



GOVERNMENT OF SAINT KITTS & NEVIS



ST. KITTS AGRICULTURAL DEVELOPMENT STRATEGY



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Cooperation on Agriculture

MINISTRY OF HOUSING, AGRICULTURE FISHERIES AND COOPERATIVES
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This report is based on a request to IICA from the Ministry of Agriculture, St. Kitts to prepare a strategy for the agricultural sector. In response to the request, a technical mission from IICA visited St. Kitts from August 16 to 26, 2006. The report was prepared by the following team:

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ACRONYMS

ACA	Advisory Council on Agriculture
ACP	Africa, Caribbean and Pacific
ADS	Agricultural Development Strategy
CARDI	Caribbean Agricultural Research and Development Institute
CARICOM	Caribbean Community
CDB	Caribbean Development Bank
CFP	Certified Farmers Program
CSC	Commodity Selection Criteria
DAD	Department of Agricultural Development
DOA	Department of Agriculture
ECCB	Eastern Caribbean Central Bank
EC\$	Eastern Caribbean Dollar
EU	European Union
FADs	Fish Aggregating Devises
FAO	Food and Agriculture Organization (United Nations)
FND	Foundation for National Development
GAP	Good Agricultural Practices
GDP	Gross Domestic Product
HACCP	Hazard Analysis Critical Control Point
HRD	Human Resource Development
ICT	Information and Communication Technologies
IICA	Inter-American Institute for Cooperation on Agriculture
IPM	Integrated Pest Management
IPPC	International Plant Protection Convention
Kgs	Kilograms
Lb	Pound
MOA	Ministry of Agriculture
OECS	Organization of Eastern Caribbean States
OIE	World Organization for Animal Health
PPU	Policy and Planning Unit
PS	Permanent Secretary
RSU	Regulation and Supervision Unit
SAS	Sugar Adaptation Strategy
SK	St. Kitts
SKN	St. Kitts and Nevis
SME	Small and Medium Enterprise
SPS	Sanitary and Phyto-Sanitary
SSMC	St. Kitts Sugar Manufacturing Corporation
SWOT	Strength, Weaknesses, Opportunities and Treats
TBT	Tropical Bont Tick
USDA	United States Department of Agriculture

EXECUTIVE SUMMARY

Background: Historically, St. Kitts and Nevis's (SKN) agriculture was dominated by sugar production, with non-sugar agriculture playing a small role. The sugar industry has been of very significant economic, social and environmental importance (among others) to the country, being a major source of employment and foreign exchange earnings. However, the industry experienced a continuous decline in the last three decades due to various factors and this resulted in a Government's decision to close it in 2005. The Government designed and approved a Sugar Adaptation Strategy (SAS) (2006–2013) to transform the economy as it adjusts to the new economic and social challenges created by the vacuum of the cessation of sugar production.

With regards to the future role of the agricultural sector, St. Kitts faces huge challenges to contribute as rapidly as possible to the economy's adjustment and transformation. In this regard, the Sugar Adaptation Strategy (SAS) incorporates the Department of Agriculture's (DOA) Strategic Plan, 2005-2009 as one of the main components of the macro agenda to transform the economy. The Plan's primary objective of agricultural diversification is to increase output significantly in a sustainable manner, focusing on the commercialization of both crop and livestock production in an attempt to transform the sector into one that is competitive and diversified.

It is against the above background and in response to the Minister of Agriculture's request to IICA to assist in the design of a strategy for the agricultural sector that this Agricultural Development Strategy (ADS) was prepared. The ADS incorporates the proposals of the DOA's Strategic Plan and it also builds on the recommendations of the Food and Agriculture Organization – Caribbean Development Bank (FAO-CDB) Agricultural Diversification Project proposal (2002), CARDI's Strategic Marketing Plan (2005) and the various proposals of the sugar transition management team. It recognizes the SAS as the macro strategy for the economic transformation of the country and within this framework; it inserts a pro-active role for the agricultural sector.

Policy Objectives and Priorities: One major contribution of the ADS is that it defines a policy framework for the agricultural sector that specifies the policy objectives, policy issues and challenges of the sector, consistent with the macro objectives of the SAS. Six broad policy objectives are identified: (i) promote sustainable development of the agricultural sector and rural communities; (ii) increase the competitiveness of the agricultural sector; (iii) accelerate diversification of the production base and exports; (iv) increase food production, enhance food security and improve the nutritional status of the population; (v) strengthen inter-sectoral linkages; and (vi) improve income distribution and contribute to poverty alleviation.

Program Design and Strategy: The ADS is conceived as a program to be executed in the next five years (2007-11). The program has three major components – Crop Production and Marketing, Livestock Production and Fisheries Development. The program's design is largely based on the continuously expanding food needs of SKN due to increases in the country's per capita income, higher living standards and a growing

tourism sector, as well as the country's agronomic and favorable resource situation and potential to develop a productive and competitive agriculture.

The **Crops** program is the largest component of the ADS and its goal is to increase the regularity, consistency and sustainable supply of high quality food crops on a year-round basis from local production. The program aims at expanding vegetable production from the present level of approximately 600,000 kg. to 2 million kg. over the next 5 years. The vegetables targeted are tomatoes, sweet peppers, hot peppers, cabbage, carrots, pumpkins, melons, oil seeds and legumes; and peanuts, white potatoes, sweet potatoes, yams and onions in the roots and tubers group. In the tree crop category, the program will focus on mango, pineapple, avocados, carambola, passion fruit, sugar apple, custard apple; Indian jujube, wax apple and hybrid guava.

The basis of the program's strategy is to focus on commercial production with the aim of increasing production efficiency and improving the competitiveness of these crops through a significant improvement in productivity and quality and reduce production costs. In addition, the strategy addresses the various constraints that affect production and marketing through more pro-active policy and strategic interventions, support services, budgetary support and facilitating greater stakeholder involvement. Emphasis is placed on a deliberate market-led, private sector driven approach, based on competent management of farming systems on full-time, larger-scale operations; the introduction of new crops, intercropping and use of modern technologies; optimum use and proper management of good quality arable lands to stimulate increased production for domestic and export purposes; development of packing house(s) and agro-processing capacity; promotion of inter-sectoral linkages with tourism; and develop irrigation facilities on selected settlements.

The expected impacts of the crops program are: to bring 1,800 additional acres of good arable lands for more efficient utilization to facilitate production diversification; expand vegetable production to 2 million kg./year and higher self-sufficiency in fruits; increased farm production and productivity in compliance with the norms of best agricultural practices and international food safety standards; achievement of a higher level of self-sufficiency and food security from domestic year-round output; increased incomes and profitability and employment in crop production; stronger agriculture-tourism linkages through an improved supply of food crops to the tourism sector; and foreign exchange savings through higher production and earnings from export opportunities.

The **livestock** component of the ADS seeks to transform the livestock sub-sector into a competitive one through increased productivity, lower costs of production and improved meat quality. The central thesis of the strategy is to transform the production systems from their primal state to ones that adopt new technologies, as well as increasing the supply of quality grass-fed meat for the expanding local market. The strategy will focus on increasing the production of beef and mutton by approximately 127,000 kg. annually, while reducing production costs and achieving food safety standards through: upgrading existing production units that have the potential for commercialization; develop 20 new farms over the next five years - 10 for cattle and 10 for small ruminants on lands presently under sugar cane; and improve livestock nutrition, management and the quality of the production systems.

The program proposes to establish 10 new cattle farms that would be allotted 50 acres of former sugarcane lands for beef production. It would also establish new sheep and goat production farms consisting of 10 units, each with about 25 acres to be allotted from existing sugar cane lands. A pilot project to support organic meat production will also be undertaken with two large and two small ruminant farms selected for the pilot initiative. Participating farmers would be trained in the management of animals for organic meat production, including the adoption of best practices and quality control measures. In addition, the strategy seeks to develop value-added activities in livestock production. The Basseterre abattoir will be upgraded to an improved quality facility for slaughtering and producing different cuts of meat, consistent with local demands and possibly for exports.

The expected impacts of the livestock program are: an increase of approximately 127,000 kg. of beef and mutton annually and quality of meats, lower production costs and a higher level of self-sufficiency; increased employment opportunities for 20 new farmers and rural residents; annual incremental income of approximately EC\$30,000 for beef farms and EC\$22,000 for sheep farms; and expanded linkages with other sectors through value-added activities, particularly with processing and the tourism sector.

The program for **fisheries** development seeks to transform the industry during the next five years from a largely artisanal one to a more modern one in which improved technology and management systems are incorporated. It seeks to achieve the following: (i) a better organized fishing sector that is technology driven and commercially oriented; (ii) production increase of approximately 25% over the 5-year period, from 414,495 kg. to 518,105 kg.; (iii) development of a fledging aquaculture industry to achieve a production target of approximately 5,000 kg. per annum; (iv) a reduction of imported fish; and (v) greater price stability for fish in the domestic market.

The strategy to achieve the above targets will be based on the following actions: (i) construction of improved landing and storage facilities in existing fishing areas; (ii) adopt modern technologies in fish production; (iii) support capacity building in order to better manage fishery stocks, development of new resources and the adoption of modern technology; (iv) support the use of better equipped and larger fishing vessels to exploit the sea resources; (v) encourage the continued development of aquaculture, particularly for tilapia and shrimp; (vi) conduct research on the life cycle of conch and lobster and formulate measures for conservation; and (vii) implement survey(s) of the marine stocks to assess the potential for future fisheries development.

Implementation: The ADS proposes a new institutional and operational framework that incorporates various stakeholders (public, private, etc.) to facilitate its implementation, provide a more focused direction to the sector as well as attract private investment in agriculture and related areas. This framework will strengthen policy and planning activities in the sector, improve the enabling environment, consolidate and expand public and private sector linkages and improve coordination with the implementation of the SAS.

The ADS recommends major changes to the present institutional framework, particularly in the Ministry of Agriculture. These changes seek to provide a more pro-

active and robust institution that not only provides vision and leadership in the implementation of government's policy, but also one that facilitates dialogue and consensus building among the sector's stakeholders. The proposed new structure of the Ministry reflects it having two larger Departments and three smaller Units, with the Permanent Secretary (PS) having direct overall responsibility for management and coordination. The new structure reflects **five** major changes in the Ministry to strengthen its role and provide aggressive leadership and direction to the sector: restructuring of the Department of Agriculture; reorganization of the Fisheries Department; creation of a Policy and Planning Unit; creation of a Regulation and Supervision Unit (RSU); and the establishment of an Advisory Council on the sector.

A major institutional change in the Ministry's structure is the restructuring of the current Department of Agriculture (DOA) into the **Department of Agricultural Development (DAD)**. The rationale for restructuring the DOA is based on its developmental role within the government's new agenda, the need for stronger public policy support for agriculture and its expanded role. The DAD will provide a wider range of technical services, expand its capacity building capabilities as well as having the responsibilities to foster agri-business development, marketing and export development. It will also be responsible for providing greater accountability on advances and results achieved from public investment and support to the sector. Its responsibilities will be executed through four Divisions – a Production/Technical Services Division, an Agri-business Development and Marketing Division, a Human Resources Development Division and an Information and Communications Division.

The **Fisheries Department** will remain a separate one in the Ministry but is to be reorganized to reflect an expansion of the technical services and support that it will provide, as well as training to fishermen and building capacity to facilitate better management of the country's fisheries resources.

The **Policy and Planning Unit (PPU)** will be a new Unit in the Ministry with responsibilities for overall policy and planning in the sector, including policy and program review, monitoring, evaluation and follow-up, the management of a data bank and information system on the sector, program/project development and funding, coordination with other public and private sector institutions, etc. The ADS also recommends the establishment of a **Regulation and Supervision Unit (RSU)** with the responsibilities to oversee the implementation and monitoring of regulatory aspects related to quality assurance and certification, legislative support for policy implementation and monitoring, accreditation, standards, food safety requirements, inspection, etc.

A major change proposed in the operational framework is the establishment of an **Advisory Council on Agriculture (ACA)** to the Minister of Agriculture. The ACA will be an advisory body that will comprise representatives of various stakeholder groups in the sector. It will be a forum for dialogue and consensus-building with various stakeholders on critical issues affecting the sector, facilitate the Minister to have direct access to various inputs from non-public institutions and stakeholders on the direction and development of the sector and foster public-private partnerships.

Program Costs and Benefits: The total incremental cost of the program is estimated to be EC\$14.88, comprising \$8.41 million (57%) to cover capital costs for the crops,

livestock and fisheries sub-sectors, a total of \$3.9 million (26.2%) for operating costs and \$2.56 million (17.3%) for institutional strengthening costs respectively. The costs for institutional strengthening include the establishment of the PPU and the RSU and additional technical and professional personnel for the DAD.

The program is expected to accrue incremental benefits estimated to total EC\$16.32 million over the five-year period, to be derived from two main sources: increased output from the crops, livestock and fisheries sub-sectors; and improvements in product quality. Over the period, the program is expected to generate a total of EC\$1.45 million in net benefits, with positive net benefits achieved from the fourth year of its implementation. In addition, the program will provide economic benefits that include positive impacts on employment, the generation/savings of foreign exchange, environmental conservation, inter-sectoral linkages, etc.

Success of the ADS: The ADS is designed for the agricultural sector to make a more effective contribution to the economy's transformation as indicated in the SAS's framework. This is to be done through the sector's modernization in which its activities become more efficient, competitive and sustainable through among other things, improved policy implementation and coordination, better management, introduction of modern technology and better practices, a larger role for the private sector as well as a more pro-active role for the public sector. The success of the ADS will largely depend on the extent of and the timely policy and support interventions of the government to send the appropriate signals to the various stakeholders, as well the extent to which they respond positively to such interventions over time. In this regard, there are some critical and urgent actions that need to be taken at various levels of the government to facilitate success of the strategy and achievement of the policy objectives.

The actions to be taken include: (i) an updating of the fiscal incentive regime to reflect a policy bias and greater commitment by the government to transform the sector through improving its attractiveness to generate a higher inflow of investment finance, greater private sector involvement and the development of commercial and agri-business activities; (ii) a higher level of budgetary support that is both necessary and for sending clear, positive signals to various stakeholders of its commitment to move the sector forward; (iii) a more conscious integration of the ADS in the overall macro-strategy so as to reflect the strategic role of agriculture in the larger economic framework and transformation process and facilitate external funding for its implementation; (iv) the need for other policies and strategies to complement the ADS to provide the synergy required for transforming the sector; (v) the need for dramatic changes in the way the political directorate and the public service conduct and facilitate business if the enabling environment for agriculture is to be created; (vi) a clear understanding of the respective roles of the public and private sectors and other stakeholders in the implementation of the strategy; (vii) more dynamic and aggressive leadership by the Ministry of Agriculture in championing the ADS at all levels of the government, accessing higher public funding for its operationalization, promoting the strategy as the platform for modernizing the sector and seeking donor funding its implementation; and (viii) the need for strong leadership at the highest level to champion the sector's importance and role and to ensure that it is given its rightful place in the SAS.

Furthermore, the ADS emphasizes: (i) the need for a market-led approach that facilitates commercial agriculture and agri-business development; (ii) substantial increases in farm productivity and a reduction in costs of production for the sector to be competitive in both local and export markets, achieve higher food security levels, boost profitability in farming and attract entrepreneurship, investment, technology, etc.; (iii) the sector's transformation to achieve higher growth targets will only be possible if there is a substantial shift from part-time farming to commercial agriculture and the development of agri-business enterprises; (iv) the commercialization of SKN's agriculture requires a larger role of the private sector and other non-government stakeholders in the economy through the construction of an enabling environment and removal of various constraints that enhances productivity and profitability; (v) modernization of the sector requires a gradual shift towards a more private agriculture in which private enterprises drive the transformation process through their active involvement in dialogue and consensus building on critical issues as well as being a source of investment finance; (vi) organization of the various producers and stakeholder groups to advocate, advance and monitor the sector's interests and strengthen public-private partnerships and dialogue on critical issues; (vii) the need for stronger and more effective institutions to provide policy design and guidance, coordinate institutional relationships and facilitate implementation and review; and (viii) continuous technical assistance from donor agencies and development partners, particularly FAO, Inter-American Institute for Cooperation on Agriculture (IICA), CARDI, CDB, etc. to support the implementation of the ADS.

SECTION I

BACKGROUND

1.1 Overview

Historically, the agricultural sector of St. Kitts and Nevis (SKN) has been dominated by sugar production, with non-sugar agriculture playing a small role. In 2004, the sector contributed approximately 5% to Gross Domestic Product (GDP) which is about one-third of its contribution 20 years ago. The poor performance of the sugar industry, expansion of other sectors and the country's vulnerability to weather conditions have been the major factors responsible for the sector's declining contribution of the economy. In recent years, non-sugar agricultural activities expanded marginally with increased production of some food crops and meat production. Nevertheless, the country continues to import more than 75% of its annual food consumption needs which provides a major challenge to the agricultural sector and overall government policy for increasing self-sufficiency.

The sugar industry experienced a continuous decline in the last three decades due to falling sugar prices, rising operating expenses, high fixed costs, aging equipment, low production efficiencies and a series of natural disasters that contributed to the accumulation of financial losses annually. Since 2000, debt accumulated at the rate of US\$13 (EC\$35) million annually and by the end of 2005, it totalled about US\$117 (EC\$316) million.

The Government closed the sugar industry after the 2005 sugar cane crop. Despite its weak performance, the industry has been of very significant economic, social and environmental importance (among others) to the country, being a major source of employment and foreign exchange earnings. Hence the industry's closure is inflicting a range of impacts on the wider economy and society and in particular, the sugar growing areas and communities located mainly in the north-western half of St Kitts. These include the following:

- the loss of output estimated at 1.6% of GDP, 30.4% of total agricultural output and 13% of total domestic exports;
- the loss of direct employment of some 1,500 workers in the industry, representing approximately 8% of the total work force and over 50% of the agricultural labour force;
- stagnation and possibly the gradual decline of rural communities as a result of the wage loss estimated at US\$0.74 million per month which has implications for food security and poverty situations for rural families far beyond those directly affected by the loss of jobs;
- elimination of about US\$2.2 million that will no longer be spent annually by the industry on maintaining roads, bridges, culverts and on soil conservation and ghaut stabilization;

- the provision of health, welfare and other social services to sugar industry workers and the wider communities will be affected;
- the industry's roles to facilitate the recharge of the underground water supply, protect the country's landscape from degradation and maintain the aesthetic value of the countryside will be lost;
- the winding-down of the St. Kitts Sugar Manufacturing Corporation (SSMC) operations will have an impact on certain government departments and areas of expenditure, given the corporation's role in providing critical social, environmental and infrastructural services;
- the availability of good arable lands and water (previously used for sugarcane production) for agriculture, as well as the possibility of attracting ex-sugar workers to be full-time farmers; and
- the positive impact of the closure through the benefit of not continuing to finance additional losses in the industry and a reduced rate of debt accumulation by the SSMC.

1.2 Adjustment and Transformation

The closure of the sugar industry presents a major challenge to the government to rapidly adjust the economy to the new scenario, while at the same time minimizing any severe economic and social dislocations that will result from this decision. The government's decision to close the industry was taken prior to the European Union's (EU) announcement in 2005 to reduce its preferential market price for Africa, Caribbean and Pacific (ACP) sugar by 36% over a four-period. The EU also indicated that it will provide assistance to those countries that will be affected by the price reductions.¹

A Sugar Adaptation Strategy (2006–2013) was designed and approved by the government to transform the economy as it adjusts to the new economic and social challenges created by the vacuum of the cessation of sugar production. The Sugar Adaptation Strategy (SAS) has two major objectives that are consistent with the EU's objectives of providing accompanying measures to the ACP countries that are affected by the sugar reform:

- (i) to promote economic diversification of sugar-dependent areas; and
- (ii) to address broader impacts generated by the reform process, possibly related, but not restricted to employment and social services, land use and environmental restoration, the energy sector, research and innovation and macroeconomic stability.

The SAS builds on the government's existing strategies to contribute to growth and sustainable development of the economy, focusing on five main aspects:

¹ Despite the SKN government's decision to close the sugar industry prior to the EU's announcement, SKN will also benefit from the EU's support to various countries for implementing their adaptation strategies in response to the new sugar price regime.

- (i) The pursuit of macroeconomic policies to reduce vulnerability and encourage and facilitate investment.
- (ii) Improving competitiveness in the production and exports of goods and services.
- (iii) Interventionist social policies to support economic development and protect the most vulnerable.
- (iv) Ensuring an environmentally sustainable development agenda.
- (v) Organizing to achieve success in economic restructuring and transformation.

With regards to the future role of the agricultural sector, St. Kitts faces huge challenges to contribute as rapidly as possible to the economy's adjustment and transformation. The vacuum created by a closed industry presents a larger burden on the sector that was already declining rapidly over time due to decreasing competitiveness and free trade. It should also be indicated that diversification of the agricultural sector continues to be a major objective of the government's strategy, an objective that existed long before the closure of the sugar industry.

The SAS incorporates the Department of Agriculture's Strategic Plan, 2005-2009 as one of the main components of the macro agenda to transform the economy. That Plan indicates that the primary objective of agricultural diversification is to increase agricultural production significantly in a sustainable manner to satisfy local demand and for exports. It focuses on the commercialization of both crop and livestock production in an attempt to transform the sector into one that is competitive and diversified. Production is to be market-led and in this context, market development and improvement of marketing facilities are to respond to opportunities and the needs of producers and purchasers. The development and strengthening of farmers' groups is to be an area of focus and the working relationship with stakeholder groups is to be further enhanced.

In a wider context, the SAS also seeks to address the various impacts that result from the closure of the sugar industry, given its pervasive influence on the country. At the macroeconomic level, the main impacts include the loss of foreign exchange earnings, the fiscal impacts on the country that result from additional costs to the government for supporting the adjustment process and the need to address the huge debt burden accumulated over several years from continuous losses by the industry. In the rural communities, although some persons have found alternative employment opportunities, much remains to be done to address the needs of those that must pursue alternative livelihoods. While other economic and social strategies are needed to support the communities and the families affected, social protection measures will be needed also including assistance to meet the housing needs of ex-sugar workers and maintenance of the rural infrastructure.

The contribution of a transformed agriculture should also seek to replace in large part, the positive environmental impacts of sugarcane cultivation. The presence of sugarcane covering a large area of the country has had significant environmental benefits, particularly on soil and groundwater conservation and prevention of marine

pollution. The prospective loss of this cover could have serious negative impacts on the environment unless appropriate remedial measures are taken by whatever agricultural production and/or other activities replace sugarcane production.

1.3 Support to SAS Implementation

It is against the above background and the need to give further definition to the agricultural component of the SAS that an Agricultural Development Strategy and a plan for its implementation are proposed in this report. In response to the Minister of Agriculture's request for the design and development of the ADS following the closure of the sugar industry, an IICA Team (including technical support from the Sugar Transition Management Office) conducted an extensive document review and consultation with the Ministry of Agriculture and other stakeholders (**see Annex 1**) to:

- Review the various proposals and recommendations on moving the agricultural sector forward;
- define the economic competitiveness issues facing agriculture in St. Kitts;
- identify the key growth sub-sectors for the future;
- review government incentives and donor programs in the sector;
- identify policy and institutional constraints;
- identify opportunities for effective transformation and modernization of the sector through specific program interventions;
- identify institutional mechanisms and policy interventions to facilitate the modernization process; and
- recommend areas for capacity building and training.

It should be pointed out that the proposals of this document complement those outlined in the DOA's Strategic Plan as well as the SAS. They also complement and build as much as possible on the recommendations of the FAO-CDB Agricultural Diversification Project proposal (2002), CARDI's Strategic Marketing Plan (2005) and the various proposals of the sugar transition management team. However, the ADS provide **four** unique contributions to the various above-mentioned proposals on the agricultural sector.

- (i) It recognizes the SAS as the macro strategy for the economic transformation of the country. Within this framework, it inserts a pro-active role for the agricultural sector as an integral component of the overall macro strategy for SKN.
- (ii) It defines a policy framework for the agricultural sector that specifies the policy objectives, policy issues and challenges of the sector, consistent with the macro objectives of the SAS. This policy framework is intended to provide clear signals to various stakeholders on the focus and direction for the sector for the next five years.
- (iii) It outlines a new institutional and operational framework that incorporates various stakeholders (public, private, etc.) to facilitate implementation of the Strategy, provide a more focused direction to the sector as well as to attract private investment in agriculture and related areas. This framework will strengthen policy and planning activities in the sector (technical support to the design, implementation and monitoring of sector policies and the ADS and sector

planning), consolidate and expand public and private sector linkages and improve coordination with the implementation of the SAS.

- (iv) The ADS is conceived as an agricultural development Program to be implemented over the next five years (2007-11) that provides a more focused approach to the future role of the agricultural sector. Recognizing the vacuum created by the closure of the sugar industry, the challenges and constraints facing the sector and the budgetary constraints of the government, the scope of the ADS is narrower, focusing on areas and activities consistent with the new policy direction of the government. The strategy also recognizes that it will not be sufficient to address the problems of the sector, particularly those induced by the closure of the sugar industry. It emphasizes that complementary strategies and actions to the ADS must be implemented to address the issues of rural and community development, problems related to unemployment and poverty, adjustments that are necessary because of the consequences to the closure of the sugar industry, etc.

The remainder of the document comprises three sections. Section II discusses the strategic framework and the major agricultural policy objectives to guide interventions and public and private support to the agricultural sector. Section III outlines the components of the proposed agricultural development Program and various requirements and policy issues to be addressed for their implementation. The final section discusses various implementation aspects including the institutional framework, costs and scheduling of activities and major requirements for success of the Strategy.

SECTION II

STRATEGIC FRAMEWORK AND POLICY OBJECTIVES

2.1 Policy Setting

Globalization, changes in technology and regional integration place a tremendous pressure on SKN to continuously adapt its economy and social systems to global, regional and national realities. On the one hand, the country is required to adopt its policies and strategies to conform to the new “rules and regulations” that accompany the global and regional agendas. On the other, the country has to address the pressing economic and social challenges associated with closure of the sugar industry, a declining agricultural sector (low farm income, food insecurity, etc.), poverty and increasing inequality, environmental degradation and rural stability, as well as the transformation of the society in the medium and longer term to achieve a more balanced and sustainable development. Together these provide two major challenges to the agricultural sector in the transformation process - the need to be competitive in free markets and the growth of an efficient, agricultural sector that can contribute to increased food production, food security and a sustainable living standard in rural communities.

The agricultural policy and strategy being proposed here reflects a new agenda for the agricultural sector. It is considered as part of a holistic development approach (within the context of the SAS) aimed at improving the quality of life of all citizens and in particular those who have lost their livelihoods and sense of well being due to the closure of the sugar industry. The sector has the potential to assist in achieving the important objectives of job creation and income generation particularly for those ex-sugar workers who have indicated their desire and intention to continue to be engaged in agriculture.

The strategy's design and its execution is done within a larger framework of increased competitiveness of the sector in both the local and export markets, consistent with contributing to improved management and use of the natural and environmental resources and support to sustainable and balanced growth of the economy. While the policies target sector specific issues, objectives, constraints and needs (low productivity, low farm income, high production costs, accessibility to markets, diseases, diversification, food security, etc.), they are also aligned with the country's macroeconomic strategy and the goal of strengthening inter-sectoral linkages and harmonized with the new trade rules and requirements.

There are eight major sets of inter-related factors that shape the new agenda for SKN's agriculture, taking into account the thrust of the SAS for economic transformation and sustainable development. These include the following:

- (i) The context and parameters of the sector are rapidly changing. The sector should no longer be viewed in a narrow, sectoral context as was traditionally done. Globalization and free trade imply that the sector needs to continually adjust and modernize as it becomes more integrally linked with regional and

international economies through trade, investment, etc., as much as it is linked with other sectors (tourism, manufacturing, etc.) of the national economy.

- (ii) In general, agricultural and rural development are affected by a multitude of factors that are increasingly outside the scope and direct control of policy and decision-makers within the sector and the national economy – regional and internal markets, external shocks, capital flows and investment, labor mobility, research and technological development, information and communications technology and climatic changes. Therefore, coherence of the policies and strategy of the sector with the country's macro policies and strategy is critical.
- (iii) The sugar industry's closure places a larger burden on the agricultural sector to utilize agricultural resources more productively, minimize economic and social dislocations and contribute to diversifying the country's economic base.
- (iv) A more aggressive, pro-active strategic planning approach is required to reposition SKN's agriculture to exploit market opportunities. In general, markets (both domestic and export) are dictating the pace and direction of the development process, and market-led strategies are increasingly becoming the "norm" in the new model of competitive production of goods and services.
- (v) The sector's modernization requires among others, higher productivity, more private sector investment, an agri-business approach to agriculture, etc., if it is to contribute to wealth creation, food security as well as improving the health and nutrition status of the population.
- (vi) The environmental cost of more intensive agricultural production is likely to increase. Both agricultural and the rapid expansion of non-agricultural activities will threaten the natural and environmental resources base in many parts of the country. As such, a more systematic and comprehensive approach to transforming the agricultural sector is necessary – the paradigm of sustainable agricultural development which facilitates inclusiveness of policies and institutions that are both within and outside of the agricultural sector.
- (vii) Increasing access to new information and technology provide new dimensions to the process of decision-making, policy design, institutional building and management of the agricultural transformation process. They facilitate better consensus building among the major stakeholders (private sector, producers organizations, etc.) in the sector and with other sectors, coordination and policy and program sustainability.
- (viii) Finally, the transformation of the sector will only be possible by addressing the weaknesses and constraints that continue to affect it and its repositioning to take advantage of the opportunities in both the domestic and external markets.

2.2 Strength, Weaknesses, Opportunities and Threats (SWOT) Analysis

A closer examination of the agricultural sector reveals a range of opportunities and threats as well as a multitude of constraints. The design of policies and the ADS will have to address the constraints effectively if the opportunities available are to be exploited. Below is a summary of the main opportunities and threats and the strengths and weaknesses of the sector.

2.2.1 Opportunities and Threats

The major opportunities available to the sector within the context of the SAS that resulted from the sugar industry's closure are:

- (i) Farmers, both new (including ex-sugar workers) and old can be provided with "freed-up" sugar cane lands on a long-term basis and where soils, water availability and climatic conditions are favorable to support full-time farming and producing a variety of crops throughout the year.
- (ii) There is much scope to improve productivity, increase profitability and increase the price competitiveness on the domestic and export markets through farming on better quality and more economically feasible production units through improved management, technology and cultural practices in the commercial production of various commodities.
- (iii) More opportunities are now available for utilizing substantial quantities of water, diverted from sugar cane production for irrigation. This consideration alone has placed the sector in a qualitatively new milieu as it would be better able to supply the market on a continuous basis.
- (iv) The disengagement from sugar has freed-up government's budgetary resources to that industry which could be now invested for transforming agriculture. This opportunity is buttressed by the commitment of government to support the sector's development and demonstrated by its increased interest to allocate more resources including lands to old and new farmers.
- (v) The sugar industry's closure has released and presented the opportunity and possibility to recruit ex-sugar workers as full-time private farmers, thereby reinvigorating the sector. This human resource, now considered as a part of the socio-economic problem in the context of the sugar industry closure, should in reality be considered as an important asset for the development of the sector.
- (vi) The closure also provides a window of opportunity for transforming the sector from its present predominantly part-time farming characteristic to a thriving, highly commercialized one, where a sizeable number of farmers are full-time producers and entrepreneurship is fostered and where the farming orientation is market-led, particularly in view of trade liberalization. The "freeing" up of former sugar cane lands and the availability of water for irrigation and other resources including financial resources from the public sector are necessary but positive factors to facilitate the development of non-sugar agriculture.

- (vii) Increasing incomes and an expanding tourism sector provide a large internal market for domestically produced food, more value added products and the opportunities to strengthen intersectoral linkages, develop cottage industries as well as to supply unique products such as organic, whose demand is growing consistently in line with economic changes.
- (viii) There is also an expanding opportunity to satisfy the strong demand in the domestic market for good quality cut flowers and ornamental plants.

Threats

- (i) Sugar cane production has protected the best agricultural areas of St. Kitts from soil erosions and facilitated the infiltration of the intercepted rainfall for generations. The industry's closure will impact negatively on these, although the cultivation of carefully selected crops could to some extent reduce this negative impact.
- (ii) The country's inability to continue the excellent work of the SSMC in soil conservation and stabilizing critical catchment areas, opening a vicious circle of environmentally damaging results.
- (iii) Increased competition for former sugar cane lands by other sectors and the uncertainty resulting from the slow decision-making process on allocating such lands for agricultural activities.
- (iv) Adequate land titling policy, with the current land rental/lease system having minimal commercial value and cannot be utilized as sufficient collateral to access credit. The present system is therefore a disincentive to facilitate long-term investment in the sector.
- (v) The thrust to develop services and the tourism sector through better incentive packages and public policy support would create an inherent bias against agriculture, thus further contributing to the sector's decline over time.
- (vi) Closely related to the above is the possible shortage of labor in the medium to long term available to agriculture as a result of the expansion of tourism and other services and the higher wages offered by these.

2.2.2 Strengths and Weaknesses

The major strengths in the sector are:

- (i) SKN has a long history of farming and a good knowledge base of the sector which needs to be exploited so as to elevate the sector to a more competitive level.
- (ii) The government with the support of relevant national, regional and international institutions has indicated its strong commitment to seek alternative options and to develop the agricultural sector in response to the sugar industry's closure and minimize the resulting negative economic and social impacts.

- (iii) The SAS provides a good framework within which a better designed and executed agricultural strategy could induce agriculture to be a major contributor to transformation of the economy.
- (iv) The sugar industry's closure provides more and better quality natural resources (land, water, etc.) to develop a more commercialized and competitive agriculture.

Weaknesses

- (i) The prevalence of small scale fragmented and uneconomic farming units and limited access to good lands and water for agricultural production.
- (ii) Productivity and efficiency levels are low and supply is irregular due to limited entrepreneurial and farm management knowledge and husbandry skills and limited use of modern technology.
- (iii) The land tenure arrangements place a significant constraint on the use of land as collateral by farmers.
- (iv) Limited research and advances in both agro-processing and post harvesting practices.
- (v) Weak marketing infrastructure as it relates to market intelligence, market development and promotion and marketing.
- (vi) High incidence of crop and livestock losses due to monkeys, stray and roaming animals and dogs and praedial larceny.
- (vii) High prices of local agricultural products reduce the sector's competitiveness in the domestic market, induce importation of lower priced food and constrain the development of inter-sectoral linkages within the economy.
- (viii) Weak policy and planning capabilities and institutional mechanisms to guide, manage and monitor the agricultural sector, as well as provide effective coordination with the macro-economic strategy.
- (ix) Limited involvement of various stakeholders in the sector's development as a result of low profitability, high risks, inadequate incentives and institutional weaknesses in the public sector.

2.3 Policy Objectives and Priorities

The Government is firmly committed to a transformation and sustainable development of the economy. Its agricultural policies are designed to make the sector more efficient and competitive, while at the same time contributing to the transformation process, sustainable development and improved economic and social well-being of the population.

The Government's agricultural policies have six broad objectives:

- (i) Promote sustainable development of the agricultural sector and rural communities.
- (ii) Increase the competitiveness of the agricultural sector.
- (iii) Accelerate diversification of the production base and exports.
- (iv) Increase food production, enhance food security and improve the nutritional status of the population.
- (v) Strengthen inter-sectoral linkages.
- (vi) Improve income distribution and contribute to poverty alleviation.

These broad objectives provide the new agenda for action in the sector and it also reflects the need for an inter-sectoral, inter-institutional as well as a multi-disciplinary approach to address the challenges of sectoral transformation and diversification. The new agenda identifies **four** priority policy areas, each with specific objectives and areas for action. They also indicate the inter-relationships between various policy aspects and objectives of the overall agricultural policy framework. These areas are as follows:

(i) Diversification of the Production Base and Food Security

- Accelerate diversification of the production base to contribute to overall economic diversification.
- Improve farm production systems of targeted farming groups consistent with augmenting productivity levels, enhancing the agri-food system and fostering commercialization.
- Promote food production programs that enhance the country's long term food security.
- Promote sustainable farming practices to reduce natural resource degradation, particularly of the more fragile and vulnerable areas.
- Improve the infrastructure and support services to accelerate diversification and increase food production.
- Promote greater use of locally produced foods.

(ii) Price Policy

- Minimize distortions and facilitate market-oriented production activities.
- Facilitate quicker response of the agricultural production and marketing system to market price signals.
- Improve the profitability of engaging in activities in the agri-food system.

(iii) Trade Policy

- Exploit the existing internal market (residents and tourists) potential and export market opportunities provided by proximity to other countries and regional integration agreements.
- Increase production and marketing efficiency of products to compete in open markets including the domestic market.

- Provide increased incentives to products that compete in open markets and with the potential to contribute to both production and export diversification.
- Diversify the export product base to reduce the negative impacts from the losses from the sugar industry's closure and foreign exchange savings.
- Implement legislative and other institutional requirements consistent with meeting regional and international commitments and agreements.
- Improve the agricultural health services to facilitate agricultural trade and for human safety.

(iv) Natural and Environmental Resources

- Promote an integrated approach to the use and management of natural and environmental resources for agricultural production, tourism and housing development.
- Strengthen management of environmentally fragile areas including watershed management, protected areas and development of tourism designated areas.
- Improve management of fishery and forestry resources to achieve an optimum combination of their productive, protective, recreational and educational capabilities.
- Resolve land tenure issues that inhibit more optimum and sustainable uses of land for agricultural production.
- Increase investment in the management and use of water resources on account of its critical importance for improving agricultural productivity and sustaining production.

2.4 Strategic Guidelines

It can not be over-emphasized that the current economic trend in the agricultural sector can only be arrested or reversed if certain minimum policy interventions are taken at various levels by the government. In this regard, it is critical to highlight some strategic guidelines to facilitate achievement of the policy objectives identified above, as well as other interventions needed to break the vicious cycle that traps the sector and support its modernization and sustained growth. These include the following:

- (i) A market-led approach that facilitates commercial agriculture and agri-business development is both necessary and urgent for modernizing SKN's agricultural sector and contributing effectively to the economy's transformation.
- (ii) Given the sector's constraints, its growth will require substantial increases in farm productivity and reduced costs of production. These are the basic foundations for the sector to be competitive in both local and export markets, achieve higher food security levels, reduced food imports and advancing inter-sectoral linkages. Both productivity levels and production costs are high in SKN compared to several Caribbean countries.
- (iii) Productivity increases are necessary to boost profitability in farming and to fuel an increase in farm incomes. If farming is unprofitable agriculture will not attract entrepreneurship, investment, technology, etc., thus guaranteeing a continued downward trend in performance.

- (iv) Agricultural productivity has to improve and farm incomes increased considerably if it is to achieve significant transformation and contribute to the sustainable development targets of the economy. It is productivity gains that will be needed to maintain a more robust and competitive agriculture.
- (v) The sector's transformation to achieve higher growth targets will only be possible if there is a substantial shift from part-time farming to commercial agriculture and the growth of production and agri-business enterprises. The ADS recognizes that although small part-time farmers will remain an integral part of the country's agricultural landscape, the sector's transformation and modernization and its contribution to sustainable development of the economy will only be possible through a more commercial and competitive agriculture and agri-business development.
- (vi) The commercialization of SKN's agriculture requires a larger role of the private sector and other non-government stakeholders in the economy. Only through commercialization will the sector attract the needed entrepreneurship and investment, technology, etc.²
- (vii) The transformation must be private sector-led through an improved enabling environment that enhances productivity and profitability, removal of constraints to private sector involvement and stronger public-private partnerships with a delineation of public/private roles.
- (viii) A higher level of government's commitment, reflected through more budgetary allocations, greater incentives and policy support is necessary to make agriculture more attractive and financially profitable. These levels of support are necessary to minimize the economy's evolution to another "monoculture" one that is largely tourism-based.
- (ix) Without growth and dynamism in agriculture, the rural sector will suffer from underdevelopment, stagnation and social instability. Furthermore, only a more dynamic agriculture can facilitate greater diversification of the economy, more balanced development and make a significant contribution to economic transformation.
- (x) It should be emphasized that agricultural policies alone are insufficient to develop and transform SKN's agricultural sector on a sustainable basis. These policies will need to be aligned and integrally linked with macroeconomic, trade, investment, community development and natural resource and environmental policies, as well as with the new regional and international trade agreements and requirements.
- (xi) The sector's activities do impact and are impacted by other sectors in the economy, as well as the international economy. In this regard, stronger and

² The private sector includes various groups and stakeholders (part-time farmers, fulltime farmers, exporters, etc.) currently engaged in all aspects of agriculture, as well as new entrants (non-public) in the sector.

more effective institutions will be required to provide policy design and guidance, coordinate institutional relationships and facilitate implementation and review.

- (xii) In addition to sound agricultural and other economic policies and interventions, strong leadership is needed at the highest level to champion the sector's importance and role and to ensure that it is given its rightful place in the Adaptation Strategy.

SECTION III

PROGRAMME COMPONENTS

As indicated in Section I, the Agricultural Development Strategy (ADS) is conceived as a Program for developing the agricultural sector in the next five years (2007-11). The Program has three major components – Crop Production and Marketing, Livestock Production and Fisheries Development. The ADS is consistent with and incorporates the proposals and recommendations of the Sugar Adaptation Strategy (SAS), the FAO Agricultural Diversification Project Report (2002), the Department of Agriculture's Strategic Plan (2005-09) and CARDI's Strategic Marketing Plan (2005) in the three components. An outline of the components of the Program, together with the marketing aspects and incentives required to effect their development are outlined below.

3.1 Crops Production and Marketing

3.1.1 Justification

The food needs of SKN are expanding continuously following increases in the country's per capita income, higher living standards and a growing tourism sector. Furthermore, these factors contributed to changing consumer preferences in which there is an increasing demand for foods of higher income elasticity - fresh fruits and vegetables, packaged and convenience foods as well as processed products. This trend will continue and without a rapid turn-around of the farming sector and SKN's agri-food system to address these challenges, much pressure will be placed on the country's trade balances through an increasing dependency on imported food.

Although the data and prognoses vary on the extent of the food needs gap, it is clear that major business opportunities for domestic crop production and marketing remain unsatisfied. The Department of Agriculture (DOA) estimates that over 75% of the SKN's food consumption is met by imports which valued about \$72.3 million in 2003. Furthermore, the Department indicates that *"Less than half of the domestic demand for vegetables is met by local production. As a consequence, large volumes of vegetables that can be produced locally are imported on a regular basis particularly during the second half of the year. There is a clear opportunity for farmers to expand domestic production and to explore new production methods."*³

In addition, both the Sugar Adaptation Strategy (SAS) and the FAO Agricultural Diversification Project Report attest to the very favorable market conditions for developing an optimal agriculture and the importance of significant new investments by Government. Like the FAO Report, the DOA's Strategic Plan makes a strong argument for increasing the production of several vegetables and fruits in view of a range of favorable demand and market factors.

CARDI's Strategic Marketing Plan for fruits and vegetable identified **10 major groups of vegetables and fruits** which show strong and rising import trends since

³ Department of Agriculture Strategic Plan, 2005-2009, p. 14.

1997, partly in response to growing demands for fresh produce from the tourism sector and the country's population. Five of them that are imported have excellent potential for large scale local production - carrots and other edible roots; white potatoes; onions and garlic; cabbage and cauliflower; and other fresh or chilled vegetables. The report also urges long term expansion in the production of peanuts and pineapples as good business opportunities. Lettuce although not imported significantly is another hotel staple that can eventually replace imports. Impelling factors to improve the competitiveness in the production of these crops include:

- the increasing annual importation trends since 1997;
- adequate on-the-ground expertise for larger scale production;
- climatic conditions conducive to rain fed planting;
- mechanization of production;
- improved harvesting and drying technologies; and
- the enormous scope to apply better production practices to improve productivity.

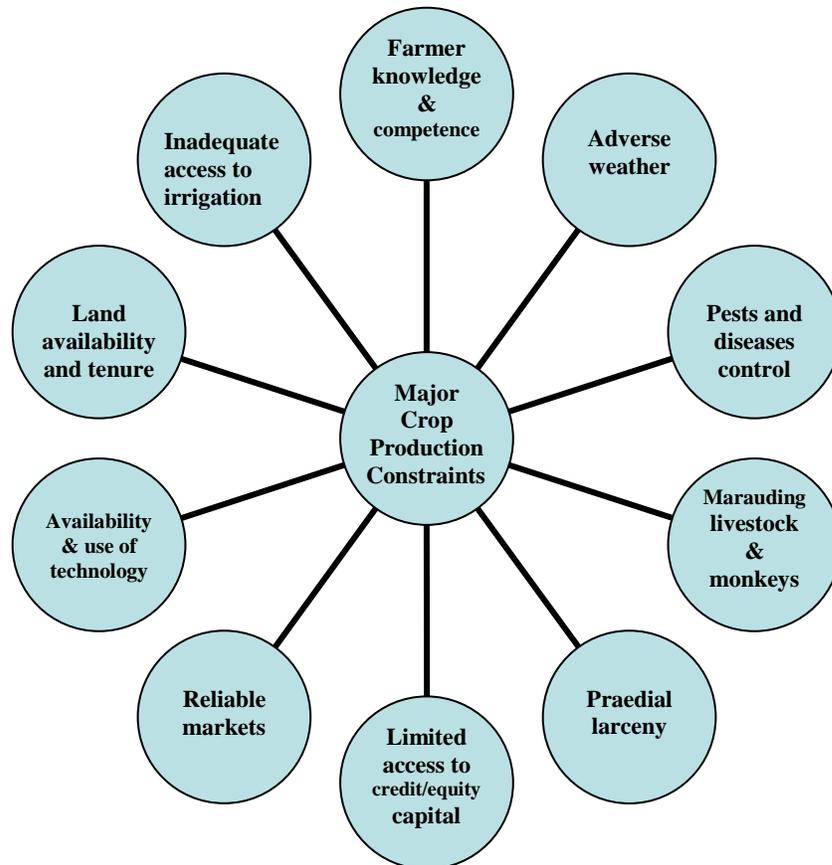
Furthermore, with steady growth in tourism projected, stay-over visitors' and cruise ships' need for food will significantly increase the domestic demand. At the regional level, the removal of tariffs and non-tariff barriers within the Organization of Eastern Caribbean States (OECS) and the Caribbean Community (CARICOM) single markets has contributed to expanded market opportunities for regional producers and processors. Adequate scope therefore exists for saving foreign exchange outflows by linking farm production to tourism and domestic market demands, thus reversing the perennial import trends and for earning foreign exchange by addressing viable export opportunities.

Despite these clear growth opportunities for the sector and the Government's previous allocation of about 1,000 acres to small farmers, progress has been marginal to meet the challenges of increased production and marketing of agricultural produce. A large number of farmers continue to be part-time producers and practicing rain fed agriculture.⁴ In addition, farmers continue to face several constraints that have not been effectively addressed by previous strategies (see **Figure 1**).

⁴ FAO Diversification Project, 2002.

Figure 1

Major Constraints of Crop Farmers



3.1.2 Focus and Strategy

Food Crops: The Crops Program will be the largest component of the ADS. Its **goal** is to increase the regularity, consistency and sustainable supply of high quality food crops on a year-round basis from local production – vegetables, roots and tubers and fruits. It aims at expanding vegetable production from the present level of approximately 600,000 kg. to 2 million kg. over the next 5 years.

Following the recommendations of the reports indicated above (DOA, FAO, etc.), the crops program will target the commercial production of the following vegetables and roots and tubers:

- **Vegetables:** tomatoes, sweet peppers, hot peppers, cabbage, carrots, pumpkins, melons, oil seeds and legumes.
- **Roots and Tubers:** peanuts, white potatoes, sweet potatoes, yams and onions.

The basis of the program's strategy is to focus on commercial production with the aim of increasing production efficiency and improving the competitiveness of these crops. In essence, the strategy seeks to improve productivity and quality and reduce production costs which together are a critical requirement to compete in both the local and export markets. Inspired by the SAS's general recognition that commercialization of crops and livestock farming is inevitable to transform the sector into one that is modern and competitive, and in order to stimulate the delivery of improved professional and sustainable services to the farming community, the crops program will comprise a deliberate market-led, private sector driven approach, based on competent management of farming systems on larger-scale operations. In addition, the strategy addresses the various constraints that affect production and marketing through various pro-active policy and strategic interventions, support services, budgetary support and facilitating greater stakeholder involvement.

Although small farm subsistence agriculture will remain an important feature of the sector, the transformation of the sector into a competitive one makes it imperative that larger, more efficient production enterprises become a major feature of the agri-food system landscape. Unlike small part-time farming operations, full-time commercial agriculture has the comparative advantages for:

- producing a larger marketable mix of food and agricultural products;
- introducing better technology into the agriculture sector;
- penetrating export markets, as well as employing scores of rural labor; and
- increasing the income level and attractiveness of farming.

The ADS endorses and will adopt 7 focal areas for crops diversification that are highlighted in the Policy Matrix of the Sugar Adaptation Strategy (pp. 121-123):

- More full-time farming operations;
- new crops, intercropping and use of modern technologies;
- increased availability of grown fruits and vegetables on the local market by 2009;
- optimum use and proper management of good quality arable lands to stimulate increased production for domestic and export purposes;
- development of packing house(s) and agro-processing capacity;
- promotion of inter-sectoral linkages with tourism;
- develop irrigation facilities on selected settlements; and
- facilitate intensive vegetable farming and landscape nurseries for ex-SSMC workers.

Mindful of the transformation target of expanding local production of vegetables and fruits from 0.6 million kg. to 2.0 million kg. over the next 5 years, the Government will need to allocate arable land, expand irrigation and infrastructure, provide incentives and *significantly upgrade* management and technical support for the development of larger and more productive commercial farms. In addition, the emergence of a viable crops sub-sector in St. Kitts will be a direct result of the implementation of certain deliberate strategic steps, including:

- establish a sizeable production base;
- provide high-end management and technical capacity to guarantee a consistent supply of quality produce;

- wholesale marketing arrangements with tourism and export companies;
- establish a modern central collection point;
- provide adequate facilities for quality verification and grading;
- establish a fair price setting mechanism for the residential consumer market;
- support an effective shipping system;
- facilitate easily accessible financial services and fiscal incentives; and, above all
- demonstrate a new policy thinking and commitment to long-term implementation.

The success of the crops program will also depend directly on the human capital component and improved infrastructure, especially:

- attraction of trained managers and professionals;
- a National Training Program with regional/international accreditation;
- introduction of a Certified Farmers Program (CFP);
- sustained public awareness on key subjects;
- attachments to best practice sites;
- increased public sector allocations to improve key infrastructures (roads, bridges, irrigation systems and demonstration sites/nurseries, etc.) that are conducive to the stability and growth of commercial farms; and
- improve the Multi-Purpose Laboratory to provide both analytic and reproductive services to the industry for which Taiwanese assistance should be sought.

3.1.3 Expected Impacts

The crops component of the ADS is expected to impact positively on:

- (i) Increased farm production and productivity in compliance with the norms of best agricultural practices and international food safety standards.
- (ii) Achievement of a higher level of self-sufficiency and food security with domestic year-round output satisfying current domestic demand, reducing imports and targeting export opportunities for safe, hygienic and fresh foods.
- (iii) Increased incomes and profitability and employment in crop production thereby contributing to rural community development and economic stability.
- (iv) Strengthen agriculture-tourism linkages through an improved supply of food crops to the tourism sector.
- (v) Foreign exchange savings through higher production and earnings from export opportunities.

These five pillars of the ADS are consistent with the priorities of the SAS and the policy objectives for the agricultural sector as outlined in the previous Section. They will also contribute to **macro-economic balance and stability**, through greater economic diversification, increased rural and social sector investment, a larger contribution by agriculture to the economy and reduced reliance on the emerging monoculture economy based largely on tourism.

Implementation of the crops program is summarized in **Annex 2**. Its successful implementation will significantly advance the outcomes of the ADS including:

- bringing 1,800 additional acres of good arable lands (aggregate increased to about 4,500 out of 7,500 arable acres) for more efficient utilization in order to facilitate production diversification;
- an improved irrigation system that supports commercial crop production;
- increased domestic demand for local fruits and vegetables that is stimulated through public health awareness, improved incomes redistribution, fair pricing and increased purchasing power.

Fruits: All of the recent major studies concur that St Kitts is ideally suited for the production of tree crops, given its topography and soil type. The production enterprises should be allocated to lands above the 400 meter contour, since these areas are suitable for such crops due to their permanency for supporting the maintenance of soil stability. The areas identified for the establishment of large fruit tree orchards are Wingfield, Phillips, Greenhill and Belmont.

The demand for temperate fruits was projected to double from 320,982 kg. (2000) to exceed 600,000 kg. by the end of 2006. A large scale production and marketing system, focusing on minor *exotics* (Jujuba, Carambola, Guava, Wax Apple) and aimed at meeting a mere 50% of the projected demand or an annual output of 200,000 kg. within the first 3 years, seems prudent. This will allow for effective management of critical problems and will lay the basis for small scale agro-industry development, as well as impacting positively on the market opportunities available in the hotel/tourism sector. Current market trends and the terrain of St Kitts/Nevis predispose diversification planners to move with certainty towards large scale fruit crop production.

Expansion of fruit production will focus on the following: mango, pineapple, avocados, carambola, passion fruit, sugar apple, custard apple; Indian jujube, wax apple and hybrid guava. The high imports of temperate fruits can be further reduced by marketing other local substitutes such as West Indian Cherry, Golden Apples and Sapodillas.

The strategy proposed here concurs with CARDI's Marketing Plan that:

- *citrus* orchards should be established at higher altitudes where the lower evening temperatures will induce good flavor and color and benefit from increased rainfall;
- the harvesting period for Julie *mango* orchards should be extended by at least 2 months, by planting later maturing cultivars like Haden, Graham and Keith;
- *avocado* production can be sustained for 9 months of the year by using different cultivars in succession; and
- *pineapple*, being fairly drought tolerant and hurricane-resistant, is well suited for planting under rain-fed conditions in specific cycles, e.g. 5-acre stands

immediately established and new fields planted annually for continuous production to meet the projected demand.

3.2 Livestock Component

The livestock sub-sector has been an important contributor to SKN's food supply for centuries. However productivity is low and production costs are high. As a result significant improvements in the production systems are required to improve their competitiveness and their contribution to food supply. Furthermore, considerable private sector investment and adoption of new technologies are essential for improved efficiency and sustainability.

SKN is a net importer of meat products. Domestic production of beef, mutton and pork supply approximately 20 to 25 percent of national consumption needs. In 2006 the importation of meat products totaled 438 tonnes with a value of EC\$4.86 million and much of this comprised bone-in and boneless whole carcasses and various cuts of meats.

Frozen carcasses, boneless and minced beef accounted for approximately 73% of beef imports thus far in 2006. These products are of medium quality and can be potentially replaced by domestically produced beef. Whole carcasses account for only a small fraction of the quantities of beef, pork and mutton imported. In addition, the evidence indicates that there appears to be a strong and growing local demand for domestically produced pork and it is becoming a common item on barbeque grills. It is anticipated that this trend will continue and expand the demand to drive production.

St. Kitts has the potential to shift livestock production from its current subsistence setting to a more competitive and commercial system through increased investment and the development of a meat industry based on globally accepted standards of animal health and food safety requirements. The trend indicates that consumer demand for meats and meat preparations derived from cattle and small ruminants are strong and is expected to expand with growing incomes and continued growth of the tourism sector. With regards to mutton, there is a general preference for the domestically produced meat although its price is higher than that of imports. Sheep production can therefore be pursued either as specialized semi-intensive enterprises or in a mixed farming system in conjunction with fruit orchards.

3.2.1 Strategy

This component of the ADS seeks ***to transform the livestock sub-sector into a competitive one through increased productivity, lower costs of production and improved meat quality***. The central thesis of the strategy is to transform the production systems from their primal state to ones that adopt new technologies, as well as increasing the supply of quality grass-fed meat for the expanding local market.

Specifically, the strategy will focus on increasing the production of beef and mutton by approximately 127,000 kg. annually, while reducing production costs and achieving food safety standards. This is to be done through:

- Upgrading existing production units that have the potential for commercialization;
- development of 20 new farms over the next five years - 10 for cattle and 10 for small ruminants on lands presently under sugar cane;
- improving livestock nutrition, management and the quality of the production systems; and
- expanding the animal health support services to facilitate livestock production, meat consumption and trade.

The terrain of the island between the 500' – 1000' contours is suitable for livestock grazing and there is adequate rainfall for growing most grasses and forage legumes. The current systems of livestock production are based almost entirely on natural grazing. Beef and mutton of acceptable quality can be produced from native pasture and sugarcane with adequate animal care.

The model proposed is that the 10 new cattle farms would be allotted about 50 acres of land each (a total of 500 acres of former sugar cane lands) for raising cattle for beef production, and chopped whole sugarcane to be used as basal feed. Each farm would have 20 acres of Guinea grass and would be enriched with pasture legumes and legume trees, while the remaining 25 acres would be left with standing sugar cane. Some 5 acres would be used for calf pens and fodder banking, for which one acre of land would be fenced.

Live fencing would be created by planting *Leucaena leucephala* and *Gliricida sepium* on the outer perimeter of the farm. Farm facilities would include calf pens, a water tank, an animal holding house, a chaff cutter and a wheel barrow. The farms would start with 30 heifers and would build-up to a herd of 50 breeding females with followers.

The new sheep and goat production farms would consist of 10 units, each with about 25 acres to be allotted from existing sugar cane lands (a total of 250 acres). A typical farm would consist of 4 acres of tree crops and the remainder under grass with pasture legumes and sugar cane. The farm would be fenced by cultivating *Leucaena leucephala*, with *gliricida* or gum tree on the perimeter. The production of work will also be expanded and production costs lowered through more efficient management of the existing producing units, application of more modern technologies and establishment of new units.

A pilot project to support organic meat production will also be undertaken. Two large and two small ruminant farms would be selected for the pilot initiative. The criteria for selecting the farms would depend on the farmers' capabilities and the availability of key farm infrastructure including animal handling facilities, land and livestock. Participating farmers would be trained in the management of animals for organic meat production, including the adoption of best practices and quality control measures. The current practices in which there is minimal use of animal health drugs and applications of inorganic fertilizers and pesticides provide a sound basis for the certified production of organic beef and mutton.

The strategy also seeks to develop the potential for value-added activities in livestock production. The Basseterre abattoir will be upgraded to an improved quality facility for slaughtering and producing different cuts of meat, consistent with local demands and possibly for exports.

3.2.2 Expected Impacts

The expected impacts of the program are the following:

- (i) An increase in both the output (by approximately 127,000 kg. of beef and mutton annually) and quality of meats, lower production costs and a higher level of self-sufficiency.
- (ii) Increased employment opportunities for 20 new farmers and rural residents.
- (iii) Annual incremental income of approximately EC\$30,000 for beef farms and EC\$22,000 for sheep farms.
- (iv) Expanded linkages with other sectors through value-added activities, particularly with processing and the tourism sector.

3.2.3 Incentives and Support Needs

The strategy's success in livestock production is heavily dependent on the package of incentives, direct technical support by the public sector and the infrastructure to facilitate production, marketing and processing. These are even more critical if the transformation process is to be private sector-led and the sector is to attract investments from stakeholders. Some of the critical incentives to be considered are:

- (i) Duty free concessions on capital items imported by participating investors.
- (ii) Removal of consumption taxes on critical inputs such as fencing wire, posts, PVC pipes, animal handling equipment, forage harvesters and sugarcane chopping machines.
- (iii) Provide land leases with adequate tenure arrangements to stimulate commercial operations.
- (iv) Zone specific lands for livestock production and develop water sources for livestock farms.
- (v) Control roaming cattle and tighten legislation to effectively address praedal larceny and communal grazing operations.
- (vi) Concessionary financing on working capital be supplied by the Government through the Development Bank that is to be guaranteed by an equitable mortgage on the land and improvements.

- (vii) The provision of working capital loans by financial institutions is essential and would severely reduce the cash-flow risk of new investors.
- (viii) Adequate technical services to control the incidence and prevalence of the Tropical Bont Tick and the associated skin disease (Dermatophilosis). Failure in this area would severely damage local consumer confidence and any export market potential for SKN's meat products.

Animal Management: Livestock farmers have limited knowledge of animal management; hence livestock animals are generally not cared for in a manner that promotes good health and production. This weakness is evident in the inadequate design of animal housing and handling structures and the poor attention given to nutrition and feeding. Most owners are resource poor and are therefore unable to provide satisfactory conditions for livestock production.

The strategy seeks to transform the present production systems into economically viable and financially profitable enterprises. In this regard, investments are needed to improve the basic infrastructure of livestock farms that facilitate improved animal welfare and economic production. These include sorting yards and crush on cattle farms, secure housing for small ruminants and properly designed pens for pigs.

Land and Water Availability: Inter-ministerial coordination and support is also critical for the success of the strategy. Although the Ministry of Agriculture has overall responsibility for the sector's development, responsibilities for two critical resources, land and water are under other ministries. The provision of fiscal incentives for the sector is also the responsibility of another Ministry. Policy decisions on the importance and requirements for transforming the sector needs to be taken at the highest decision-making level if the goals of this strategy are to be realized.

Feeds: The availability of local feeds is limited to four types including grazed native pastures, grasses and shrubs under tree crops, crop residues and agro-industrial by-products. Cultivation and management of grass and legume pastures is rarely practiced but will be increasingly required for commercial operations. The seasonal variability of the nutrient quality of grasses and legume species makes it difficult to maintain linear growth rates without supplementation with protein and energy concentrates. Given the high cost of imported feed inputs, development of substitutes and better management will be critical in production.

Technical Services: Technical services will be strengthened and expanded through improvements in the extension service and support for animal health. The Caribbean Amblyomma Project activities will be expanded in the areas of surveillance, monitoring and treatments, particularly to address the problem of hot-spots and the Tropical Bont Tick. In addition, the genetic improvement of livestock will be enhanced through the access of new genetic materials and additional stock from within and outside the region.

The strategy also emphasizes upgrading other essential infrastructure and capacity services in the sector. In this regard, the Veterinary Diagnostic Laboratory will be upgraded to provide vital services and the facilities of the Ross University (School of

Veterinary Medicine) will be utilized as complementary to provide more sophisticated services.

Infrastructure and Equipment: In general, upgrading of farm infrastructure and equipment has lagged behind and will be addressed as a critical aspect of the strategy to capitalize the production systems. This is particularly so for the production of large animals and small ruminants when compared to poultry and pig production. This difference is probably explained by the higher return to capital employed for poultry and pig production systems. Cattle and small ruminant units do not usually possess the basic infrastructure and equipment for animal shelter, animal restraint, watering facilities, feed storage and pasture maintenance. Capital investment has focused largely on the erection and maintenance of fences. Considerable investment in farm infrastructure is needed to facilitate better management and quality in livestock production.

Slaughter and Processing: There is a single abattoir located in Basseterre that serves all producers in St. Kitts. The facility provides a range of services including animal transport, slaughter, cold storage and meat cutting at a subsidized cost. While the facility allows for a throughput capacity that is adequate for the current output of the industry, higher production levels being contemplated in this strategy will require upgrading of the abattoir. Improvements are needed to speed up the processing of ruminant animals in particular the removal of hides, expansion of post slaughter facilities for cold storage and for partitioning of carcasses.

Marketing: The demand for processed meats such as hams, salamis and sausages is strong and continues to expand but there are weaknesses in product development (that includes better labeling and packaging, product differentiation, etc.) that needs further attention if this segment of the market is to be exploited. Incentives and technical support will be required for the two privately owned meat processing enterprises that currently produce a various ground meats, hamburger patties and basic cuts of meat.

3.3 Fisheries Development

Fish production is largely an artisanal activity with approximately 370 fishers operating some 287 fishing vessels. These boats range in size from 12 ft to over 30 feet and are powered by outboard engines between 20 and 40HP in size. Most fishing boats are engaged primarily in pot and line fishing and a small number in seine fishing. Lobster and conch fishing is carried out year round and there are growing concerns that these species are being over-exploited. The estimated catch per day per boat is 40 kg. and this output is landed at 13 sites around the island.

Production figures indicate that the estimated fish landing for the period 2000-2004 varied between 234,148 kg. to 414,495 kg. In addition, the fish catch for 2004 was estimated at EC\$6.02 million. Imports of fish and fish products by SKN in the period 2000-2005 fluctuated from EC\$3.59 million in 2002 to EC\$5.81 million in 2005. The export of fish for the same period varied from EC\$0.33 million in 2005 to EC\$0.72 million in 2003 and consisted mainly of lobster and conch. In 2005, conch accounted for approximately 98% of fish exported.

3.3.1 Strategy

The overall goal of the Government's fisheries program is to transform the industry during the next five years from a largely artisanal one to a more modern one in which improved technology and management systems are incorporated. The primary objectives of the strategy during the next five years are to:

- (i) Increase production of fishery products to support improved nutrition and reduced imports.
- (ii) Develop new fishery resources and aquaculture projects to expand output and employment opportunities.
- (iii) Improve production of high-value species for the local market as well as for export.
- (iv) Contribute to sustained development of fish production through the design and application of sound management programs for fishery resources.

A two-pronged approach will be used to achieve a sustainable growth level in the fisheries sub-sector: (a) a phased approach to the implementation to the project; and (b) the development and implementation of programs and technologies adapted to local conditions.

The strategy to achieve the policy objectives is based on the following action areas:

- Construction of improved landing and storage facilities in existing fishing areas;
- adopt modern technologies in fish production;
- support capacity building in order to better manage fishery stocks, development of new resources and the adoption of modern technology;
- support the use of better equipped and larger fishing vessels to exploit the sea resources;
- encourage the continued development of aquaculture, particularly for tilapia and shrimp;
- conduct research on the life cycle of conch and lobster and formulate measures for conservation; and
- implement survey(s) of the marine stocks to assess the potential for future fisheries development.

The strategy is expected to achieve the following results:

- (i) A better organized fishing sector that is technology driven and commercially oriented.
- (ii) A production increase of approximately 25% over the 5-year period, from 414,495 kg. to 518,105 kg.
- (iii) Development of a fledging aquaculture industry to achieve a production target of approximately 5,000 kg. per annum.

- (iv) A reduction of imported fish.
- (v) Greater price stability for fish in the domestic market.

The strategy will address the many weaknesses (limited technical resources, limited landing and storage facilities, limited management capabilities, etc.) affecting the fisheries sector through the following actions.

Adopt modern fishing technologies: The objective is to introduce modern technologies and fishing techniques that will increase production and productivity. This includes trolling/long lining for Diamond Back Squid and other choice species and the use of Fish Aggregating Devices (FADs). This would require the use of larger boats by fishermen to access deep sea resources.

Capacity Building: Continuous training will be provided to build the capacity at mainly three levels in the industry: to manage the fisheries resources more effectively; provide technical support and assistance to fishermen; and training of fishermen to enhance their skills and capabilities that include fish marketing and processing, management of cooperatives, business management techniques.

The Fisheries Department will need to be strengthened through management training, improvement of the information system and the data base (via surveys) to support investment, fisheries resource management and aquaculture development. The strategy also includes augmenting the Department's technical capabilities in the areas of Marine Biology, Management of the Dieppe Bay Fisheries Complex, specialized training for the technical staff and through the acquisition of short and medium term expertise from technical assistance support.

Improve Infrastructure: The productive capacity of the industry will be expanded through increased investment in infrastructure such as the development of facilities at landing sites. These will include: storage building and lockers; construction of parking area for boats; establishment of boat hauling facilities; ice making and cold storage facilities; and display and sale area for fish. Improvements will be done to the following main landing sites:

- Management of the Basseterre Fisheries Market and Landing Site would be enhanced. This facility was recently constructed at a cost of US\$10M.
- The Old Road Fisheries Complex is near completion. This project includes construction of a jetty, sea defense, fishermen lockers, community centre and other infrastructural facilities. Funding for the project was obtained from the Japan Grant Aid Program.
- The Dieppe Bay landing Site would also be improved. This would include the construction of facilities similar to those done at Old Road.

Facilitate Marketing: The focus here is to improve marketing through training, organizing of fishermen and strengthening the cooperative societies so as to develop the capacity to ultimately operate the fish markets. Initially, these facilities would be

managed jointly by the Fisheries Department and the Cooperative Societies. The aim in the medium term is to introduce a contract system in which fishermen would dispose of their catch to the Cooperative. In this regard, the Cooperative Department will have a critical role in developing the marketing system.

Strengthen Organizational Aspects: The fisheries sector is relatively disorganized and has a number of inactive cooperatives located in various communities around the island. With technical and logistical support and training, these cooperatives would be important vehicles to organize and strengthen the fishing sector. Furthermore, strengthening the organizational aspects would facilitate mobilization of financial resources and provide easy access to loans and incentives.

3.3.3 Incentives and Support

The present incentives provided to fishermen include duty free concession on the following: Fish pot wire; Buoy; Engine; and Boats. However, these incentives do not include concession on spares for engines or boats and fishermen are required to pay consumption tax on all imported items.

The transformation of the fisheries sector will require higher levels of support and incentives in order to make the activities financially profitable and attract investment to the sector. These include the availability of credit and its easier accessibility than currently prevails, reasonable interest rates, easy repayment conditions and collateral requirements. Given that the strategy also emphasizes aquaculture development which is a relatively new area, investments in these activities should be facilitated by exemptions from both duty and consumption taxes for the development of pilot project(s) and for demonstrations for a certain period.

3.4 Markets

Marketing and the development of markets have been serious constraints to production expansion in agriculture. Despite the expanding domestic market for food through higher incomes and growth in tourism and a relatively large market in neighboring islands for vegetables and fruits, the marketing aspects of the agri-food chain have not been developed to meet the demands. CARDI's Marketing Plan identifies US\$20.0 million average annual imports of vegetables and fruits by neighboring islands (the British Virgin Islands, Antigua, St. Maarten, St. Croix, etc.). Subject to closer investigation and negotiation, commodities with good market potential in these islands include tomatoes, onions carrots, sweet potato and pumpkin.

All respondents agree that the market support services need to be considerably improved if commercial farming is to advance and the sector is to be transformed. In this regard, some critical components of the marketing strategy are:

- improved knowledge and skills of farmers in trade and post harvest technology areas;
- an improved packing-house\agro-processing plant;
- direct contracts between farmers and the local hotel/tourism sector based on the achievement of quality standards;

- introducing a farmers market owned by farmers and managed by professional expertise;
- constant Ministry monitoring and assistance to ensure that competitive and affordable prices for both inputs and produce are maintained;
- some amount of exportable commodities targeting the neighboring islands over the next five (5) years;
- the contracting of an appropriate mode of affordable transportation with firm arrangements to move products to the neighboring islands; and, above all,
- provide dynamic and competent team leadership at the Ministry's level with adequate resources to support marketing services development.

The ADS concurs with CARDI's Strategic Marketing Plan for SKN's agricultural sector and with the requirements for a successful production/marketing system for vegetables and fruits. **Table 1** below is borrowed and adapted from the CARDI Plan and segments each available market in relation to its priority demands for specific crops and its link to the national policy priorities. These are based on an elaborate listing of Commodity Selection Criteria (CSC) developed by CARDI.

Table 1
Results of the Commodity Selection Criteria (CSC) Analysis

No.	Market Segments	Basic Strategy	Recommended Products
1.	Local Fresh Market	Import Substitution	Onions, White potato, Carrots, Tomatoes, Oranges
2.	Local Cottage Industry	Import Substitution/Value Added	S. Potato, Lemons, Soursop, Guava, Carambola,
3.	Tourist Industry	Import Substitution/Value Added	Passion fruit, Tomatoes, W. Melon, high quality lettuce
4.	Surrounding Countries	Foreign Exchange Earnings	Carambola, Avocado, Pineapple, Julie Mango, Pumpkin, Sweet Potato
5.	Development of Downstream Agro Industry	Increase local fresh markets volume to significant extent	Passion fruit, Sapodilla, Citrus White Potato, Carrots

[Adapted from CARDI Strategic Marketing Plan 2005-2009]

For the domestic market, the Marketing Unit of the Ministry must be radically transformed to facilitate commercial sales, in order to match the demand needs of a growing economy. The Unit will need to develop the structure and capacity to among

others, coordinate the delivery of produce to major outlets including hotels and supermarkets.

Specific training will also be vital to improve production capacity. The managers of the Packing House, the Farmer's Market and the Marketing Unit will need to take responsibility for introducing a grading system, so that both producer comfort and consumer confidence will be enhanced through adherence to quality standards.

3.5 Fiscal Incentives

The fiscal incentive regime needs to be reviewed and updated to reflect a policy bias and greater commitment by the government to transform SKN's agricultural sector. The package of incentives must send the right signals of the government's intention to transform the economy with agriculture playing a significant role in this process. It will largely determine the attractiveness of agriculture to generate a higher inflow of investment finance, greater private sector involvement and the development of commercial and agri-business activities. Some elements to be included in a new incentive regime include the following:

- Status of "approved enterprise" accorded to entities that meet the requirements for benefiting from the incentives;
- feasibility studies for client proposals assisted by staff and consultants (co-financed);
- equity capital grant contributions to assist access to commercial credit;
- duty-free and consumption tax exemptions for the purchase of Information and Communication Technologies (ICT) hardware or software, plant machinery and farm inputs;
- concessional financing for tourism-linked commercial agricultural projects;
- agricultural insurance and social security insurance for individual employees, self-employed persons and owners;
- an Equity or Venture Capital Financing Scheme for medium-size companies established and a seed capital fund for starting companies, with special provisions for agribusinesses;
- agri-business managers and owners encouraged to take advantage of attractive savings and payment products introduced to encourage prudent financial management facilities; and
- credit guarantees provided for viable enterprises at the Development Bank, Foundation for National Development (FND) and Saint Kitts (SK) Credit Union to reduce the burden of collateral security.

Specifically, the Fiscal Incentives Act (No. 17 of 1974) needs to be revised to include detailed user-friendly concessions and incentives for the Small and Medium Enterprise (SME) sector, with special reference to agriculture. The Hotel Aids Act, CAP 342 (No. 33 of 1956) will also require amendments to give legal backing to increased agro-tourism linkages. In the context of an overall commitment to support *approved* micro, small and medium-size businesses, the new incentives package should include:

- import duty concessions on income-generating equipment and raw material;
- corporate tax (sales and profit) holidays or reduction or rescheduling, particularly during the first five to ten years of establishment or reconstruction;
- consumption tax incentives resulting in a revision of existing disincentives;
- profit tax relief on sums loaned to approved small and medium enterprises by recognized financial institutions (banks, non-banks, credit unions);
- income tax relief on equity participation by individuals;
- export tax reduction, export credit insurance and other allowances coordinated; and
- incentives for modernization and expansion to meet international standards.

SECTION IV

IMPLEMENTATION ASPECTS

4.1 Institutional Framework

The modernization and transformation of the agricultural sector require an institutional framework that provides effective leadership, vision and direction for the implementation of the government's policies and strategy. The present institutional framework suffers from several weaknesses that limit the effectiveness of strategies and direction for the sector's development. The need to address the institutional weaknesses is further induced by the dramatic changes in the structure of the sector (the sugar industry's closure), the heavier burden placed on increasing the role of non-sugar agriculture in the economy and need for a more coordinated approach to transformation of the economy, in which agriculture in general is an integral component of the macro strategy.

In this regard, the ADS proposes a reconfiguration of the present public institutional framework so as to:

- (i) Facilitate the Ministry to assume a higher national posture in the economy, providing more **visible** policy leadership and direction, programming and technical support for implementing the new agenda for agriculture in SKN.
- (ii) Have overall responsibility for the government's agenda for the sector (implementation of policies and strategy).
- (iii) Reposition the government's presence in the sector to facilitate growth and transformation.
- (iv) Facilitate wider stakeholder interests and involvement in a more focused direction.
- (v) Attract private investment in agriculture and related areas.
- (vi) Provide more effective coordination, monitoring, review and evaluation and accountability of the sector's role and its overall progress and contribution to the Adaptation Strategy.

The ADS proposes some major changes to the present institutional framework, particularly to the Ministry of Agriculture. These changes seek to provide a more proactive and robust institution that not only provides vision and leadership in the implementation of government's policy, but also one that facilitates dialogue and consensus building among the sector's stakeholders. Implementation of the ADS also envisages an active role and support from various technical assistance organizations such as CARDI, FAO, IICA, the Taiwanese Technical Assistance mission, etc. Furthermore, the changes being suggested reflect the need for building a more broad-based team of expertise and support for the ADS, for greater internal delegation of

authority for implementation (particularly within the Ministry of Agriculture) and greater accountability and dialogue on the sector's progress.

Figure 2 presents the proposed new structure of the Ministry of Agriculture, with two (2) larger Departments and three (3) smaller Units. The new structure reflects **five** (5) major changes in the Ministry to strengthen its role and provide aggressive leadership and direction to the sector: restructuring of the Department of Agriculture; reorganization of the Fisheries Department; creation of a Policy and Planning Unit; creation of a Regulation and Supervision Unit; and the establishment of an Advisory Council on the sector. While the Minister will continue to provide the political leadership and overall institutional direction to the Ministry, the Permanent Secretary (PS) will have direct responsibility for the day-to-day management and coordination of the institution's activities and those of the two Departments and three Units.

1. Department of Agricultural Development (DAD): A major institutional change in the Ministry's structure is the restructuring of the current Department of Agriculture (DOA) into the Department of Agricultural Development (DAD). The rationale for restructuring the DOA is based on its overall developmental role in the government's new agenda, the need for stronger public policy support for agriculture, its role as the leading public institution in the sector as well as a supplier of technical and other support services to the sector. DAD's role will expand to provide a wider range of technical services, expand its capacity building capabilities as well as having the responsibilities to foster agri-business development, marketing and export development. It will also be responsible for providing greater accountability on advances and results achieved from public investment and support to the sector.

The Permanent Secretary will have overall responsibility for the DAD while the day-to-day management and administration of the department will be the responsibility of a Director/Manager. DAD will be largely responsible for executing the ADS through various programs and actions that will be implemented by **four** Divisions – a Production/Technical Services Division, an Agri-business Development and Marketing Division, a Human Resources Development Division and an Information and Communications Division. **Figure 3** outlines the structure of the Department of Agricultural Development, including its main divisions and major responsibilities.

- (i) Production/Technical Services Division:** This Division will have a range of responsibilities including the provision of technical and support services to farm production. It will implement a crops program and a livestock program, each under the responsibility of a Program Leader. Each program will be responsible for among others, organizing farmers, fostering best agricultural practices, adoption of technology, nursery development, etc. In addition, this Division will have responsibility for improving the necessary infrastructure (irrigation, etc.) to support farm production, the multi-purpose laboratory, etc. The Division will also provide a range of agricultural health services (plant and animal health, quarantine, food safety, etc.) to foster crop and livestock production and trade.

The **Multi-Purpose Laboratory** needs to be better managed, staffed and equipped to provide a wider range of services more efficiently - extraction, tissue culture and other analysis, basic microbiological testing, and reproduction work. This facility can be developed to serve the needs of not only St. Kitts and Nevis

but the Northern Caribbean region. The EU and United States Department of Agriculture (USDA) equipment support and short-term Taiwanese assistance for strengthening the laboratory are also envisaged in the strategy.

(ii) Agri-business Development and Marketing Division: This Division is perhaps the most important aspect of the new structure, particularly for contributing to the new thrust of the sector – fostering the development of commercial farming and business-related activities downstream in the agri-food system. Its major role is to be a facilitator by providing technical and logistical support to all aspects of agri-business development and marketing, investment and financing activities and specific business support on a short-term, cost-recovery basis to certain activities, with support from partner agencies and local specialists. Some areas of focus will also include: business and financial counseling; technical support for the development of agri-business plans; accessing market information, market surveys and market profiles; assistance to transform operations, products and profitability; and planning promotional activities and participation in trade shows and trade missions. Furthermore, its responsibilities will be to: facilitate stronger linkages and greater leverage to the search for domestic, tourist and export markets; and promote closer interface with the Ministries of Trade, Tourism and Education. It will also foster private enterprises and provide the technical support and backstopping for them to gradually assume direct responsibilities over time for certain activities executed by the public sector such as management of public markets, the abattoir, operation of packing houses, etc.

(iii) Human Resource Development Division: This Division will focus its core work on strengthening the human resource base of the agri-food system through capacity building and training. In this regard, it will collaborate with the Technical Division to support a range of activities to develop entrepreneurial and managerial skills, farm management capabilities, institutionalize better agricultural practices, certification and accreditation, etc.

Information and Communications Division: This Division will absorb the present activities of the DOA on statistics and information so as to develop a data bank and information management system to support crops and livestock production, marketing and agri-business development. It will also be involved in promotional activities and diffusion of information, reporting, documentation and website development.

Figure 2
Proposed Structure of the Ministry of Agriculture

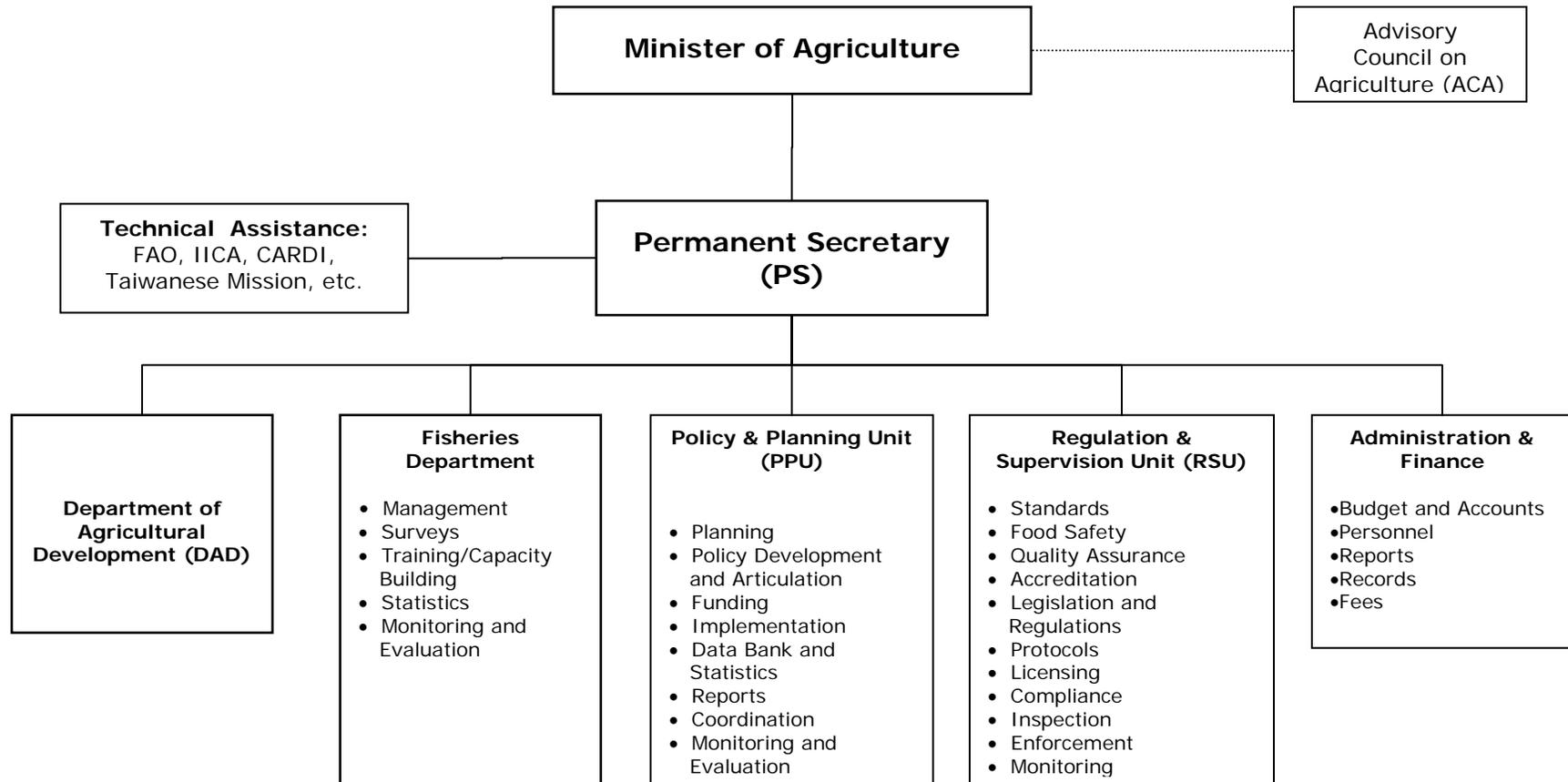
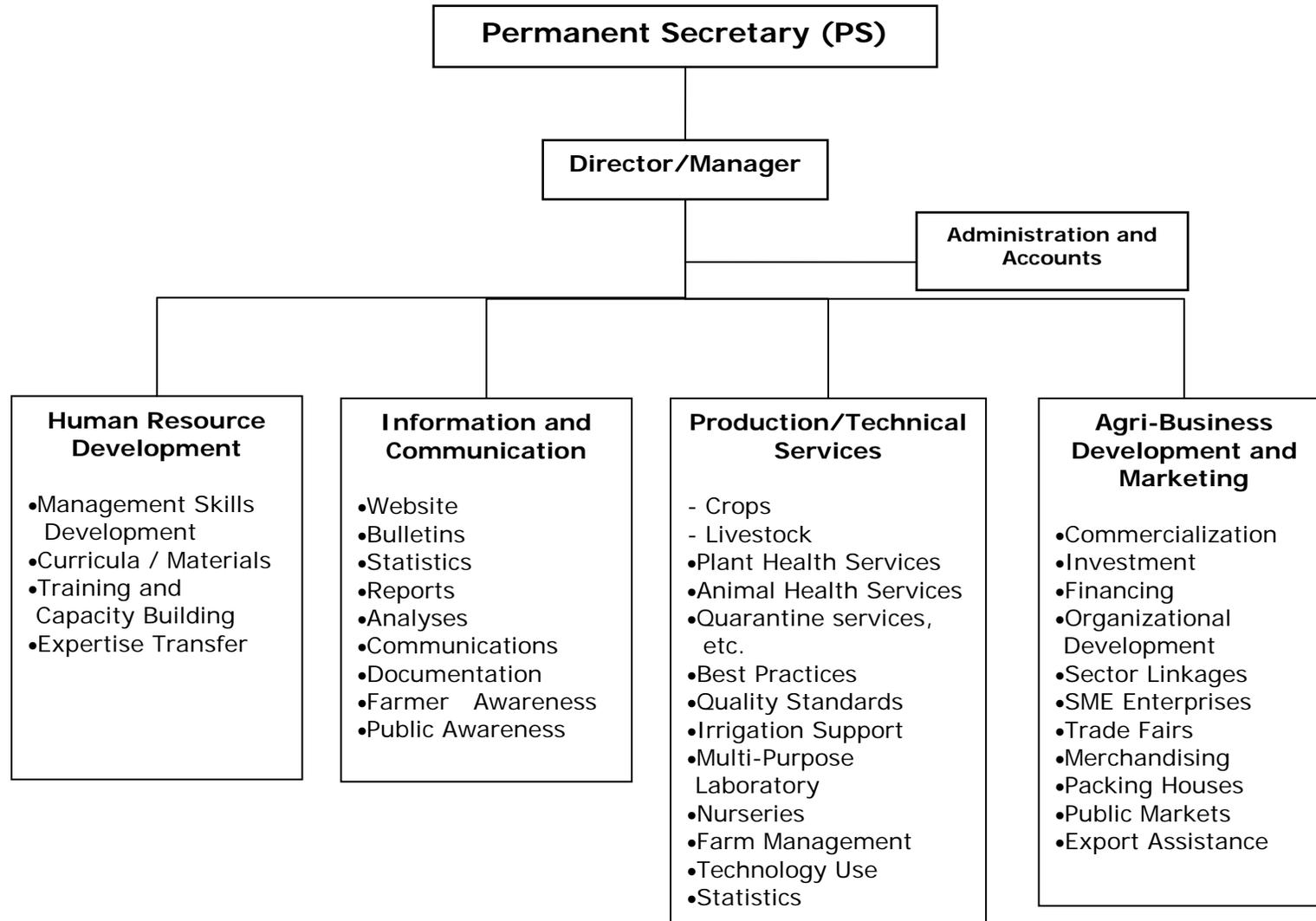


Figure 3

DEPARTMENT OF AGRICULTURAL DEVELOPMENT (DAD)

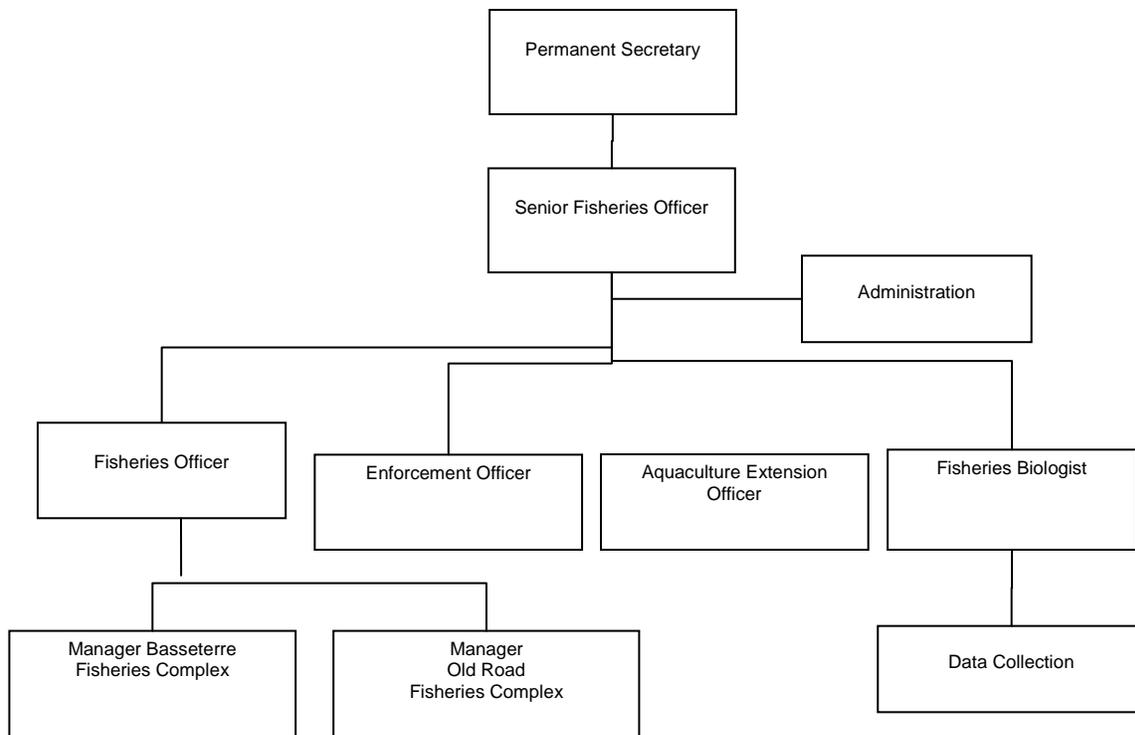


2. **The Fisheries Department.** This Department will remain a separate one in the Ministry with overall responsibilities for management of the fishery stocks, development of infrastructure, monitoring and evaluation, surveys, capacity building and training, aquaculture development and an information base. The Department will be reorganized to reflect an expansion of the technical services and support that it will provide, as well as training to fishermen and building capacity to facilitate better management of the country's fisheries resources (see **Figure 4**).

3. **Policy and Planning Unit (PPU).** This is a new Unit proposed for the Ministry with responsibilities for overall policy and planning in the sector, including policy and program review, monitoring, evaluation and follow-up, the management of a data bank and information system on the sector, program/project development and funding, coordination with other public and private sector institutions, etc. This Unit will also provide policy, coordination and oversight support to the Minister on the ADS's priorities with regards to implementation, funding, and coordination with the Adaptation Strategy, legislation, infrastructure, credit and private sector involvement.

Figure 4

Proposed Structure of the Fisheries Department



4. **A Regulation and Supervision Unit (RSU).** The RSU is also a new unit that will oversee the implementation and monitoring of regulatory aspects related to the implementation of the ADS. This includes quality assurance and certification, legislative support for policy implementation and monitoring, accreditation, standards, food safety requirements, inspection, etc. This unit will work closely with other Departments in the

Ministries as well as the Bureau of Standards on a range of issues to ensure the requirements of legislation and various national and international standards are met.

5. **The Administration and Finance Unit** of the Ministry will have responsibilities for budget and accounts, personnel management and administration, records, collection of fees, etc.

The fifth major change in the institutional structure is the establishment of an **Advisory Council on Agriculture (ACA)** to the Minister of Agriculture. The ACA will be an advisory body that will comprise representatives of various stakeholder/interest groups in the sector that will contribute and serve with objectivity for rebuilding the sector. The ACA provides a forum for dialogue and consensus-building with various stakeholders on critical issues affecting the sector, as well as facilitating the Minister of Agriculture to have direct access to various inputs from non-public institutions and stakeholders on the direction and development of the sector. It will also serve as a mechanism for interface and liaising with specific groups of stakeholders on specific issues in the sector and to enhance a stronger public-private partnership and alliances for the sector's development.

4.2. Costs, Benefits and Viability

4.2.1 Costs and Benefits

As indicated before, the ADS is conceived as an agricultural development program to be executed over a five-year period (2007-11). The incremental costs and benefits of the program are presented below in **Table 4.1** and **Table 4.2** respectively. Details of the costs and benefits are presented in **Annex 3** and the assumptions used for the technical and financial coefficients are presented in **Annex 4**.

The total incremental cost of the program is estimated to be EC\$ 14.88 million and this is based on the various activities outlined in the previous section (Section III) of the strategy. The total cost comprises \$8.41 million (57%) to cover capital costs for the crops, livestock and fisheries sub-sectors, a total of \$3.9 million (26.2%) for operating costs and \$2.56 million (17.3%) for institutional strengthening costs respectively (**Table 4.1**). The costs for institutional strengthening include the establishment of the PPU and the RSU and additional technical and professional personnel for the DAD (see **Annex 3, Table 3.8**).

Table 4.1
Total Incremental Costs of the Program (EC\$)

ITEM	Year 1	Year 2	Year 3	Year 4	Year 5	Total
1. Capital Cost						
- Crops	2,210,000	1,790,000	1,430,000	--	---	5,430,000
- Livestock	440,500	1,057,000	316,200	---	---	1,813,700
- Fisheries	394,000	155,000	515,000	100,000	---	1,164,000
Sub-Total: Capital	3,044,500	3,002,000	2,261,200	100,000	---	8,407,700
2. Operating Cost						
- Crops	219,300	273,850	360,400	420,650	420,650	1,694,850
- Livestock	118,300	233,160	303,960	364,450	364,450	1,384,320
- Fisheries	181,500	143,500	186,500	148,500	156,500	816,500
Sub-Total: Operating Cost	519,100	650,510	850,860	933,600	941,600	3,895,670
3. Institutional Strengthening Cost	515,000	515,000	515,000	515,000	515,000	2,575,000
TOTAL INCREMENTAL COST	4,078,600	4,167,510	3,627,060	1,548,600	1,456,600	14,878,370

The program is expected to accrue incremental benefits estimated to total EC\$16.32 million over the five-year period (**Table 4.2**). These will be derived from two main sources:

- (i) Increased output from the crops, livestock and fisheries sub-sectors.
- (ii) Improvement in product quality.

In addition to the financial benefits, there are also economic benefits from the program. These include positive impacts on employment, the generation/savings of foreign exchange, environmental conservation, inter-sectoral linkages, etc.

Table 4.2
Total Incremental Benefits of the Program (EC\$)

ITEM	Year 1	Year 2	Year 3	Year 4	Year 5	Total
1. Crop Sub-Sector	528,790	893,230	1,468,740	2,268,000	2,772,800	7,931,560
2. Livestock Sub-Sector	169,400	388,600	506,610	662,630	662,630	2,389,870
3. Fisheries Sub-Sector	581,040	891,840	1,191,840	1,513,440	1,824,390	6,002,550
Total Incremental Benefits	1,279,230	2,173,670	3,167,190	4,444,070	5,259,820	16,323,980

4.2.3 Financial Viability

A summary of the flows of incremental costs and benefits and the net benefits that the program will provide is presented in **Table 4.3**. Over the five-year period, the program is expected to generate a total of EC\$1.45 million in net benefits, with positive net benefits occurring from the fourth year of its implementation.

Table 4.3
Cost/ Benefit Analysis of Program (EC\$)

ITEM	Year 1	Year 2	Year 3	Year 4	Year 5	Total
1. Plan Cost						
• Capital Cost	3,044,500	3,002,000	2,261,200	100,000	---	8,407,700
• Operating Cost	519,100	650,510	850,860	933,600	941,600	3,895,670
• Institutional Cost	515,000	515,000	515,000	515,000	515,000	2,575,000
TOTAL COST	4,078,600	4,167,510	3,627,060	1,548,600	1,456,600	14,878,370
2. PLAN REVENUE	1,279,230	2,173,670	3,167,190	4,444,070	5,259,820	16,323,980
3. NET BENEFIT OF PLAN	(2,799,370)	(1,991,840)	(459,870)	1,104,530	3,803,220	1,445,610

4.3 Requirements for Success

The closure of the sugar industry places a new challenge to the sector and a heavier burden on the existing agriculture (programs, activities, institutions, etc.) to contribute to food security, greater competitiveness, rural employment, community development, social stability, etc. While the ADS seeks to address these issues directly and indirectly over time, there are some critical actions (in addition to those indicated in Section 2.4 and Section III) that need to be taken at various levels of the government if the strategy is to be successful. Some of these are outlined below.

- (i) **Government Commitment and Support:** If the agricultural sector is to achieve the policy objectives outlined in Section II, play a meaningful role in the transformation of the economy, as well as fill the vacuum (at least in part) created by the sugar industry's closure, then a higher level of budgetary support will be required. In fact, the government should be considered as the largest investor in the sector and increased public financing is both important and necessary to send clear, positive signals to various stakeholders of its commitment to move the sector forward.

The Government will be required to commit higher levels of both **recurrent and capital expenditure** to modernize the institutions, especially to recruit and deploy competent personnel to implement the priorities of the ADS and to inspire confidence with the donor institutions that it is serious about advancing diversification and modernization of agriculture.

As a start, the government's budgetary allocation to the agricultural sector for 2007 must reflect the seriousness to supporting the sector in a more proactive

manner. Direct interventions in various activities, investment in infrastructure, incentives to private entrepreneurs, capacity building and rationalization of the land allocation process are some of the critical areas that need to be addressed immediately by the government through higher budgetary allocations to demonstrate its public policy commitment to the goals of the sector. It is also imperative that the government's strategy for the economy in 2007 reflect a greater in-built bias in favour of agriculture through the granting of more concessions (as suggested in **Section 3. 5**) to the sector in order to "kick-start" the transformation process.

- (ii) The **Minister of Agriculture** has a critical role to play in championing the ADS at all levels of the government, accessing higher public funding for its operationalization, promoting the strategy as the platform for modernizing the sector and seeking donor funding to support for its implementation.
- (iii) **Integration in the macro-strategy:** Agriculture must be included in an integral manner in the negotiation process for external funding for the Sugar Adaptation Strategy. The ADS places agriculture as an integral component of the SAS and emphasizes the strategic role of the sector in that strategy and the economic transformation process. In this regard, funding for the implementation of the SAS must include serious considerations of the role of agricultural sector and its requirements in this larger framework, and the Ministry of Agriculture needs to play a central role in key policy decisions to facilitate the process. If not, the transformation process will be distorted with more preference given to other sectors at the expense of agriculture. The institutional mechanisms at the Cabinet level and at lower levels of management and coordination also require a much more pro-active role by the Ministry in the wider institutional context.
- (iv) **Coordination and Sectoral Linkages:** It cannot be over-emphasized that the agricultural sector will not fill the vacuum created by the sugar industry's closure. Furthermore, the ADS alone will not resolve all the problems related to low farm income, rural unemployment, food insecurity, increasing dependence on imported food, inter-sectoral linkages, poverty, etc. Other policies and strategies will be needed to complement the ADS to provide the synergy required for transforming the sector. In particular, the fiscal and other incentives to support development of other sectors and transformation of the economy, community development programs, land distribution and tenure, infrastructure, etc. are some of the cross-cutting issues that will affect the success of the ADS. This requires greater integration and coordination by the Ministry of Agriculture (particularly by the Minister and the PPU) within the larger macro decision-making framework and stronger linkages to specific programs of various public sector institutions and to the private sector (tourism institutions, Chamber of Commerce, etc.).
- (v) **New Approach:** The focus on commercialization of agriculture, however, presumes dramatic changes in the way the political directorate and the public service conduct and facilitate business. Not only must the approval of the ADS, Plan and Budget be backed by significant medium-term funding and executive leadership, but the collective reputation of the Public Service, the Banking and Business Communities in SKN to facilitate local and foreign investors must be radically transformed. In large part, the new incentive framework and support that

is proposed in the strategy to create the enabling environment for private investment will be critical.

- (vi) **Transition Process:** It must also be emphasized that the transition process provides as little disruption as possible in effecting a smooth adjustment to the new structures and approaches. A clear path and strategy should be identified so that the institutional memory is adequately transferred and the leadership team of the new structure is suitably prepared.
- (vii) **Public vs. Private Sector Role:** The ADS has two major inter-related planks – a larger pro-active role of the government in policy design, implementation, coordination, facilitating and promoting the strategy, and a larger role for the private sector in production activities, agri-business development, marketing and trade. The high level of commercialization of agriculture on which the ADS places much emphasis will not be achieved with the present institutional arrangements, incentives and participation level of the private sector.

The sugar industry's closure and the requisites of a modern sector requires a gradual shift towards a more private agriculture in which private enterprises drive the transformation process through their active involvement among others, in dialogue and consensus building on critical issues as well as being a source of investment finance. Although the creation of the Advisory Council on Agriculture (ACA) is also meant to bridge and strengthen partnerships with the private sector, it is critical that the required incentives be provided and that government facilitates and promotes greater involvement of private enterprises. The ADS includes the gradual weaning of direct government involvement and greater participation of the private sector in certain activities over the next five years (see **Table 2.1** below). In fact, the level of private sector involvement in these areas will be an indicator of the success of more commercialization of activities in the sector. A large of this will also depend on winning and maintaining the thrust and confidence of the various stakeholders and interest groups in the sector.

- (viii) **Technical Assistance:** The success of the ADS will require continuous technical assistance support during the implementation period. However, the first year of its implementation (2007) should be viewed as a transition period and this will require considerable assistance from institutions such as IICA and the FAO. In particular, IICA's assistance will be necessary to facilitate the transition process to the new institutional framework within the Ministry, define the terms of reference, operational guidelines and work programs. Given that the ADS builds heavily on the recommendations of FAO's Diversification Project report and CARDI's Marketing Strategy report respectively, it is critical that expert assistance be sought from those organizations as well for the design and implementation of the production and marketing components of the Strategy.

Table 2.1
Some Areas for Public vs. Private Sector Investment in Agriculture

GOVERNMENT	PRIVATE SECTOR
Feeder Roads	Abattoir / Processing plant
Management Information System	<i>National Farmers' Organization</i>
Public Markets	<i>Marketing Depot/Farmers' market</i>
Water/Irrigation Systems	Equipment sales
Electrification	Equipment sales
Lands Allocation & Soil Management	Zoned Farmlands: lease, purchase
Security: Forest / Farm Rangers	Farm Supplies, Packaging Operations
Enabling Legislation & Regulations (including import incentives)	Adoption of best practices, plant nurseries, propagation unit
Bureau of Standards and Upgraded Multi-purpose Laboratory providing extraction, analysis and basic microbiological testing, surveys, etc.	Produce Research and Development (some shift to private sector operations); The Multi-Purpose Lab. should be outsourced to the private sector after by Year 04 of the strategy
Export Niches: Contacts, Negotiations, Facilitation, Website	Export Marketing and sales to Tourist Sector
Air and Sea Port improvements	Shipping (refrigerated)
Packing House (s) with chill storage	Shift to private sector over time
Skills development, training	Skills development and specialized training
Credit Facility: Development Bank	Credit/Financing: FND, Credit Unions
Loan Guarantee Fund for private sector investment	Private investments and expertise

- (ix) It is recommended that an ***island-wide association or cooperative of producers*** in St. Kitts be organized and developed as the national interface of the crops and livestock sub-sector that would serve to advocate, advance and monitor the sector's interests. However, its immediate mandate would be to influence formulation of an appropriate policy framework and action plan for the development and expansion of *commercial crop and livestock farms*. Their participation in the Minister's advisory body (ACA) would serve as a critical plank for it to articulate and dialogue on such issues. Farmers should also be encouraged to deepen their commitment to their organization and to support its mandatory fund from sales generated. Some donor funding will assist in jump-starting the effective management of this entity.

ANNEXES

ANNEX 1

References and Persons Interviewed

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1. Antonio Wilson, Registrar of Cooperatives, Department of Cooperatives.
2. Clyde Thompson, Cooperatives Officer, Department of Cooperatives.
3. Daniel Arthurton, Senior Programme Officer, FEDU/ Eastern Caribbean Central Bank (ECCB).
4. Don James, Manager, Financial & Enterprise Development Unit (FEDU), ECCB.
5. Ellis Hazel, Director of Physical Planning, Ministry of Sustainable Development.
6. Errol Browne, Team Leader, Livestock Programme, Department of Agriculture, St. Kitts.
7. George Rogers, President, St. Kitts Beekeepers Cooperative.
8. Hermia Morton-Anthony, Permanent Secretary, Ministry of Housing, Agriculture, Fisheries and Consumer Affairs.
9. Hon. Cedric Liburd, Ministry of Housing, Agriculture, Fisheries and Consumer Affairs, Government of St. Kitts and Nevis.
10. Howard Richardson, Economist, Ministry of Sustainable Development.
11. Ilis Watts, Trade Officer, Ministry of Agriculture, St. Kitts.
12. James Webbe, Executive Director, Foundation For National Development (FND).
13. Jeffrey Berry, Livestock Extension Officer, Department of Agriculture.
14. Jerome Thomas, Director of Agriculture, Ministry of Agriculture, St. Kitts.
15. Keith Archibald, Coordinator, Sugar Transition Team, St. Kitts,
16. Kevin Bowry, PRO, St. Kitts Beekeepers Cooperative.
17. Llewelyn Rhodes, CARDI Representative, St. Kitts-Nevis.
18. Luther Clarke, Farmer.
19. Maria Barthelemy, Legal Adviser, FEDU/ECCB.
20. Ralph Wilkin, Chief Fisheries Officer, Ministry of Agriculture, ST. Kitts.
21. Shawna Brisbane, Director, Marketing and Development Department, Ministry of Finance.
22. Shirley Skerritt, Economist, Ministry of Sustainable Development.
23. Thomas Jackson, Team Leader, Crops Programme, Department of Agriculture, St. Kitts.
24. Valerie Woods, Nutrition Surveillance Coordinator, Ministry of Health.
25. Vera Manchester, Deputy Executive Director, Foundation For National Development (FND).
26. Wendy Phipps, Executive Director, Chamber of Industry and Commerce.

ANNEX 2

Summary of Crops Program Implementation Plan

Overall Objective	PLANNED OUTPUTS	Expected Impacts
<p>Improve farm management and farm operations.</p>	<ul style="list-style-type: none"> • Operational and financial management capacities, utilization of new technologies and application of innovative solutions encouraged and assisted among <i>approved farms</i>. • Benchmarking of farms implemented against international standards and 'Modernization' Business Plans implemented. • Pooling and integrating mechanisms among farmers and with other industries explored to minimize operating expenditure and improve profit margins - security of land tenure, equipment purchases/leases, insurance, etc. • Other measures implemented on-farm to mitigate against catastrophic loss and to improve profitability. • Access to terms and conditions for Agribusiness debt and equity financing improved. 	<p>Output and farm incomes increased through higher operational efficiency at the farm level.</p>
<p>Enhance land security and expand irrigated agriculture.</p>	<ul style="list-style-type: none"> • Land lease instrument improved to enhance land security, tenure and performance. • Access to land processed by transparent performance criteria, application and competitive selection. • Network of dams implemented in targeted areas e.g., Fahie's Area. • Government maintains discounted water rate for irrigation by farmers. • Irrigated agriculture integrated with national water management and crop production systems to expand production scope and scale. • Soil conservation services for arable lands maintained, and surface cover protected. • Farmers and workers trained in good water management practices for year-round production. • Credit accessible to on-farm drip irrigation systems. 	<p>Higher crop production and food output through more efficient and intensive production.</p>
<p>Increase productivity and production at the farm level.</p>	<ul style="list-style-type: none"> • The commodity-focused approach to production replaced by the customer-focused and farming systems methods. • 20-25 farmers selected for commercial production of fresh vegetables, pineapples, roots and tubers. • 3-4 demonstration farms established on farmers' fields in the farm zones. • Trials and demonstrations of new crop varieties, new technologies and best practices conducted by <i>DAD staff, CARDI, Taiwanese, etc.</i> 	<p>Higher incomes and profitability in farming achieved.</p>

Overall Objective	PLANNED OUTPUTS	Expected Impacts
	<ul style="list-style-type: none"> • Greenhouse, plastic mulch, drip irrigation, hydroponics etc. technologies transferred and in use by commercial farmers to produce larger volumes of high value crops beyond traditional season. • Integrated Pest Management (IPM) and weed management practices demonstrated and adopted by farmers. • FAO Technical Guidelines (2002) updated for higher production of vegetables per acre, disseminated to and in use by targeted farmers. • All crop farmers registered with DAD, participating in the Certified Farmers Program and certified in GAPS. Vegetable nurseries equipped and established in each zone and hands-on training provided by DAD and CARDI staff. • New research and amore effective measures adopted to <i>reduce crop losses</i> controlling the monkey population. 	
<p>Foster a commercial and competitive agriculture</p> <p>To modernize the regulatory framework and the enabling environment to facilitate agribusiness growth and expansion.</p>	<ul style="list-style-type: none"> • The new incentive package approved, circulated and widely articulated. • Commercially viable agro-enterprises promoted and assisted as the preferred mode for agri-sector growth. • Successful entrepreneurs, etc. encouraged to invest in <i>commercial farms</i>. • Market-led, customer and <i>service</i>-driven business orientations encouraged among crop farmers and entrepreneurs. • Market opportunities (domestic and export) for competitive agro-products explored and identified. • Government capacity upgraded for agri-trade negotiations and for the promotion and strengthening of agribusiness. • Owners and managers trained and assisted in utilizing debt and equity financing (including export credit) facilities more effectively. • Applications for land, irrigation, incentives and financing accompanied by 3-year business plans and measurable progress returns required of <i>approved farmers</i>. • The Program full-time management and technical support for the initial 24 months to organize and develop a National Farmers' Organization. • Legislation and regulations reviewed and upgraded consistent with food safety requirements, standards and other requirements. • Fiscal incentives upgraded and expanded for agri-business. • Land zoned for agri-business uses approved. • Existing and new SMEs established. • Security measures and tougher regulations enacted to minimize/eliminate praedial larceny, sabotage and stray animals that affect farm production, pack-houses and transporters. • Farm /Forest rangers reinstated to protect agricultural activities and the 	<p>Higher incomes and profitability in farming achieved.</p> <p>Expansion of agri-business activities with stronger linkages to local agricultural production.</p>

Overall Objective	PLANNED OUTPUTS	Expected Impacts
	<p>natural resource base.</p> <ul style="list-style-type: none"> • Public Service Managers and Staff sensitized to giving equal priority to supporting and <i>enabling</i> agriculture through resource allocation, technical assistance and customer care. • Government infrastructure improved to support expanded private investment in agriculture. • <i>Expanded public relations and awareness to promote</i> the economic importance of agriculture, the profitability in farming and the real value of applying increased knowledge, skills, competence and capital to viable agribusinesses. • Financing enterprises (Banks, credit institutions, etc.) facilitated to be a new stakeholder group in agriculture through appropriate incentives. • Alternate investment and debt financing mechanisms for agri-business established in commercial banks and credit unions. 	
<p>Expand market share increased, linkages and penetrate new markets.</p>	<ul style="list-style-type: none"> • Farmers and entrepreneurs sensitized on free trade issues and changes in trade regulations and versed in post harvest technologies. • Market surveys and export missions conducted for local products. • Contracts secured by farmers to supply food to hotels, restaurants and supermarkets. • Government institutions persuaded to procure more local products from the farming community (e.g., School Meals, Hospitals, Prisons, etc.). • A quality pack house and processing plant established and certified according to international standards. • An appropriate mix of exportable crops identified and produced for local and tourism consumption and for export (including cruise ships). • Agri-business linkages strengthened between farmers and entrepreneurs, agro-processors and tourism plants to penetrate tourism and export markets. • New agri-businesses opportunities stimulated through divestment of Government operations: abattoir, plant nurseries, inputs supply, CEMACO, etc. • Improved access to farm and export credit assistance secured at Development Bank, FND and ECCB/FEDU to facilitate production and agri-business operations. <p>Closer collaboration and networking between farmers, suppliers and distributors facilitated by the Hotel and Tourism Association, the Chamber of Commerce and the Program.</p>	<p>Expanded market opportunities exploited with stronger inter-sectoral linkages to agricultural production.</p>

Overall Objective	PLANNED OUTPUTS	Expected Impacts
<p>Capacity building and the knowledge base strengthened in the public and private sector for modernizing agriculture.</p>	<ul style="list-style-type: none"> • A cadre of management and technical skills attracted to the sector and the Ministry with good expertise in themes that will contribute to modernizing agriculture. • A comprehensive Human Resource Development (HRD) program implemented by the competent authority in collaboration with Training Institutions, the Farmers' Organization and technical assistance organizations to strengthen and certify capacities and competencies at all levels of the agri-food system. • Farmers and entrepreneurs trained in new technologies, best practices, standards, etc., to produce quality products and improve productivity. • Farmers and farm workers benefit from on-site training through attachments to model farms both within and outside of St. Kitts. • Farm labor and workers capabilities increased through skills development, application of new technologies, improvement in working conditions and comparable wages and benefits. 	<p>The skills and knowledge base to transform St. Kitts agriculture improved.</p>
<p>Adopt International Food Safety Standards and Best Practices promoted.</p>	<ul style="list-style-type: none"> • Knowledge and understanding improved among farmers, processors, etc. on Food Safety Regimes (e.g. Hazard Analysis Critical Control Point (HACCP), EUREP- Good Agricultural Practices (GAP)) and other Sanitary and Phyto-Sanitary (SPS) Measures required by international standards (World Organization for Animal Health (OIE), International Plant Protection Convention (IPPC), CODEX). • A Certified Farmers Program (CFP) in place to promote best practices and meet the required food safety standards. • Crops production and trade protected through effective control and management of economic/exotic pests and diseases. • High compliance levels encouraged and self-regulatory surveillance methods promoted/encouraged among commercial farmers and throughout the crops sub-sector. 	<p>Food production system improved and higher quality foods produced to meet local and export market standards.</p>

ANNEX 3

Financial Tables

Table 3.1
Incremental Costo for Cropro Sub-Sector (EC\$)

ITEM	Year 1	Year 2	Year 3	Year 4	Year 5	Total
1. Capital Cost						
1.1 Crop Development						
- Rainfed Farming	120,000	160,000	180,000	---	---	460,000
- Establish Irrigation System	500,000	750,000	750,000	---	---	2,000,000
1.2 Environmental Protection						
- Land Management	240,000	150,000	120,000	---	---	510,000
- Road Improvement	350,000	450,000	250,000	---	---	1,050,000
1.3 Packaging House Improvement	800,000	120,000	---	---	---	920,000
1.4 Other Capital	200,000	160,000	130,000	---	---	490,000
Sub-Total - Capital	2,210,000	1,790,000	1,430,000	---	---	5,430,000
2. Operating Expenses	219,300	273,850	360,400	420,650	420,650	1,694,850
Total Net Incremental Cost - Crop Sub-Sector	2,429,300	2,063,850	1,790,400	420,650	420,650	7,124,850

Table 3.2
Net Incremental Benefits for Crop Sub-Sector (EC\$)

ITEM	Year 1	Year 2	Year 3	Year 4	Year 5	Total
1. Fruits and Vegetables	330,490	576,280	992,250	1,417,500	1,890,000	5,206,520
2. Other Crops	198,300	316,950	476,490	850,500	882,800	2,725,040
Total Net Incremental Benefit	528,790	893,230	1,468,740	2,268,000	2,772,800	7,931,560

Table 3.3
Net Incremental Cost of Livestock Sub-Sector (EC\$)

ITEM	Year 1	Year 2	Year 3	Year 4	Year 5	Total
1. Capital Cost						
1.1 Improvement of Basseterre Abattoir						
- Construction of Meat Processing Room	---	60,000	---	---	---	60,000
- Construction of Cold Room	---	62,000	---	---	---	62,000
- Refrigerated Container	---	133,000	---	---	---	133,000
- Cattle Transport Trailer and Tractor	---	60,000	---	---	---	60,000
- Waste Disposal System	---	57,000	---	---	---	57,000
- Abattoir Equipment	---	75,000	---	---	---	75,000
Sub-Total – Abattoir	---	447,000	---	---	---	447,000
1.2 Establishment of 10 new beef and 10 new sheep farms	250,000	450,000	258,500	---	---	958,500
1.3 Strengthening of Technical Capacities						
- Technical Services	75,500	---	---	---	---	75,500
- Market/Product Development	40,000	60,000	32,000	---	---	132,000
- Livestock Industry Extension	75,000	100,000	25,700	---	---	200,700
Sub-Total – Technical Capacities	190,500	160,000	57,700	---	---	408,200
Total Capital Cost	440,500	1,057,000	316,200	---	---	1,813,700
2. Operating Cost	118,300	233,160	303,960	364,450	364,450	1,384,420
Total Net Incremental Cost Livestock	558,800	1,290,160	620,160	364,450	364,450	3,198,020

Table 3.4
Net Incremental Benefits of Livestock Sub-Sector (EC\$)

ITEM	Year 1	Year 2	Year 3	Year 4	Year 5	Total
1. Beef Operation (10)	60,000	180,000	230,090	328,700	328,700	1,127,490
2. Sheep Operation (10)	45,000	130,000	172,300	229,710	229,710	806,720
3. Smallholder Cattle	30,600	38,600	49,700	49,700	49,700	218,300
4. Smallholder Sheep	25,300	29,400	37,500	37,500	37,500	167,200
5. Integrated Crop/ Livestock Operation	8,500	10,600	17,020	17,020	17,020	70,160
Total Net Incremental Benefits	169,400	388,600	506,610	662,630	662,630	2,389,870

Table 3.5
Net Incremental Cost for Fisheries Sub-Sector (EC\$)

ITEM	Year 1	Year 2	Year 3	Year 4	Year 5	Total
1. Capital Cost						
1.1 Improvement to old road landing site	300,000	150,000	---	---	---	450,000
1.2 Improvement to Dieppe Bay landing site	---	---	510,000	100,000	---	610,000
1.3 Equipment						
- Vehicle	60,000	---	---	---	---	60,000
- Air condition unit	24,000	---	---	---	---	24,000
- Computers	10,000	5,000	5,000	---	---	20,000
Sub-Total – Capital Cost	394,000	155,000	515,000	100,000	---	1,164,000
2. Operating Cost						
2.1 Landing sites	5,000	5,000	10,000	10,000	10,000	40,000
2.2 Training						
- Diploma courses (2)	30,000	---	30,000	---	---	60,000
- Study Tour/Short Courses (3)	8,000	---	8,000	---	8,000	24,000
- Local Workshops (6)	8,000	8,000	8,000	8,000	8,000	40,000
Sub-Total - Training	46,000	8,000	46,000	8,000	16,000	124,000
2.3 Additional Staff						
- Manager (1)	37,500	37,500	37,500	37,500	37,500	187,500
- Marine Biologist (1)	48,000	48,000	48,000	48,000	48,000	240,000
- Cleaner (1)	20,000	20,000	20,000	20,000	20,000	100,000
- Secretary (1)	25,000	25,000	25,000	25,000	25,000	125,000
Sub-Total Staff	130,500	130,500	130,500	130,500	130,500	652,500
Sub-Total – Operating Cost	181,500	143,500	186,500	148,500	156,500	816,500
Total Incremental Cost	575,500	298,500	701,500	248,500	156,500	1,980,500

Table 3.6
Total Estimated Fish Production (kgs.)

ITEM	Year 1	Year 2	Year 3	Year 4	Year 5	Total
1. Without Project	414,500	414,500	414,500	414,500	414,500	2,072,500
2. With Project	440,220	460,940	480,940	502,380	523,110	2,516,200
3. Net incremental Production	25,720	46,440	66,440	87,880	108,610	335,090

Table 3.7
Net Incremental Benefit Fisheries Sub-Sector (EC\$)

ITEM	Year 1	Year 2	Year 3	Year 4	Year 5	Total
1. Without Project	6,022,260	6,022,260	6,022,260	6,022,260	6,022,260	30,111,300
2. With Project	6,603,300	6,914,100	7,214,100	7,535,700	7,846,650	36,113,850
3. Net incremental Benefits	581,040	891,840	1,191,840	1,513,440	1,824,390	6,002,550

ANNEX 4

Main Technical and Financial Assumptions

A. Crops Sub-Sector

General Objective

To facilitate commercial production of crops to ensure food security, foreign exchange earnings/savings and ensure sustainable crop production.

Specific Targets

Program costs and benefits are predicated on the following actions:

1. Increase vegetable production from 0.6 million kg. to 2.0 million kg.
2. Increase root crops production to substitute for 60% of imports.
3. Increase fruit and tree crops production from 320,980 kg. to 600,000 kg.
4. Facilitate the expansion of 12 commercial and semi-commercial orchards.
5. Increase white potato, peanuts, vegetables and pineapple production to meet domestic demand and for export. Production of most of the vegetables targeted will expand from 6 to 12 months.
6. Penetrate 5 sub-regional markets with 3 targeted commodities.
7. Facilitate the development of the floriculture industry.
8. Develop the Estridge irrigation project and facilitate the establishment of 4 irrigated settlements (Phillips, St. Peters, Con Phipps, Fahies).
9. Continue the development of 2 outreach centers.
10. Reduce West Indian Fruit Fly population to economic threshold level.
11. Maintain farm roads and establish land management unit to assume soil conservation role and implement mitigation measures.

Summary of production costs, yields per crop acre, production costs per crop acre and gross and net returns per acre are presented in Table 4.1 below.

B. Livestock Sub-sector

General Objective

To increase the production and marketing of more locally produced meat products.

Specific Targets

Costs and benefits for the livestock sub-sector are based on the following:

1. Develop commercial livestock farms.
2. Facilitate the establishment of five (5) 120-acre full-time commercial and ten (10) 60-acre part-time small ruminant farms.
3. Produce 100,800 kg. of boneless meat.
4. Facilitate the development of twenty-five (25) 12-sow pig production units.

5. Produce 200,000 kg. pork annually.
6. Provide fodder trees and shrubs for pasture improvement.
7. Secure forage harvester.
8. Conduct a minimum of four (4) farmer training courses each year.
9. Provide efficient and expanded animal health care services.
10. Improve and expand the abattoir and provide training for staff.
11. Establish effect dog control program.
12. Implement an effective Tropical Bont Tick (TBT) Management Program.

(i) Beef Cattle

1. Expand beef production to replace 60,000 kg. of imported beef.
2. Develop 10 new beef farms on a total of 500 acres. Each farm will start with 30 breeding females building up to an average of 50 breeding females on a 50-acre plot.
3. Investment cost per farm is EC\$55,360.
4. Annual incremental income of approximately \$30,000 for beef farms.
5. Maturity rate of accruals – 5%.

(ii) Sheep and Goat Farms

1. Expand sheep and goat meat production to replace 67,000 kg. of imported mutton and sheep meat.
2. Develop 10 new sheep and goat farms on a total of 250 acres (25 acres per farm).
3. Investment cost per farm is EC\$40,440.
4. Kidding/lambing rate of 225% per goat and 250% for sheep.
5. Mortality rate of 10% for both sheep and goats.
6. Market weight increased from 22 kg. to 27 kg. for goats and from 25 kg. to 30 kg. for sheep.
7. Carcass dressing percent increased from 40% to 45% for both goat and sheep.
8. Market price of both goat and sheep meat is EC\$5.90/lb. (\$13.00/kg.).

C. Fisheries Sector

General Objective

To transform the present traditional forum of fishing to a modern technology oriented industry.

Specific Targets

Costs and benefits of the Fisheries Development Program are based on the following:

1. Present fish production level to be increased from 414,495 kg./year to 518,105 kg./year.
2. Develop one (1) acre of aquaculture producing 5,000 kg of tilapia annually.
3. Average price of fish estimate at EC\$14.5 per kg (EC\$6.6 per lb).

4. Improvement to landing sites:
 - Enhanced management of the Basseterre Fisheries market and Landing Site – this facility was recently constructed at a cost of US\$10M.
 - The Old Road Fisheries Complex - construction of a jetty, sea defense, fishermen lockers, community centre and other infrastructural facilities.
 - Improvement of the Dieppe Bay landing Site - construction of facilities similar to those at Old Road.

5. Training Program:
 - Courses in fisheries resource management, fish marketing and aquacultures.
 - Study tours/short courses in fish marketing, processing, technology and aquaculture.
 - Workshops in fishing cooperatives, group dynamics, business management, entrepreneurship, fishing techniques, safety at sea/navigation and engine maintenance.

6. Strengthen the Fisheries Division:
 - Addition of four positions - a Marine Biologist; a Manager and cleaner for the Old Road Fisheries Complex; a Secretary for the Basseterre Fisheries Complex.
 - Provision of a vehicle.
 - Provision of an air-condition unit and computers.
 - 4 staff training activities (as indicated under training program).
 - Strengthening of fisheries information system.

D. *Institutional Strengthening of the Ministry*

General Objective

To improve the efficiency and effectiveness of the institutional arrangements for executing the ADS through better policy making and planning, integration and coordination of activities among stakeholders, reduction in excessive rules and procedures of governance, monitoring and review, expanded technical and support services, strengthening of the information system and human capacity building.

Specific Target

Costs for the institutional strengthening are based on:

1. Establish a Policy and Planning Unit in the Ministry with 3 staff members – Economist/Policy Analyst; one Professional/Technician (for projects) and a Secretary.
2. Establish a Unit to coordinate and monitor regulatory services.
3. Establish an Advisory Council on the sector.
4. Restructure the Department of Agriculture into a Department for Agricultural Development with expanded technical and support services in the following areas:
 - Human resources development and capacity building (2 persons);

- Information and Communication (2);
- Marketing (1);
- Agribusiness development (1);
- Secretarial and administrative services (2);

Table 4.1
Assumptions on Production Costs, Yields, Costs per Acre and Gross Returns for Crops

Crop	Production cost per Crop Acre	Marketable Yield per Crop Acre	Cost/lb.	Average price/lb.	Gross Revenue per Crop Acre	Net Revenue per Crop Acre	Crop cycle per Year	Net Revenue per Acre per Year
Tomatoes	13,500	12,400	1.09	1.70	21,080	7,580	3.0	22,740
Cabbage	11,300	10,600	1.07	1.50	15,900	4,600	3.0	13,800
Carrots	10,500	9,200	1.14	1.80	16,560	6,060	2.0	12,120
Sweet pepper	11,800	9,900	1.19	1.60	15,840	4,040	3.0	12,120
Hot pepper	13,800	11,700	1.18	1.40	16,380	2,580	1.5	3,870
Pumpkins	3,500	12,500	0.28	0.40	5,000	1,500	2.0	3,000
Melons	6,300	10,800	0.58	1.10	11,880	5,580	2.0	11,160
Beans	6,400	7,600	0.84	1.00	7,600	1,200	2.0	2,400
Onion	9,100	13,500	0.67	0.85	11,475	2,375	2.0	4,750
White potatoes	5,600	11,250	0.59	0.80	9,000	2,400	1.0	2,400
Sweet potatoes	8,900	12,600	0.71	1.10	13,860	4,960	1.5	7,440
Yam	6,600	9,500	0.69	1.20	11,400	4,800	1.0	4,800