, however, the hiring of expatriate consultants that perform both the technical responsibility and the on-the-job training of local staff is essential. The hiring of expatriate personnel to perform the tasks required must be output driven and time bounded.

The training program within the MOA must be in accordance with the policy of the Public Service Commission. Within the MOA, the policy of ensuring that officers are trained and developed to enhance productivity and that they achieve the strategic objectives of the Ministry is the primary human resource capability building goal. While there are existing policies that promote professional advancement through training, the existing system is largely inclined toward individual advancement. In contrast, the new training agenda must be objective driven and in line with the long term building of the organizational capability of the entire MOA. On this basis, the MOA must prepare a long term training agenda that identifies the skills requirement of every unit of the Ministry, provide a menu of options in both local and international training program, and has an approved implementation plan and budget. With this in place, it rationalizes training program that is based on transparency. In line with the training agenda of the Ministry, a pro-active international collaborative effort must be implemented to direct the training in countries with similar agro-economic situations as Fiji.

a) Agriculture Development Policy Changes

There are three main policy agendas that evolved by following the framework and the strategic actions outlined. First is the Industry Focused, which is a more inclusive approach than the Demand Driven Approach (DDA) because industry covers demand. Demand, can also be manufactured. The DDA looks only at one side of the spectrum, not giving much attention to the production side. The narrow focus on the demand may probably explain the reason why there are no existing industry plans at present. The Integrated Infrastructure Approach and the Rural Transformation Approach support the development of various agriculture industries that provide employment opportunities to various parties, which include farmers, entrepreneurs, and private business groups.

The three main approaches are supported by strong project management and policy and international cooperation group within the MOA.

b) Agriculture Development Council Revitalization

- Purpose and mandate

The agriculture development councils that are now existing for various industries and every future council to be established for specific purpose in line with agriculture development in Fiji must be consolidated under one national umbrella council. This national council becomes an advisory body to the MOA for policy formulation and direction setting with defined powers and mandates. The main strength of the council is cemented by multi-sectoral representation.

The main purpose of the council is to ascertain participatory broad-based decision making in the agriculture sector by providing guiding structure to various private sector-led consultative councils. These consultative councils in Fiji then converge toward a unified agenda of providing pro-active policy to the MOA for sustainable agriculture development. The council, however, must not be engaged in actual project and program implementation if funding is derived from the national government or from other funding sources that require national government endorsement or approval. By this isolation from government funded projects, the national council delineates its advisory mandate from a project implementing body. However, the council can participate in private sector led fund generation and can implement project using its own fund. It can also establish its own fund for development. Similarly, member councils, which are organized for specific industries, cannot engage in government funded projects but only if they use their own funding. The umbrella council as well as the member councils must be financially sustainable through membership contribution and other lawful incomes to be derived as a corporate body.

The council, as a whole, provides the consultative structure as an effective and efficient stimulus and generator of private sector participation in developing the agriculture sector. The council advocates for grass roots community participation and the practice of sound corporate governance in the agriculture sector.

As an advisory body to the MOA through policy recommendations, the council has the following specific mandates:

- i) Develops an integrated consultative body that serves as a venue for a nationwide consultative discussions within the agriculture sector.
 - ii) Provides the integrative and consultative structure for inter-sectoral collaboration for agriculture modernization.
 - iii) Serves as consultative and feedback mechanism on the policies, and plans and programs of the Ministry of Agriculture.
 - iv) Assists the MOA in the following tasks:
 - Monitoring and coordination of the agriculture modernization process;
 - Monitoring agriculture programs of all government agencies, non government organizations, and international development agencies;
 - Interagency cooperation works among concerned government agencies, international development agencies, and non government organizations; and
 - Mobilizing and evaluating the contributions of government agencies to agriculture modernization.
 - v) Supports the MOA in the approval of national budget allocation.
 - vi) Supports the continuous development of the nationwide network of agriculture councils not only as a consultative network, but also as partners in the execution of the MOA functions.
- Council Secretariat

The proposed Office of the Director for Planning, Management, and Policy, a staff support office under the Permanent Secretary, serves as the Technical Secretariat of the council. This arrangement, however, may change once the council is already capable of becoming autonomous. Nonetheless, the functional link between the council and the Minister of Agriculture for policy coordination must be maintained through the best organizational arrangement and according to existing laws.

- Council Coordination of International Projects with MOA Collaboration

The identification of foreign assisted projects, which is usually coursed through or sponsored by the national government, must be also guided by the overall framework. However, these projects must pass through the council through a specific council for international development cooperation. The international development community in Fiji, composed of international development institutions and

non-governmental organizations, are given representation in the umbrella council through their own council.

c) Fisheries and Agriculture Convergence

Fisheries and agriculture converge in the use of water and land for aquaculture purposes. The RTCs and the FFSs can be used in transforming the resources for technology transfer and other support services in profitable aquaculture ventures. Since in most cases the same farmers engaged in crop and livestock production are also the target groups in the aquaculture ventures, the MOA must focus on community mobilization and supplemental technology transfer functions.

One business model that the agriculture and fisheries can converge is the establishment of aquaculture center that serves as RTC for the aquaculture industry (See Section 7.2.2-a-ix).

d) Forestry and Agriculture Convergence

The physical convergence of the forestry and agriculture sectors are in the upland communities that are now under population pressure for agriculture production. Poor land use practices, however, affect the long term soil fertility due to erosion and continuous crop cultivation. The water and river systems are also affected. Agroforestry is the ultimate solution to address these problems. This strategy eventually becomes the operating system for the forestry and agriculture convergence. Furthermore, this convergence must be well defined technically in the proposed Omnibus Agriculture Law.

8.0 FUNDING AND IMPLEMENTATION STRATEGY

8.1 Technical Preparation

8.1.1 Feasibility Studies

Feasibility studies preparation must be initiated by the MOA after the priority investment projects are identified. While building the capacity of the Ministry, the feasibility studies preparation can be outsourced through competitive bidding. However, unsolicited proposals can be accepted from reputable organizations. Joint venture or partnership arrangements that propose technically sound projects, at reasonable cost, and in line with the priority investment projects identified, are also acceptable.

The on-the-job training of staff in the MOA can be mixed with outsourcing. This training approach exposes staff to all aspects of the project development and project negotiation systems.

8.1.2 Investment Promotion and International Cooperation

The policy framework and funding and implementation strategy are then translated into an investment agenda. The agenda is posted in the web site with information video. A total information campaign using print, broadcast, internet, and social media is then used in promoting the Fiji 2020 Agriculture Development Agenda. Investors, funding agencies, market, and other stakeholders in agriculture development are the target clientele.

Formal launching is essential. However, this activity must be invested with appropriate technical preparation, negotiation, and mass based information campaign for the agenda to gain adequate support.

8.2 Funding Alternatives

8.2.1 National Government Allocation

The national government budgetary allocation to the MOA for the year 2014 must be structured properly. Government allocation is usually based on incremental budgeting and it is recommended that the Ministry must immediately spend its 2014 budget in the context of the Fiji 2020 Agriculture Development Agenda. The industry plan for priority industries must be prepared. The technical preparation needed for funding negotiation, partnership, international development grants, and other fund generation activities must receive adequate funding. Once the start up funding for the various industry projects is ensured, there are available funding facilities that the projects can immediately explore.

8.2.2 International Development Agencies

International development agencies have their own priorities. However, they can be aligned along the priorities of the Ministry to be consistent with the strategies outlined in this agriculture development agenda. By this cooperation, the implementation of projects is streamlined and in effect, it avoids duplication of projects.

8.2.3 Bilateral Agreement

Fiji has bilateral trade relationships with different countries. Australia and New Zealand provide bilateral development assistance to developing countries, and being a neighbor of these two countries, Fiji is always their priority. The European Union and Canada have their own funding programs that apply to Fiji. The US has no existing bilateral agreement with Fiji but grants from the US are possible. There is a Fund for Local Initiatives that is existing provided by Canada.

Fiji has received an official proposal from China to negotiate an Investment Promotion and Protection Agreement. It is negotiating the same with Britain and Malaysia, and agreed on a framework for such an Agreement with the EU in 2005. Fiji concluded double taxation agreements with the United Kingdom, Japan, New Zealand, Australia, Korea, Malaysia, and Papua New Guinea and Singapore (in December 2005) and is negotiating similar agreements with India and the United States.³⁵

Identified projects following the proposed policy framework and as outlined in the Fiji 2020 Agriculture Development Agenda can be proposed for bilateral agreement.

8.2.4 Private Commercial Bank

Private bank operating in Fiji and other international banks based in the US, Europe, and Asia can also be explored for funding.

8.2.5 Bond

a) Bond Issuance by the Fiji Government

Bond³⁶ is a debt investment in which an investor loans money to an entity (corporate or governmental) that borrows the funds for a defined period of time at a fixed interest rate. In the US, bonds are used by companies, municipalities, and states to finance a variety of projects and activities. The Fiji Government can issue bond to finance various projects. The government can also issue bond for a trade placement program to generate fund.

³⁵ <http://www.investmentfiji.org.fj>

³⁶ <http://www.investopedia.com/terms/b/bond.asp>

b) Pooled Bond Financing³⁷

Municipal bond banks or pooled financing facilities first appeared in the United States in 1970 for the purpose of lowering the cost of debt for municipalities. Since that time, they have been offering a unique and advantageous mechanism for small communities to finance municipal projects. Pooled financing entities usually operate without state guarantees. As such, they mobilize private financing for local governments without adding to sovereign/state debt or contingent liabilities. Many of these institutions, however, do involve some commitment of state government funds in the form of grants to enhance the pooled financing. In these cases, the government funds are designed to leverage private investments. The advantages of pooled financing include improve market access, lower transaction costs, lower borrowing costs through credit enhancements, leveraging government resources, and self-supporting operations. Following the pooled financing model, the projects in the Fiji 2020 Agriculture Development Agenda can therefore be pooled for fund generation. Grants being given to government corporations by the national government can be used to leverage external funding through pooled financing.

8.2.6 State Guarantee

State guarantees and incentives reduce private companies' costs or increase the potential for profits in activities that would, in their absence, seem too risky or unprofitable.³⁸ These incentives may ultimately be less costly for government than providing services directly. Guarantees and incentives can mobilize private sector financial resources that would otherwise not be available to the government and assure that services are provided more flexibly and efficiently than by government agencies. However, state guarantee must be exercised with caution as both government officials and the private sector can abuse the guarantees and incentives. Transparency with careful monitoring and supervision are thus required.

8.3 Legislative Agenda

8.3.1 Enactment of the Fiji 2020 Agriculture Modernization Act

According to the Fiji Strategic Agriculture Development Plan 2010-2012, the MOA derives its core mandate from Presidential Decree 2007 and is currently responsible for over 33 pieces of legislation. It is envisioned that all the acts specified under the ministerial assignment must be reviewed and be ensured that there is no conflict between policy interpretations of existing acts. The consolidation of the law provides a better structure for common understanding so that anything that is in line with agriculture development can be put together in just one piece of legislation or an Omnibus Law for agricultural modernization of Fiji. Special focus of the proposed Omnibus Law is the existing land ownership and leasing system in Fiji. The law on the use of water resources, in particular the use of rivers and ground water for irrigation and aquaculture, which must be based on sound water resource use plan, the protection of watersheds, and the application of environmentally sound farming practices, must be covered by the law.

8.4 Implementation Schedule

8.4.1 Planning period

The planning period covers the years 2014-2020. By the mid of the year 2020, a new policy review must be carried out for the principal purpose of improving the existing policies to ensure continuity and sustainability. By the middle of the planning period in 2017, a mid term review must be carried out for policy adjustment, expansion of coverage, and further improvements in the strategies being followed in the development agenda.

³⁷ *Introduction to Pooled Financing, Prepared under USAID Contract AFP-I-01-03-00035 by Sequra/IP3 Partners, LLC for the USAID Bureau for Europe and Eurasia's Energy and Infrastructure Division. Principal author Brad Johnson, Resource Management Associates with contributions by Allen Eisendrath, USAID and Michael Curley, International Center for Environmental Finance.*

³⁸ *Partnering For Development: Government-Private Sector Cooperation In Service Provision, Dennis Rondinelli.*

8.4.2 Schedule of Implementation

The period of implementation is divided into four stages presented in the following table:

Table 2. Schedule of Implementation, Fiji 2020 Agriculture Development Agenda.

Stage	Major Activities	Target Output	Time Frame
Transition	<ul style="list-style-type: none"> • Approval of the agriculture development agenda by the cabinet • Launching of the development agenda • Realignment of 2014 budget to fund the new development agenda • Information campaign within the MOA and other partner institution 	<ul style="list-style-type: none"> • A new corporate direction for the MOA is set • Budgetary allocation for the preparation and initial implementation stage allocated 	August 2014 to September 2014
Preparation	<ul style="list-style-type: none"> • Feasibility studies preparation • Study missions abroad • Training of staff • Reorganization • Program plan preparation, division plan, provincial plan, industry plan • Budget commitment • Funding negotiation initiated for priority projects • Establishment of integrated agriculture information system • Organization of the umbrella council for agriculture development • Holding of investment summit 	<ul style="list-style-type: none"> • Overall operational plan for the MOA consolidated and completed and given funding allocation • Funding commitment from international funding sources and partners secured 	September 2014 to December 2014
Implementation	<ul style="list-style-type: none"> • Training of staff • Establishment of Rural Transformation Centers with GIS laboratories • Establishment of infrastructure projects • Industry Plan • Fund generation • Signing of business ventures • Finding new markets • Establishment of consultative process through the council 	<ul style="list-style-type: none"> • MOA completely reorganized • RTCs and FFS established • Infrastructure established • Industry plan implemented 	January 2015 to June 2020
Policy Review	<ul style="list-style-type: none"> • Mid-term policy review • End of the period policy review 	<ul style="list-style-type: none"> • Agriculture development agenda sustained with positive outlook 	July 2020 to December 2020

a) Transition

The transition stage is very critical in the adoption of new agriculture development agenda because regular programs of the MOA are already well entrenched. On the other hand, new direction if not implemented immediately, leads to losing the momentum. Eventually, the status quo easily prevails. During the transition stage, it is important to execute a very effective information campaign. This campaign requires active participation of higher officials within the MOA. The launching of the new agenda with support from the Prime Minister strengthens the new development direction.

The most critical part in the transition stage is getting the assurance that the start-up funding for the new development initiatives is readily available. Realignment of regular funds is recommended. Finally, during the transition stage, a new corporate direction of the MOA is set.

b) Preparation

The preparation stage includes technical, organizational, and international linkage building. Technical preparation covers both the planning and implementation and requires training, recruitment of qualified personnel, and collaboration with organizations that have the needed expertise according to the gaps. The preparation is addressed in different areas of concern, which include international investment and funding, marketing, technology transfer, and feasibility studies. Study missions are sent overseas, particularly in India, Malaysia, and Taiwan where the RTCs or similar models are already operational. The missions do not necessarily be composed of senior staff, and instead younger staff are given the opportunity as long as the required qualifications for the assignments are satisfied. Even private sector representatives with sound qualification and proposal must be supported to participate in the study missions.

During the preparation stage, holding an investment summit is necessary for the principal purpose of communicating to development organizations and private sector stakeholders the new agriculture development agenda. At the end of this summit, development agencies have their pledges to support various initiatives that are outlined in the new agriculture development agenda.

c) Implementation

The implementation stage must already display the establishment of both institutional and physical infrastructure that are integral components of the new agriculture development agenda. Specifically, momentum in the various industries is placed to a high gear through synchronized development efforts. Every aspect of the national agriculture development agenda is addressed. More glaring accomplishments during the project implementation period are the RTCs, the food park infrastructure, and industry focused and integrated research, extension, and training services. Furthermore, the implementation aligns the various units within the MOA toward a unified undertaking and a new internal team work is established as opposed to the usual perception that there is no collaborative linkage right within the Ministry.

d) Review

This stage overlaps with the implementation stage. A mid term policy review is necessary by the third year of the planning period to assess the impact of the agenda and to address existing problems. The main review to be carried out by the end of the planning period in 2020 focuses on sustaining the gains made in the agenda. The review also provides the direction in line with introducing improvements in the existing strategies because the basics of national agriculture development that include organized agriculture, infrastructure, and improved project planning, management, and policy studies are vital parts of the present agenda.

9.0 CONCLUSION

To establish a diversified and economically and environmentally sustainable agriculture economy in Fiji, the strategic actions cluster around five key result areas, which have been identified from the translated objectives. These are a modern organized agriculture, an integrated support infrastructure, a strengthened agriculture support services, and improved capability for planning and policy formulation, and an enhanced capability in investment and international cooperation. These key result areas require synchronized collaborative efforts. Furthermore, this inclusive approach to agriculture development must be supported by adequate investment and the application of sound technology and management systems. However, the development agenda formulation process considers the limitation of government resources and the best way is to present the development agenda as a package of worthy projects for domestic and international investment. It is only when the Fiji 2020 Agriculture Development Agenda is operationalized as massive community based development agenda that real agriculture modernization in Fiji has to take off progressively. Agriculture eventually becomes the most important piece of the national economy equitably spreading income and employment opportunities to every stakeholder, particularly the farmers.

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- aa) <http://www.investmentfiji.org.fj>
- bb) <http://www.investopedia.com/terms/b/bond.asp>
- cc) <http://www.ota.com/definition/quickoverview.html>

11.0 ANNEX 1: SITUATIONAL ANALYSIS

Table 3. Physical Resources Situational Analysis Summary.

Agriculture Resources	Situational Analysis
Agriculture land	<ul style="list-style-type: none"> • Approximately 285,000 hectares in Fiji are under permanent crops • Around 86,000 rural households are engaged in agriculture and /or fishing activities • With rainfall averaging 1,500 to 4,000 mm annually
Rivers, Catchment Basins, and Groundwater	<ul style="list-style-type: none"> • Given the abundant rainfall and relatively intact forest cover that allows capture and retention of water in underground aquifers • Presence of several important perennial rivers and streams, the larger islands within the Fiji archipelago have adequate supplies of water
Maritime Resources	<ul style="list-style-type: none"> • Fishing is cherished for its recreational and social aspects in Fiji. In relative terms, fisheries are the third largest natural resource sector, behind sugar and “other crops”. Also important in Fiji is tourism, which has an important relationship to the fisheries sector. • The total territorial waters area is 141,800 square kilometers • In Fiji, community fishing right is legally recognized • The Native Land and Fisheries Commission is responsible for surveying fishing rights areas, holding inquiries to settle boundaries with traditional owners, maintaining a register of owners, and handling appeals • There are presently 410 fishing rights areas • The Macuata coastal communities get together each year to decide on coastal fishery access policy for the coming year • The key responsibility for resource management and control of commercial fishing lies with the registered owners of each customary fishing rights area. • The Fisheries sector boasts diverse resources of marine life species. These species range from finfish products such as fish species like yellow fin tuna, big eye tuna, albacore tuna, marlin, swordfish, mahi-mahi, and deep water fish like snapper and reef fish species like sea-bream, groupers, coral trout and rock cods to aquaculture products which include prawn, seaweed, giant clam and tilapia farming. • The Tuna industry dominates sector in terms of output and export. The Tuna industry dominates the sector in terms of output and export. The overall performance of the sector over past years is attributed to increased catch of tuna for the Japanese sashimi market. The performance of the sector is closely linked to the growth of offshore fisheries. Fish from Fiji are either exported frozen or fresh chilled to overseas markets.

Agriculture Resources	Situational Analysis
Forest	<ul style="list-style-type: none"> • Fiji is blessed with a large indigenous or natural forest cover totaling approximately 956,860 hectares. • With a biomass inventory from the planted pines and other forestry species that is still being completed by the Forestry Department • Over 50 percent of Fiji's land cover is made up of native forests
Outer Island	<ul style="list-style-type: none"> • About 13 percent of the population lives in the outer island • Coconut, root crops, and fishing are the major commodities • Electricity supply is a problem
Roads	<ul style="list-style-type: none"> • The total length of road network is 4,254 kms • Municipal Roads (337 kms) have been managed by the Municipal Councils • Fiji Roads Authority is established to manage the national roads • A total of 1483 kms of the roads are sealed
Electricity	<ul style="list-style-type: none"> • Electricity is provided by the Fiji Electricity Authority • Electricity is partly subsidized
Transportation	<ul style="list-style-type: none"> • Consumes about 70 percent of the total petroleum import • There are buses and commuter vans that serve various transportation routes with Suva, Laotoka, Sigatoka in Viti Levu and Labasa in Vanua Levu as the transportation hubs
Seaports and airports	<ul style="list-style-type: none"> • The authority operates 15 airports in the Fiji Islands including Nadi and Nausori International Airports and 13 other domestic airports which are located on islands scattered over Fiji's maritime zone • AFL also provides Air Traffic Management (ATM) services within the Nadi Flight Information Region (Nadi FIR) which includes the sovereign air spaces of Tuvalu, New Caledonia, Kiribati and Vanuatu
Irrigation and Drainage	<ul style="list-style-type: none"> • Governed by laws that need to be updated for modern agriculture

Table 4. Supply Chain Situational Analysis Summary.

Supply Chain	Situational Analysis
Farmer	<ul style="list-style-type: none"> • Agriculture in Fiji is dominated by small farms • Three basic type of farming, subsistence, semi commercial, and commercial • There are large number of farms below 1 ha in size (44percent) • A very small number of farms over 100 ha (0.2percent) • More than half of the remaining farms are less than five hectares and only 19 percent could be described as medium sized or larger
	<ul style="list-style-type: none"> • The number of farmers formally engaged in the agriculture sector has decreased by 31.8 percent over the 18 year period 1991-2009 • Around 44 percent reached primary school level education, 44 percent reached secondary school level, and only 5percent reached tertiary level. In addition, around 65.5 percent of farmers are over 40 years of age • There are over 215,000 farm workers actively engaged in 65,033 farms • Close to 58 percent of households engaged in farming derive more than 50 percent of their household income from farming. On the other hand, more than a quarter of these farming households, 26.2 percent derive less than 25 percent of their household income from the farm • Over 83 percent of the land in Fiji is traditionally owned and cannot be sold out, and a large proportion is leased to tenant farmers • Produces about 50 percent of all exports and was worth FJD \$500.5 million. Much of these food exports goes to other Pacific countries • Although rice is the major staple and Fiji produces rice (11,595 tons in 2008), it is not enough for population need which is approximately around 60,000 metric tonnes per year.
Middlemen	<ul style="list-style-type: none"> • Middlemen can be market vendors, businesses, exporters or buying agents • Fiji has approximately 46 registered exporters (21 are root crops exporters and 25 mixed commodity exporters) • Middlemen are directly involved in buying of commodities at farm gate prices and some have established collection centers and packing houses. Exporters also engage middlemen as a conduit for accessing commodities.

Supply Chain	Situational Analysis
Market	<ul style="list-style-type: none"> • The domestic market offers the biggest opportunity for the agriculture sector • The 2007 Census estimated Fiji’s population at over 837,000 of which 51 percent resides in urban areas • To meet the growing demand for fruits and vegetables for the tourism sector, the majority of operators are importing from Australia and New Zealand as local producers are unable to meet quantity and quality requirements • Fiji imported around USD 650 million of agro products which includes live animals • The core market opportunities for products from the sugar cane growing areas are provided by: (i) exporting to the Indo-Fijian, Asian and Pacific Island communities in Australia; (ii) enhancing household self-sufficiency; (iii) supplying the expanding urban and tourism market • Weak capacity of Quarantine Services to develop and negotiate market access under Bilateral Quarantine Agreements (BQA), combined with limited extension capacity to service farmers seeking to comply with BQA requirements has constrained exports • A recent survey revealed that more than 90 percent of the foodline items in the supermarkets in Fiji are imported
a) Processor	<ul style="list-style-type: none"> • Some of the major agro-industries include sugar, industrial alcohol and spirits (from molasses), processing of ginger, fruits, rice, coconut (copra and oil), coconut cream, and soap manufacturing • There is a huge potential agro-processing of taro, banana, and breadfruit into chip. Agro-processing by private sector is limited except for Punjas and Motibhai going into commercial production. • The processing of livestock products remains rudimentary except for milk processing (butter and powdered milk), meat canning, and processed sausages • Government has had direct involvement in the agriculture processing through Fiji Meats Industry Board (FMIB), Yaqara Pastoral Company Limited (YPCL), Rewa Rice Limited (RRL), Food Processors Limited (FPL), and Rewa Cooperative Dairy Limited (RCDL). FMIB provides abattoir services, culling and retails meat products while RRL mills rice. YPCL and RCDL operate a large scale cattle ranch and manufactures dairy products respectively. FPL is involved in processing and canning a variety of fruits and vegetables. Major private sector players include Food Pacific Limited, Punjas, Floor Mills of Fiji Limited, Leyland Limited, Tebara Meats, Wahley Butchery and within the region from Milai Vanuatu Limited, Vanuatu Abbatoirs and Mangal’s Market and Meat Distributors.

Supply Chain	Situational Analysis
b) Financial Sector	<ul style="list-style-type: none"> • The supply of capital to various players in the agriculture sector is sourced from annual grants from various government programs and lending from commercial banks and the Reserve Bank of Fiji. • Government grants have mainly been provided to subsistence and semi commercial small scale farmers while larger commercial farmers, exporters, and processors source their capital requirements from commercial banks • For the most part of the past decade, lending by the FDB to the agriculture sector has hovered just over 10 percent of its total loan portfolio. The impact of high food prices and a growing fuel bill resulted in urgent government intervention in the late part of the last decade. • The introduction of the micro credit and agri finance schemes has resulted in an increased flow of financial capital to the sector

3.3 Institutional Partners

Table 5. Institutional Partners Situational Analysis Summary.

Institutional partners	Situational Analysis
The MOA and other Ministries	<ul style="list-style-type: none"> • At present, agriculture development in Fiji is handled by three separate ministries, the MOA, the Ministry of Fisheries and Forestry, and the Ministry of Sugar. • The MOA aims to bring about a change that promotes demand driven approaches as an integrated objectives for all programs such as: i) enhance livelihoods of people in the rural areas and outer islands of Fiji; ii) ensure sustained and secure access to food, and; iii) enhance poverty reduction through appropriate programs. These include increase in market access opportunities and services that will provide needed benefit to rural communities in rural and outer islands. • Its national regulatory services include: <ul style="list-style-type: none"> - National agriculture legislation - Meat inspection services - Veterinary services - Animal pound services - Plant Pathology service - Chemical Analysis services - Quarantine services - Drainage subsidy service - National Codex Committee -Food standards - United Nation Convention to Combat Desertification (UNCCD) - Food and Agriculture Organization of the United Nation (FAO) - Australian Center of International Agriculture Research (ACIAR) - Agriculture Education and Training - National Land use Policy - Agriculture Census and Statistics • Its National agriculture risk management services include <ul style="list-style-type: none"> - Pest control - Plant and animal disease control • Its targeted Programs <ul style="list-style-type: none"> - Farming Assistance Scheme Program - Drainage and Flood protection Program - Water shed management Program - Irrigation Program - Export Promotion Program - Import Substitution Program - Rural and Outer Island Program

Institutional Partners	Situational Analysis
	<ul style="list-style-type: none"> - Sigatoka Valley Improvement Program - Dairy Industry Support Program - Quarantine Awareness Program - Livestock- Extension service Program <ul style="list-style-type: none"> • The Legislative mandate of the Ministry is derived from the Ministerial Assignment issued under the Executive Authority of Fiji Decree 2009 and is currently responsible for over 33 written laws that are regulating the function of the Ministry
Ministry of Forestry and Fisheries	<ul style="list-style-type: none"> • The mandate of the Ministry is to enhance both fisheries and forestry sectors visibility and streamline decision-making so that it is more responsive and proactive in facilitating the sustainable development of the fisheries and forest sector. • Principal development focus is on strengthening its capacity building, institutional, and infrastructure development • Greater emphasis is now placed on the value adding of fisheries and forest products and effective participation of resource owners in the industries • Aims to contribute USD 1 Billion to the National Gross Domestic Products within the next 10 years
Ministry of Sugar	<ul style="list-style-type: none"> • Created specifically to rehabilitate the sugar industry • Operates the Fiji Research Institute for Sugar in Lautoka
<u>Government Corporations</u>	
a) Agriculture Marketing Authority	<ul style="list-style-type: none"> • Facilitates the purchase, sale, and exportation of agro-produce and for related matters • Assists the producers of agro-produce in marketing of their products • Identify markets for and to facilitate and develop marketing of agro- produce • Purchase, sell, and export and import agro-produce or import agro- inputs
b) Yaqara Pastoral Co. Ltd	<ul style="list-style-type: none"> • 100 percent government owned commercial company under the Ministry of Public Enterprises and Public Sector Reform • Engaged in cattle production and is planning to slightly reduce cattle numbers and reduce pressures on pasture to increase cattle productivity. There will be fewer but fatter higher yielding cattle, in the next three years. • The corporation's farm maintain total cattle number at 4,500 heads with 1,800 breeders. The idea is to produce fatter cattle with greater sale weight dressing out average 230-250kg vs present 225kg. It sells 400 heifers and bulls each year to Agriculture and FMIB for breeding and fattening purposes.

Institutional Partners	Situational Analysis
c) Food Processors (Fiji) Ltd.	<ul style="list-style-type: none"> • Cabinet declared Food Processors (Fiji) Ltd a Government Commercial Company in July 2003 in accordance to the Public Enterprises Act of 1993 • Engaged in bottling, canning and vacuum-packed products like tomato, coconut cream, duruka, chestnut, breadfruit, chillies, jackfruit, honey • While tomato is imported, the rest of the products are grown locally and others wild grown fruit like Ivi, breadfruit and duruka.
d) Rewa Coop Dairy Company	<ul style="list-style-type: none"> • Although RCDC subsidizes the high cost of milk collection from the farms, they perceive the industry as having low risk and sustainable • Currently there are 160 farms from four provinces around the country supplying milk to their processing centers. There are roughly 285 registered dairy farmers in the country, 226 of whom make up the formal sector while 59 make up the informal sector.
<u>Private Sector</u>	<ul style="list-style-type: none"> • The export and food processing sectors are largely in the hands of the private sector except sugar and coconut, dairy, and the production of rice
<u>International Development Agencies Assistance</u>	<ul style="list-style-type: none"> • First generation international development projects failed due to reliance was placed on assumptions and insufficient “hard” facts in design and inadequate stakeholder participation leading to weakness in identification of beneficiary needs, social and cultural context; projects not sustainable for failure to address institutional weakness of implementing agencies; inadequate implementation planning including for coordination and monitoring • At present, projects supported by different agencies like the EU and AUSAID are implemented as stand alone projects with their own implementing project offices without solid participation by government agencies like the MOA • Non government organizations also have their own projects seeking grants from international funding agencies like the EU • Large scale agriculture projects funded by World Bank and ADB are not existing
<u>Universities</u> a) The University of the South Pacific (USP)	<ul style="list-style-type: none"> • The University of the South Pacific (USP) is the premier provider of tertiary education in the Pacific region and an international center of excellence for teaching, research consulting, and training on all aspects of Pacific culture, environment and human resource development needs

Institutional Partners	Situational Analysis
b) Fiji National University (FNU)	<ul style="list-style-type: none"> • College of Agriculture, Fisheries and Forestry, created out of the former Fiji College of Agriculture that was first established in 1962 and a number of other units • The College of Agriculture, Fisheries, and Forestry is offering 14 courses during the Academic Year 2012. The college has started an intensive BSc Agriculture and BSc Fisheries degree programs. The Department of Forestry has introduced two new programs in 2012, the Diploma in Wood Processing and Value Adding, and the Trade Diploma in Forestry.

12.0 ANNEX 2: SWOT ANALYSIS

12.1 Resources and Physical Infrastructure Support

a) Land Resources

Table 6. SWOT Analysis, Land Resources.

	Narrative Summary	Objective
Strengths	<ul style="list-style-type: none"> Fertile land viable for commercial scale diversified crop and livestock farming Sugarcane and coconut are traditional industries with existing organized system of production and processing 	<ul style="list-style-type: none"> Diversify agriculture production system through commercial crop and livestock farming Rehabilitate the sugarcane and the coconut industries
Weaknesses	<ul style="list-style-type: none"> Existing leasehold and government ownership of land constraint to productive agriculture No existing national land use plan 	<ul style="list-style-type: none"> Organize production system based on leasehold and government ownership Prepare a national land use plan
Opportunities	<ul style="list-style-type: none"> Large areas of uncultivated lands that can be consolidated under organized system of agriculture production, processing, and marketing 	<ul style="list-style-type: none"> Consolidate lands composed of smallholder farms under organized system of crop production, processing, and marketing
Threats	<ul style="list-style-type: none"> Environmental degradation due to unsound land management practices 	<ul style="list-style-type: none"> Improve land use management practices

b) Inland Water

Table 7. SWOT Analysis, Inland Water.

	Narrative Summary	Objective
Strengths	<ul style="list-style-type: none"> Abundant rivers and ground water resources that remain unexplored for aquaculture, irrigation, and energy purposes 	<ul style="list-style-type: none"> Use river and ground water resources for economically and environmentally productive purposes
Weaknesses	<ul style="list-style-type: none"> Laws that constraint the productive use of inland water resources still existing Lack of interest in using the water resources 	<ul style="list-style-type: none"> Update laws on the use of river and ground water resources Promote interest in the productive use of the water resources
Opportunities	<ul style="list-style-type: none"> Large areas for inland aquaculture could be directed toward expansion in global aquaculture 	<ul style="list-style-type: none"> Introduce diversified aquaculture business for the international market
Threats	<ul style="list-style-type: none"> Siltation in major river systems affecting river ecosystem Flooding and drought due to climate change 	<ul style="list-style-type: none"> Dredging of rivers that are heavily silted Adapt agriculture practices to climate change

c) Coastal Marine

Table 8. SWOT Analysis, Coastal Marine Resources.

	Narrative Summary	Objective
Strengths	<ul style="list-style-type: none"> Coastal marine areas virtually unexplored 	<ul style="list-style-type: none"> Prepare coastal marine resources development plan
Weaknesses	<ul style="list-style-type: none"> Laws on the use of these resources are constraints in using coastal marine resources for aquaculture 	<ul style="list-style-type: none"> Enact coastal marine resources law that will provide ensure the best economic and environmental uses of these resources
Opportunities	<ul style="list-style-type: none"> Initial research and piloting of aquaculture species such as tilapia, milkfish, and other commercial species 	<ul style="list-style-type: none"> Improve aquaculture research and training program
Threats	<ul style="list-style-type: none"> Development pressure from tourism, housing, and industrial uses 	<ul style="list-style-type: none"> Mix aquaculture and tourism uses of coastal marine resources

d) Maritime Resources

Table 9. SWOT Analysis, Maritime Resources.

	Narrative Summary	Objective
Strengths	<ul style="list-style-type: none"> Large maritime resources with legal community right over 41 fishing grounds 	<ul style="list-style-type: none"> Develop an updated plan in the use of its traditional fishing grounds and its vast territorial waters as a whole under the exclusive economic zone
Weaknesses	<ul style="list-style-type: none"> Fishing activities dominated by foreign firms 	<ul style="list-style-type: none"> Increase local involvement in fishing and maritime trade activities using the country's territorial waters
Opportunities	<ul style="list-style-type: none"> There are 41 fishing grounds under legal community right 	<ul style="list-style-type: none"> Develop program in the use of the 41 traditional fishing grounds
Threats	<ul style="list-style-type: none"> Dwindling fish catch 	<ul style="list-style-type: none"> Implement sustainable catch program

- Outer Island

Table 10. SWOT Analysis, Outer Island.

	Narrative Summary	Objective
Strengths	<ul style="list-style-type: none"> Subsistence tradition that can be elevated to commercial agriculture 	<ul style="list-style-type: none"> Develop agriculture system that mixes subsistence farming with financially sustainable return
Weaknesses	<ul style="list-style-type: none"> Isolated from main markets and source of electricity 	<ul style="list-style-type: none"> Develop system of agriculture production at the village level Ensure electricity self sufficiency using alternative sources
Opportunities	<ul style="list-style-type: none"> Livelihood opportunities such as seaweeds, biodiesel processing, and root crop processing 	<ul style="list-style-type: none"> Develop livelihood centers that will serve as the center of the operations of outer island production and processing centers
Threats	<ul style="list-style-type: none"> Commercialization that cannot be controlled 	<ul style="list-style-type: none"> Develop a controlled production and processing system for outer islands

- Forestry Resources

Table 11. SWOT Analysis, Forestry Resources.

	Narrative Summary	Objective
Strengths	<ul style="list-style-type: none"> • Protected forest as the watershed 	<ul style="list-style-type: none"> • Develop sustainable commercial use of the forest trees using selective harvesting
Weaknesses	<ul style="list-style-type: none"> • Inability to explore forestry resources and practices for livelihood 	<ul style="list-style-type: none"> • Promote Sloping Agriculture Land Technology and Line Planting Technology
Opportunities	<ul style="list-style-type: none"> • Adaptability of trees for agroforestry and biomass production for biofuels 	<ul style="list-style-type: none"> • Develop agroforestry both for food and energy feedstock
Threats	<ul style="list-style-type: none"> • Population pressure leading to use of upland and forest areas for unsustainable agriculture 	<ul style="list-style-type: none"> • Include land use plan clause in the use of sloping and fragile lands

- Physical Infrastructure

Table 12. SWOT Analysis, Physical Infrastructure.

	Narrative Summary	Objective
Strengths	<ul style="list-style-type: none"> • Manageable size for investment 	<ul style="list-style-type: none"> • Promote infrastructure investment in Fiji
Weaknesses	<ul style="list-style-type: none"> • Lack of existing initiative in securing private investment for integrated infrastructure 	<ul style="list-style-type: none"> • Develop integrated infrastructure plan
Opportunities	<ul style="list-style-type: none"> • Existing structure of the sugar industry can serve as the foundation of a national agriculture support infrastructure 	<ul style="list-style-type: none"> • Establish integrated infrastructure investment based on the existing four sugar centrals and railways and the existing coconut mill
Threats	<ul style="list-style-type: none"> • The absence of a national infrastructure agenda for agriculture 	<ul style="list-style-type: none"> • Secure investment for infrastructure as the centerpiece of agriculture policy

12.2 Supply Chain

a) Farmers

Table 13. SWOT Analysis, Farmers in the Supply Chain.

	Narrative Summary	Objective
Strengths	<ul style="list-style-type: none"> • Subsistence agriculture open for diversification • Exposed to organized system of agriculture 	<ul style="list-style-type: none"> • Develop system of commercial agriculture from subsistence farming • Expand organized system of agriculture to cover other industries such as horticultural crops, root crops, aquaculture, and other products
Weaknesses	<ul style="list-style-type: none"> • Inability to adjust to competition and volatile pricing 	<ul style="list-style-type: none"> • Improve competitiveness through high yield and better efficiency
Opportunities	<ul style="list-style-type: none"> • Wide gap between actual production and potential production with room for efficiency 	<ul style="list-style-type: none"> • Improve production capability using modern technologies and management and marketing skills
Threats	<ul style="list-style-type: none"> • Lost of productive agriculture lands 	<ul style="list-style-type: none"> • Employ productive conservation agriculture

b) Middleman

Table 14. SWOT Analysis, Middleman in the Supply Chain.

	Narrative Summary	Objective
Strengths	<ul style="list-style-type: none"> • Understanding of the potential of Fiji agriculture products for export 	<ul style="list-style-type: none"> • Improve capability in agriculture export business
Weaknesses	<ul style="list-style-type: none"> • Lack basic infrastructure support for efficient marketing 	<ul style="list-style-type: none"> • Develop appropriate infrastructure support like cold storage, aggregation, segregation, pre-ripening, and other logistics services
Opportunities	<ul style="list-style-type: none"> • Value adding opportunities 	<ul style="list-style-type: none"> • Improve value adding through processing
Threats	<ul style="list-style-type: none"> • International competition 	<ul style="list-style-type: none"> • Improve international competitiveness

c) Processing Sector

Table 15. SWOT Analysis, Processing Sector in the Supply Chain.

	Narrative Summary	Objective
Strengths	<ul style="list-style-type: none"> Resilient in maintaining and improving existing market 	<ul style="list-style-type: none"> Increase market volume by increasing number of products
Weaknesses	<ul style="list-style-type: none"> Weak organizational linkages Lack of research and product development support 	<ul style="list-style-type: none"> Strengthen organizational capacity Improve research and product development
Opportunities	<ul style="list-style-type: none"> More products available for processing and value adding 	<ul style="list-style-type: none"> Develop system of infrastructure for storage and processing of additional products at optimum volume
Threats	<ul style="list-style-type: none"> Competition from other countries eating share in the traditional market niche 	<ul style="list-style-type: none"> Improve product standard and marketing efficiency

d) Market

Table 16. SWOT Analysis, Market in the Supply Chain.

	Narrative Summary	Objective
Strengths	<ul style="list-style-type: none"> Exposed to export market 	<ul style="list-style-type: none"> Improve export market
Weaknesses	<ul style="list-style-type: none"> Weak domestic and export market coordination 	<ul style="list-style-type: none"> Increase production of imported food
Opportunities	<ul style="list-style-type: none"> There is a Tourism sector for a steady domestic market 	<ul style="list-style-type: none"> Gear agriculture products toward tourism
Threats	<ul style="list-style-type: none"> Trade competition from countries that can supply cheaper and quality products 	<ul style="list-style-type: none"> Develop products that can be competitive in the international market

e) Finance

Table 17. SWOT Analysis, Finance in the Supply Chain.

	Narrative Summary	Objective
Strengths	<ul style="list-style-type: none"> • With financial capacity to extend financial services to projects that are already highly geared 	<ul style="list-style-type: none"> • Develop financial products for small and medium scale
Weaknesses	<ul style="list-style-type: none"> • Lack of financial products suited to finance various production, processing, and postharvest handling needs 	<ul style="list-style-type: none"> • Diversify financial products for credit assistance
Opportunities	<ul style="list-style-type: none"> • With the capacity to enter into partnership with foreign investors or capitalists to disperse risk 	<ul style="list-style-type: none"> • Forge partnership with international financier and investors
Threats	<ul style="list-style-type: none"> • Competition from foreign investors 	<ul style="list-style-type: none"> • Improve financial services to local agriculture

12.3 Institutional Parties

a) Line Ministries of the Government

Table 18. SWOT Analysis, Line Ministries of the Government in the Institutional Partners.

	Narrative Summary	Objective
Strengths	<ul style="list-style-type: none"> • With organization and facilities for research and extension functions 	<ul style="list-style-type: none"> • Improve organizational capabilities for the delivery of research and extension
Weaknesses	<ul style="list-style-type: none"> • Inability to prepare unified agenda and specific industry plan of vital commodities for export, import substitution, and for energy 	<ul style="list-style-type: none"> • Prepare unified agriculture development agenda with specific industry plan
Opportunities	<ul style="list-style-type: none"> • Organization open for reorganization, training, and infusion of expatriate experts 	<ul style="list-style-type: none"> • Reorganize government according to the strategic direction of the industries
Threats	<ul style="list-style-type: none"> • Continuous government reorganization 	<ul style="list-style-type: none"> • Establish a system of long term program that will be sustained in any change of government

b) Government Owned Corporations

Table 19. SWOT Analysis, Government Owned Corporation in the Institutional Partners.

	Narrative Summary	Objective
Strengths	<ul style="list-style-type: none"> With mandate to perform agribusiness functions and funding support from government 	<ul style="list-style-type: none"> Improve corporate earning performance
Weaknesses	<ul style="list-style-type: none"> Insolvent during the last years Inability to perform as a for profit corporation because of history of government assistance 	<ul style="list-style-type: none"> Transform corporations as earning venture Commit financial and economic returns to the government
Opportunities	<ul style="list-style-type: none"> Assets and mandates for external investment or partnership 	<ul style="list-style-type: none"> Secure investment from multiple sources
Threats	<ul style="list-style-type: none"> International competition 	<ul style="list-style-type: none"> Improve international competitiveness

c) Universities

Table 20. SWOT Analysis, Universities in the Institutional Partners.

	Narrative Summary	Objective
Strengths	<ul style="list-style-type: none"> A new university with fresh mandate to serve the agriculture development need of Fiji 	<ul style="list-style-type: none"> Improve university capability for national agriculture development
Weaknesses	<ul style="list-style-type: none"> Inadequate academic and research program 	<ul style="list-style-type: none"> Develop industry focused academic and research programs
Opportunities	<ul style="list-style-type: none"> Students that can be recruited for career in agriculture and related courses 	<ul style="list-style-type: none"> Establish program that can recruit and educate students based on the needs of the industries
Threats	<ul style="list-style-type: none"> Fast academic and research program expansion that cannot sustain results 	<ul style="list-style-type: none"> Manage academic and research programs in coordination with other stakeholders

d) International Development Projects

Table 21. SWOT Analysis, International Development Projects in the Institutional Partners.

	Narrative Summary	Objective
Strengths	<ul style="list-style-type: none"> Available funding and qualified staff 	<ul style="list-style-type: none"> Expand funding coverage
Weaknesses	<ul style="list-style-type: none"> Different agenda in line with the programs of the funders 	<ul style="list-style-type: none"> Strengthen interagency collaboration
Opportunities	<ul style="list-style-type: none"> Wide areas for development cooperation with government and local communities 	<ul style="list-style-type: none"> Support local level development
Threats	<ul style="list-style-type: none"> Policies that are constraints to wide scale implementation of programs for sustainability 	<ul style="list-style-type: none"> Advise policy reform for program sustainability

e) Private Sector

Table 22. SWOT Analysis, Private Sector in the Institutional Partners.

	Narrative Summary	Objective
Strengths	<ul style="list-style-type: none"> Has been resilient in exploring agri based opportunities both for the domestic and export markets Retirees at young age that can still participate in local agribusiness ventures 	<ul style="list-style-type: none"> Improve mechanism to encourage productive private sector participation Establish investment fund for retirees
Weaknesses	<ul style="list-style-type: none"> Inability to face risk 	<ul style="list-style-type: none"> Develop projects for private investment
Opportunities	<ul style="list-style-type: none"> Prepared for Private Public Partnership 	<ul style="list-style-type: none"> Develop PPP model
Threats	<ul style="list-style-type: none"> International competition is stiff in traditional export products 	<ul style="list-style-type: none"> Improve competitiveness

f) Farmers Organizations

Table 23. SWOT Analysis, Farmers Organization in the Institutional Partners.

	Narrative Summary	Objective
Strengths	<ul style="list-style-type: none"> History of organized system of agriculture like sugarcane, BQA products, dairy, etc. 	<ul style="list-style-type: none"> Build agro industrial infrastructure based on organize system of agriculture
Weaknesses	<ul style="list-style-type: none"> Lack the capability to engage in organized system in new industries 	<ul style="list-style-type: none"> Enhance capabilities through foreign investment, private public partnership, and other arrangements
Opportunities	<ul style="list-style-type: none"> With land and water resources for industries that can be expanded like coconut, pineapple, banana, and biofuels 	<ul style="list-style-type: none"> Strengthen agriculture support services in line with the improvement of existing industries and development of new ones
Threats	<ul style="list-style-type: none"> Competition from private sector with integrated operations 	<ul style="list-style-type: none"> Develop business arrangements with farmer ownership and accountability

13.0 ANNEX 3: STRATEGY FORMULATION

Table 24. Grouping of Objectives and Selection of Strategies.

Core Objective	Policy Objective	Selected Strategy
a) Consolidate lands composed of smallholder farms under modern organized system of producing, processing, and marketing crops, livestock, and aquaculture products	<p><u>Rural Transformation Centers</u></p> <ul style="list-style-type: none"> • Develop system of commercial agriculture from subsistence farming • Expand organized system of agriculture to cover other industries such as horticultural crops, root crops, aquaculture, and other products • Increase production of food as substitute for imported food items • Gear agriculture products toward tourism • Develop agriculture system that mixes subsistence farming with financially sustainable return • Organize production system based on leasehold and government ownership • Diversify agriculture production system through commercial crop and livestock farming • Develop system of agriculture production at the village level <p><u>Agroforestry</u></p> <ul style="list-style-type: none"> • Develop sustainable commercial use of the forest trees using selective harvesting • Promote Sloping Agriculture Land Technology and Line Planting Technology • Develop agroforestry both for food and energy feedstock <p><u>Outer Island System</u></p> <ul style="list-style-type: none"> • Develop livelihood centers that will serve as the center of the operations of outer island production and processing centers • Develop a controlled production and processing system for outer 	<ul style="list-style-type: none"> • Rural Transformation Center Approach • Outer Island Strategy • Agroforestry

Core Objective	Policy Objective	Selected Strategy
	islands	
<p>b) Develop integrated production, processing, energy, and transport infrastructure support system for agriculture</p>	<p><u>Food Park</u></p> <ul style="list-style-type: none"> • Establish integrated infrastructure investment based on the existing four sugar centrals and railways and the coconut mill • Develop appropriate infrastructure support like cold storage, aggregation, segregation, pre-ripening, and other logistics services • Develop system of infrastructure for storage and processing of additional products at optimum volume • Build agro industrial infrastructure based on organized system of agriculture <p><u>River System Irrigation and Drainage</u></p> <ul style="list-style-type: none"> • Dredging of rivers that are heavily silted <p><u>Biofuels and alternative energy</u></p> <ul style="list-style-type: none"> • Ensure electricity self sufficiency using alternative sources 	<ul style="list-style-type: none"> • River and Drainage • Biofuels and Alternative Energy • Food Park Establishment
<p>c) Improve delivery of agriculture support services</p>	<p><u>Industry Focused</u></p> <ul style="list-style-type: none"> • Strengthen agriculture support services in line with the improvement of existing industries and development of new ones • Prepare a national land use plan • Improve competitiveness through high yield and better efficiency • Develop program in the use of the 41 traditional fishing grounds • Implement sustainable catch program <p><u>Water, Soils and Land Use</u></p> <ul style="list-style-type: none"> • Improve land use management practices • Use river and ground water resources for economically and environmentally productive purposes • Update laws on the use of river 	<ul style="list-style-type: none"> • Industry Focused • Climate Change • Water and Land Use • Value Adding and Marketing • Credit • Research, Training, and Extension Convergence

Core Objective	Policy Objective	Selected Strategy
	<p>and ground water resources</p> <ul style="list-style-type: none"> • Promote interest in the productive use of the water resources <p><u>Climate Change</u></p> <ul style="list-style-type: none"> • Adapt agriculture practices to climate change • Improve aquaculture research and training program • Include land use plan clause in the use of sloping and fragile lands • Employ productive conservation agriculture <p><u>Value Adding and Marketing</u></p> <ul style="list-style-type: none"> • Improve value adding through processing • Improve export market • Improve product standard and marketing efficiency • Improve capability in agriculture export business <p><u>Credit</u></p> <ul style="list-style-type: none"> • Develop financial products for small and medium scale enterprises • Diversify financial products for credit assistance <p><u>Research, Training, and Extension</u></p> <p><u>Convergence</u></p> <ul style="list-style-type: none"> • Improve organizational capabilities for the delivery of research and extension • Develop industry focused academic and research programs • Establish programs that can recruit and educate students based on the needs of the industries • Manage academic and research programs in coordination with other stakeholders • Improve research and product development • Improve production capability using modern technologies and management and marketing skills 	

Core Objective	Policy Objective	Selected Strategy
<p>d) Enhance capabilities through foreign investment, private public partnership, and other innovative business arrangements</p>	<p><u>Innovative Business Models</u></p> <ul style="list-style-type: none"> • Introduce diversified aquaculture business for the international market • Improve corporate earning performance • Transform corporations as earning venture • Commit financial and economic returns to the government • Improve international competitiveness • Develop business arrangements with farmer ownership and accountability <p><u>Private Public Partnership</u></p> <ul style="list-style-type: none"> • Develop PPP model • Enhance capabilities through foreign investment, private public partnership, and other arrangements <p><u>International Trade and Investment</u></p> <ul style="list-style-type: none"> • Increase local involvement in fishing and maritime trade activities using the country's territorial waters • Secure investment for infrastructure as the centerpiece of agriculture policy • Increase market volume by increasing number of products <p><u>Investment in new ventures</u></p> <ul style="list-style-type: none"> • Mix aquaculture and tourism uses • Develop an updated plan in the use of its traditional fishing grounds and its vast territorial waters as a whole under the exclusive economic zone • Promote infrastructure investment in Fiji <p><u>Investment fund</u></p> <ul style="list-style-type: none"> • Secure investment from multiple sources 	<ul style="list-style-type: none"> • Innovative Business Models • Private Public Partnership • International Trade and Marketing • Investment in New Ventures • Investment Fund

Core Objective	Policy Objective	Selected Strategy
	<ul style="list-style-type: none"> • Improve international competitiveness • Develop products that can be competitive in the international market • Forge partnership with international financier and investors • Improve international competitiveness • Improve financial services to local agriculture • Expand funding coverage • Establish investment fund for retirees • Develop projects for private investment 	
e) Improve project planning and implementation	<p><u>Fisheries and Agriculture Convergence</u></p> <ul style="list-style-type: none"> • Prepare coastal marine resources development plan • Enact coastal marine resources law that will ensure the best economic and environmental uses of these resources • Strengthen organizational capacity <p><u>Agriculture Development Council</u></p> <ul style="list-style-type: none"> • Prepare unified agriculture development agenda with specific industry plan • Strengthen interagency collaboration • Support local level development • Advise policy reform for program sustainability • Improve mechanism to encourage productive private sector participation <p><u>Reorganization</u></p> <ul style="list-style-type: none"> • Reorganize government organizations according to the strategic direction of the industries • Establish a system of long term program that will be sustained in any change of government 	<ul style="list-style-type: none"> • Fisheries and Agriculture Convergence • Agriculture Development Council • Reorganization

14.0 ANNEX 4: LIST OF PARTIES CONSULTED**CONSULTATION MISSION ON THE AGRICULTURE
SECTOR POLICY PROJECT, FIJI****OCTOBER 04th – DECEMBER 20th, 2013****CENTRAL AND EASTERN DIVISION****Government Agencies**

Post	Name	Organisation	Destination	Email Address
Minister	Mr. Inia B. Seruiratu	Agriculture	Raiwaqa	inia.seruiratu@agriculture.gov.fj ibseruiratu@yahoo.com
Permanent Secretary for Agriculture	Mr. Ropate Ligairi	Agriculture	Raiwaqa	psagriculture@connect.com.fj ropateligairi@yahoo.co.uk
Director Extension	Mrs. Unaisi Waibuta	Agriculture	Raiwaqa	unaisi.waibuta@agriculture.gov.fj
Director Land Water Resource Management	Mr. Collin Simmons	Agriculture	Raiwaqa	csimmons@agriculture.gov.fj
Director Animal Health & Production	Mr. Tomasi Tunabuna	Agriculture	Raiwaqa	ttunabuna@yahoo.com tomasi.tunabuna@agriculture.gov.fj
Director Research	Mrs. Miliakere Nawaikula	Agriculture	Koronivia	miliakere.nawaikula@govnet.gov.fj
Chief Economist	Mr. Ilimeleki Kaiyanuyanu	Agriculture	Raiwaqa	ikaiyanuyanu@agriculture.gov.fj kilimeleki@yahoo.com
Director Human Resources, Finance & Information	Ms. Mereseini Bou	Agriculture	Raiwaqa	mereseini.bou@govnet.gov.fj
Consultant	Dr. Ravindra C. Joshi	Agriculture	Raiwaqa	rcjoshi4@gmail.com ravindra.joshi@govnet.gov.fj
Principal Agriculture Officer (Central)	Ms. Tepola Seniloli	Agriculture	Nausori	senilolitk@gmail.com maria.waqanirola@govnet.gov.fj
Senior Agriculture Officer (Tailevu)	Mr. Sanaila Turaga	Agriculture	Korovou	eta_rino@yahoo.co.nz

Senior Agriculture Officer (Serua/Namosi)	Mr.Aporosa Lalabalavu	Agriculture	Navua	aporosa.lalabalavu@agriculture.gov.fj
Senior Agriculture Officer (Naitasiri)	Mr. Adriano Tabualevu	Agriculture	Nausori	adriano.tabualevu@yahoo.com
Senior Agriculture Officer (Rewa)	Mr.BidyakarPande	Agriculture	Nausori	chandbidya@yahoo.com
Acting Principal Research Officer (Chemistry)	Mr.KemueliSeuseu	Agriculture	Koronivia	kemueli.seuseu@govnet.gov.fj
Senior Agriculture Officer (HQ)	Mrs.KasanitaRatu	Agriculture	HQ	kasanita.ratu@govnet.gov.fj kasanita_r@yahoo.com
Acting Senior Agriculture Officer (Landuse)	Mr.SolomoneNagaunavou	Agriculture	HQ	snagaunavou@govnet.gov.fj
Acting Senior Agriculture Officer (Farm Management)	Mr. Naomi Naiqumu	Agriculture	HQ	naomi.naiqumu@agriculture.gov.fj
Principal Research Officer (Livestock)	Mr.MaikaliDrauna	Agriculture	Vatuwaqa	mdrauna@govnet.gov.fj
Senior Research Officer (Pastures)	Mr.EroniTamani	Agriculture	Koronivia	eroni.vukicea@govnet.gov.fj
Acting Principal Agriculture Officer (Eastern)	Mrs. Mere Salusalu	Agriculture	Knolly Street	mere.salusalu@agriculture.gov.fj
Principal Economic Planning Officer (Desk Officer – Ministry of Agriculture)	Mr.IsoaTalemaibua	Finance	Finance	italemaibua@finance.gov.fj
Deputy Permanent Secretary	Mr. Krishna D. Prasad	Strategic Planning	Strategic Planning	kprasad001@planning.gov.fj
Chief Economist	Mr.Ovini Ralulu	Strategic Planning	Strategic Planning	oralulu@planning.gov.fj
Principal Economic Planning Officer	Mr.Anare Leweniqila	Strategic Planning	Strategic Planning	aleweniqila001@planning.gov.fj
Principal Fisheries Officer	Mr.AnareRaiwalui	Fisheries	Takayawa Building	raiwalui.anare@gmail.com
Conservator of Forests	Mr.SamuellaLagataki	Forestry	Takayawa Building	sllagataki@gmail.com
Deputy Conservator of Forests	Mr.Eliki Senivasa	Forestry	Takayawa Building	eliki.senivasa@gmail.com eliki.senivasa@govnet.gov.fj
Principal Scientific	Mr.IniaSaula	Department of Energy	Samabula	inia.saula@fdoe.gov.fj

Stakeholders

Post	Name	Organisation	Destination	Email Address
Chief Executive Officer	Mr. Brij Lal	Food Processer	Vatuwaqa	foodprocessors@connect.com.fj
Acting Director Land Resource Division	Mr. Sairusi Bulai	SPC	Nabua	sairusib@spc.int
IFAD Regional Representative	Mr. Sakiusa Tubuna	IFAD	IFAD Sub Regional Office at the UNDP Office	s.tubuna@ifad.com
Executive Chairman	Mr. Xavier Riyaz Khan	Biosecurity Authority of Fiji	Suva	chairman@biosecurityfiji.com
Manager Operation	Mr.Suliasi Tawake	Biosecurity Authority of Fiji	Suva	stawake@biosecurityfiji.com
Acting Manager Finance & Information Technology	Mr.Elimi Tawake	Biosecurity Authority of Fiji	Suva	etawake@biosecurityfiji.com
CEO – Foods Pacific	Mr. George Patel	Foods Pacific	Lami	georgepatell@hotmail.com
Dean of College of Agriculture, Fisheries & Forests	Dr.Paras Nath	College of Agriculture, Fisheries & Forests, FNU	Koronivia	deanagr@fnu.ac.fj paras.nath@fnu.ac.fj
CEO – Natures Way	Mr. Michael Brown	Natures Way	Nadi	michael.finau@gmail.com
Chairman – Fiji Crop and Livestock Council	Mr. Simon Cole	Fiji Crop and Livestock council	Nadi	vudapigs@connect.com.fj
CEO – Fiji Crop and Livestock Council	Ms.Lavenia Kaumaitotoya	Fiji Crop and Livestock council	Nadi	lkaumaitotoya@gmail.com
Manager	Mr.Rupeni Koroi	Fiji Kava	Lautoka	N/A
BAF Representative	Mr.Rajeshwar Singh	British American Tobacco	Suva	rajeshwar_singh@bat.com

NORTHERN DIVISION**Government Agencies**

Post	Name	Organisation	Destination	Email Address
Principal Agriculture Officer (Northern)	Mr. John Cox	Agriculture	Labasa	jwcoxboss@yahoo.com
SAO (Macuata)	Mr. Kanito Matagasau	Agriculture	Labasa	kmatagasau@gmail.com
Senior Agriculture Officer (Cakaudrove)	Mr. Esava Tuimoala	Agriculture	Cakaudrove	esavatuimoala@yahoo.com
Senior Agriculture Officer (Bua)	Mr. Ilisoni Banuve	Agriculture	Bua	tuilibans@yahoo.com
Agriculture Officer	Mr. Daven Nath	Agriculture	Dreketi	davendra_nath_2001@yahoo.com
Officer In Charge	Mr. Marika Radua Bose Yaco	Agriculture	Seaqaqa Research Station	mboseyaco@yahoo.com.uk

Stakeholders

Post	Name	Organisation	Destination	Email Address
Chief Executive Officer	Mr. Ashrit Pratap	Rewa Rice Ltd.	Labasa	manager@rewarice.com.fj
Manager	Mr. Ashok Kumar	Copra Millers Ltd	Savusavu	ashokcmf@connect.com

WESTERN DIVISION**Government Agencies**

Post	Name	Organisation	Destination	Email Address
Acting Principal Agriculture Officer (Western)	Mr.Viliame Mainawalala	Agriculture	Lautoka	vmainawalala@yahoo.com
Acting Senior Agriculture Officer (Nadroga/Navosa)	Mr.Sowane Remudu	Agriculture	Sigatoka	sremudu.turagavou@gmail.com
Agriculture Officer (Nadroga&Navosa)	Mrs.Makereta Rasuka	Agriculture	Sigatoka	makeretarasuka@yahoo.com
Acting Senior Agriculture Officer (Ba)	Mrs.Unaisi Remudu	Agriculture	Ba	unaisi@hotmail.com
Senior Agriculture Officer (Ra)	Mr.Petero Mausio	Agriculture	Rakiraki	petro.mausio@yahoo.com
Senior Research Officer (Tree Crops)	Mr.Shailendra Prasad	Agriculture	Legalega	shlnrprasad@yahoo.com
Acting Senior Agriculture Officer (Livestock)	Mr.Tevita Nabura	Agriculture	Sigatoka	tenabgone@yahoo.com
Acting Agriculture Research Officer (Landuse)	Mr.Joeli Waradi	Agriculture	Lautoka	jwaradi@agriculture.gov.fj
Director Sugar	Mr.Viliame Gucake	Ministry of Sugar	Lautoka	vgucake@govnet.gov.fj
Team Leader – West	Mr.Lemeki Ratucivi	Biosecurity of Fiji	Lautoka	maxi_ratucivi@yahoo.com; lratucivi@biosecurityfiji.com
Supervisor	Mr.Surend Prasad	Biosecurity of Fiji	Nadi	spratap@biosecurityfiji.com

Stakeholders

Post	Name	Organisation	Destination	Email Address
Team Leader	Mr.Waisiki Gonemaituba	SPC	Lautoka	waisikig@spc.int
CEO	Mr. Michael Brown	Natures Way	Nadi	michael.finau@gmail.com
Extension Officer	Mr. Kyle Stice	Natures Way/Kokosiga	Nadi	kyle@kokosiga.com
Manager	Mr. Raj	Awesome Chicks	Ba	N/A
Head of Livestock Operation	Mr. Russell Fookes	Rooster	Ba	russell.fookes@roosterpoultry.com.fj
CEO	Ms.Talica	Yaqara Pastoral	Tavua	estateyaqara@connect.com.fj
Founder/ Director	Ms.Sashi Kiran	FRIENDS	Lautoka	director@friendfiji.com
Leader	Dr. Wei-Ho Lin	TTM	Sigatoka	tm.fiji@icdf.org.tw
Director	Mr. Sant Kumar	BulaAgro	Nadi	bulaagro@gmail.com

Support Staff from Ministry of Agriculture

Post	Name	Organisation	Destination	Email Address
Principal Economic Planning Officer (Agrtrade)	Mr.Pauliasi Tuilau	Agriculture	HQ	pauliasi.tuilau@agriculture.gov.fj
Principal Economic Planning Officer (Policy)	Mr.Kamalesh Lakhan	Agriculture	HQ	kamalesh.lakhan@agriculture.gov.fj
Senior Economic Planning Officer (Policy)	Mr.Akuila Nacoke	Agriculture	HQ	akuila.nacoko@agriculture.gov.fj
Consultant	Dr.Niumaia Tabunakawai	Agriculture	HQ	niumaia@live.com
Consultant	Dr. Eduardo Bacoldo	Agriculture	HQ	bacoloded@yahoo.com
Ministry Rep	Mr.Tevita Natasiwai	Agriculture	HQ	tnatasiwai@agriculture.gov.fj texn_nat@hotmail.com
Ministry Rep	Mr.Ilisoni Leweniqila	Agriculture	HQ	N/A
Ministry Rep	Mrs.Sifoki Gonerogo	Agriculture	HQ	sgonerogo@agriculture.gov.fj
Ministry Rep	Mrs.Sisilia Kalesi	Agriculture	HQ	skalesi@agriculture.gov.fj
Ministry Rep	Mr.Ravuama Bose	Agriculture	HQ	N/A

15.0 ANNEX 5: TERMS OF REFERENCE FOR THE ASSIGNMENT



FOOD AND AGRICULTURE ORGANIZATION OF THE UNITED NATIONS

Terms of Reference for Consultant/PSA

Name: Mr Eduardo Becerra	
Job Title: International consultant	
Division/Department: Pacific sub-regional office for the Pacific (SAR)	
Programme/Project Number: TCP/PJ/S001	
Location: FIJI	
Expected start date of Assignment: 02 October 2015	Duration: 60 working days WAE
Reports to: Gavin L. Wall	Title: Subregional Co-ordinator for the Pacific

GENERAL DESCRIPTION OF TASK(S) AND OBJECTIVES TO BE ACHIEVED

Under the overall supervision of FAO Sub-regional Representative for the Pacific, and with close technical supervision and support of SAP Multi-Disciplinary Team (MDT) and SAP Policy Officer, and in consultation with the Ministry Primary Industries, the Department of Agriculture, relevant Government agencies, key non-government organizations, and principal stakeholders, the consultant will undertake the following tasks:

- Act as team leader for the project, supervise overall activities of the project and monitor work and input of the other experts;
- Review relevant Government and private reports and documents related to agriculture and development policies and strategies in FIJI;
- Together with national consultant, liaise closely with Director and senior staff of the Department of agriculture to develop work plan for the project focusing particularly on the consultation, formulation and validation process;
- Through the public consultations and one to one meetings with key informants together with analysis of available data, identify the issues affecting the sector from within agriculture and from other related sectors, and based on these, draft a national agricultural strategic sector policy for submission to counterparts. To identify and map out clearly the issues and the current situation in the sector, the following is suggested:
 - Undertake a stakeholder analysis to identify key stakeholders and their roles in the sector development process.
 - Do a SWOT (Strength Weakness, Opportunities and Threats) analysis to identify objectives and goals
 - Assess political, macro-economic, institutional, social, technological, legal and regulatory environments that could affect or could impact the sector positively or negatively
 - Examine and identify relevant and existing legislation that may need reviewing to support the agriculture sector policy
- Towards the end of the policy formulation process, and together with Ministry of Primary Industries, organize a public presentation of the draft agriculture sector to stakeholders, States and National Government to foster ownership, and seek final policy endorsement. International expert with the National Consultant and local policy team should ensure presentation of the final policy document for the formal acceptance of the Policy by Government Cabinet.
- Organize and act as principal facilitator for the public and stakeholder consultation workshop and the one-day policy workshop for government officials
- Take lead role in the drafting and revision of the draft national agriculture policy and strategic sector development plan;
- Prepare a terminal statement at end of project briefly outlining the process adopted, the tasks completed and stakeholders consulted and any follow-up actions required.

KEY PERFORMANCE INDICATORS

Expected Outputs:	Required Completion Dates
Successful completion of tasks: <ul style="list-style-type: none"> • One document consisting of draft National agriculture sector policy. • A terminal statement at end of project briefly outlining the process adopted, the tasks completed and stakeholders consulted and any follow-up actions required. 	December 20, 2015

REQUIRED COMPETENCIES

Academic Qualifications

Post graduate qualifications in agriculture, economics, rural development or related.

FJI 2020 AGRICULTURE SECTOR POLICY AGENDA



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