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EXECUTIVE SUMMARY

Vision 2020 is a challenge to create a robust, modern, prosperous and competitive agricultural sector to improve the nation's food security and reduce poverty. By the year 2020, Trinidad and Tobago will become food secure as a nation.

Global imperatives require agriculture to become internationally competitive. Nevertheless, the stark reality is that not all of agriculture can be competitive. Many in the small farm sector are unlikely to achieve international competitiveness due to limited resources and uneconomic size units. Accordingly, the 2020 vision for agriculture must create opportunities for embracing this group, which cannot become competitive. Vision 2020 will not leave them behind.

The richness and diversity of our bio-resources is a natural gift to Trinidad and Tobago and, as a country, we must utilise these renewable resources to reduce our excessive dependence on food imports by increasing capital investments into the sector.

The strategy is to build long-term sustainable capacity as a basis for achieving the 2020 developmental targets. From a national perspective, this requires significant capital injections in building capacity and to enhance the sector's long-term contribution to economic development.

Significant gaps now exist in public physical infrastructure and institutions and therefore, to drive the sector forward it is timely to channel financial resources from the non-renewable sector to the agricultural sector for sustained long-term development.

Quite apart from its conventional type contributions to income, employment and foreign exchange earnings, the sector is characterised by significant and strategic linkages to numerous government agencies, the business/private sector, and agro-industry, petrochemical sector, input supply sector and numerous sectors.

The emerging issues of Trinidad and Tobago under the 2020 vision are multi-dimensional:

- To confront and manage change requirements and sector imperatives for food security. The reality is that in 2003, Trinidad and Tobago imported approximately TT $1.7 billion worth of food and related products for

human and livestock consumption. Moreover, the country's import dependency for numerous commodities exceeds 50% on an annual basis.

- To develop and modernise our farm and agri-food systems infrastructure to ensure sustained growth and development in a dynamic operating environment.
- For producers and entrepreneurs to operate in a competitive global market.
- Limited opportunities for the state to provide direct financial support to the sector or to protect local agriculture whether for the domestic or the export market.

Accordingly, the 2020 vision must necessarily address two strategic imperatives:

- Firstly, the agri-food system must be rapidly transformed into a highly efficient and productive sector that is dynamic, adaptable, resilient and competitive.
- Secondly, it must contribute to a state of development characterised by:
  - Food and nutrition security
  - Rural livelihoods consistent with societal aspirations
  - Rural communities fully developed with physical and social infrastructure and economic opportunities to support sustained livelihoods, and an
  - Enhanced quality of life for all participants

The sector as presently configured cannot meet the developmental targets as identified and therefore capacity building in the immediate short to medium term is of critical importance. Accordingly, the following drivers for capacity building under the 2020 vision for agriculture have been identified:

- Research, Technology development and extension
- Drainage, Irrigation and Water Management
- Land Use Rationalisation
- Finance and Credit
- Marketing
- Access Roads
- Policies and Regulations
- Fisheries Management and Infrastructure and
- Building Human Capital.

In pursuance of the vision, seven broad developmental objectives have been identified. These are as follows:

- To improve the efficiency and competitiveness of the sector.
- To contribute to food and nutrition security on a sustained basis by increasing self-sufficiency in strategic foods.
- To achieve and sustain a quality of life in rural communities comparable to the larger society, commensurate with their social, cultural, economic and political aspirations.
- To contribute to the conservation of the natural environment and promote and maintain its integrity.
- To recognise and promote the multifunctional contribution of agriculture to societal well-being.
- To promote holistic development of rural communities throughout Trinidad and Tobago.
- To contribute to the socio-economic development of rural communities through the exploitation of indigenous knowledge particularly herbal/medicinal application, knowledge, skills and positive attributes.

The broad developmental strategies are based on priorities with regard to strategic commodity areas. The developmental objectives have been further specified into sub-objectives with their respective targets.

No magic solution will make the vision a reality. There are also no quick-fix solutions. The strategies outlined would require greater collaboration and co-ordination and strengthened partnerships together with the change in attitudes, priorities, approaches, policies and implementation mechanisms. In addition, government must develop and enforce rules, regulations, and standards with special emphasis on food quality and safety and best agricultural practices. Further, government will have to invest or facilitate private sector investment in education, social infrastructure, agricultural research, science and technology, infrastructure and supporting public goods to exploit the agricultural potential in services, agri-business and agro-processing.

Improved access to international markets through bi-lateral and multi-lateral trade negotiations and regional integration would also have to be pursued by government to ensure the sector's competitiveness.

INTRODUCTION

The overall *objective* of the *VISION 2020* exercise is to prepare *a strategic development plan* that will position Trinidad and Tobago to achieve developed country status by 2020.

The terms of reference of the Sub-Committee on Agriculture mandated the formulation of *policy objectives* with *quantifiable targets* and an *Action Plan* for achievements (among others), within 2004 - 2006, and 2007 -2009 and beyond - in the context of a clearly articulated *vision* for the sector.

APPROACH

TERMS OF REFERENCE

The Terms of Reference of the Sub- Committee on Agriculture are:

- To undertake a situation and needs analysis
- To develop a vision for the sector
- To suggest overall policy objectives and the associated quantifiable targets for achievement by the year 2020
- To posit specific objectives and the associated quantifiable targets for achievement within 2004 -2006, and 2007 and 2009
- To outline the strategies that should be pursued for 2004 -2006, and 2007 and 2009 to achieve the stated objectives
- To identify the performance milestones related to the overall policy objectives at the end of every three-year period commencing in 2006
- To craft a detailed Action Plan inclusive of a prioritised matrix of activities (public and private sector-based in communities); an intervention timetable (showing the timing and sequencing of specific actions and the responsible agency); and estimates of implementation costs for the first three years
- To identify the most critical activities to be undertaken as well as those that could be implemented easily
- To state the policy, legislative and institutional arrangements for the efficient implementation of the Strategies and the Action Plan, and review of the achievement of milestones and targets
- In effect, the terms of reference call for a *Strategic Plan for the Sector* as the ultimate *deliverable.*

METHODOLOGY

The methodology employed in undertaking the preparation of this report on the 2020 vision for agriculture involved the following:

- Undertaking broad-based discussions on key issues which affect the agricultural sector.
- Selected papers on key issues/ subject matters were requested from the relevant institutions in Trinidad and Tobago.

APPROACH

- Institutions/ departments/ divisions of various Ministries and Government agencies were requested to present issue papers.
- The Committee undertook various analyses, reviews, evaluation and discussions.
- Identification of a vision and strategic direction.
- Identification of goals, objectives, targets, plans, programmes and policies in pursuance of the agreed vision.
- Report preparation and further discussions, and
- Stakeholders consultation

GLOBAL POLICY IMPERATIVES

The inclusion of agriculture in the 1995 GATT (WTO) Agreement and the emergence of trading blocs have ushered in a new era in trade characterised by liberalisation of markets, the removal of non-tariff barriers, the reduction of subsidies and the dismantling of preferential market opportunities.

Indeed, the agricultural sector in Trinidad and Tobago has traditionally depended on the last mentioned for most of its export earnings. Today preferential markets have dwindled and prices continue to decline due to competition from non-traditional suppliers to our preferential markets. Agriculture, both in terms of the domestic as well as export markets, is therefore today confronted with competition from global suppliers. Such competition is expected to intensify in the future. The survival of our agricultural and rural sector in Trinidad and Tobago therefore calls for a transformation of a scale never before seen. Agriculture must now be competitive. It must also have the capacity to sustain competitiveness by becoming flexible, adaptable and resilient in a dynamic global market.

It must be technology-driven and market led; it must be managed smartly using an efficient information technology support intelligence and information system.

In today's rules-based trade policy context, the role of government and those public sector institutions with a mandate for supporting the agricultural sector is limited to one of facilitation. In essence, the implicit mandate of any country in today's world essentially entails the provision of strategic support to empower and enable the sector to develop an acceptable level of competitiveness. Such services include the following:

- Policy support
- Trade facilitation and trade intelligence
- Provision of physical infrastructure including, drainage and irrigation, which are necessary to facilitate efficiency and competitiveness
- Provision of key services, including marketing intelligence and export facilitation
- Science and technology support

GLOBAL POLICY IMPERATIVES

- Food safety quality assurance
- Regulatory services including Plant and Animal Health and Safety
- Extension and training

Further, in the context of strategies to be developed under the 2020 vision, the following will be of paramount importance:

- Analysis of the competitiveness of Trinidad and Tobago's agriculture as a basis for trade policy negotiations and the design of agricultural strategies.
- Enhancing competitiveness of commodities on a priority basis.

- Adoption of a holistic approach to improve competitiveness.
- Agricultural sustainability over the long-term.
- A shift in the composition of exports from primary products to value added.

SCOPE OF AGRICULTURE AND RURAL DEVELOPMENT

There was a general consensus that the vision for the agricultural sector must include its contribution to food and nutrition needs of the country. It would facilitate the production and distribution by providing safe, nutritious and wholesome food for a healthy and productive population.

The sector must efficiently produce raw materials for industry, even as it contributes to the maintenance of the integrity of the environment; contribute to the enhancement of the livelihood of the participants and to the country as a whole, by providing gainful, permanent and sufficiently rewarding opportunities for employment and entrepreneurial activities.

Thus, it embraces the agri-food and non-food chain from production through processing to marketing, and includes crops, horticulture, forestry, apiculture, livestock, animal products, fisheries and a range of agri-businesses.

It also encompasses activities in the rural sector associated with sustainable environmental use of renewable natural resources such as agro and eco-tourism, wild life farming, and preservation of bio-diversity. Of necessity, this outlook requires a supportive and facilitative administrative and institutional framework that is structured yet innovative and responsive, with appropriate policies, programmes and projects, as well as infrastructure.

VISION

The Agricultural Sector in Trinidad and Tobago by the year 2020 *will be competitive and will sustain competitiveness by being resilient, adaptive and market-driven.*

In pursuance of this vision, the sector will:

- Provide for the food and nutrition security needs of the nation.
- Contribute significantly to the economic development process of Trinidad and Tobago through the deepening of sectoral linkages.
- Play a pivotal role in conserving, enhancing and contributing to the sustainable management of the national environment and rural landscape.
- Be fully integrated into the rural development

process, productively employing its resources, providing levels of remuneration to producers, service providers and other entrepreneurs in the sector that would allow for the attainment of a standard of living in keeping with their social, cultural, economic and political aspirations. Furthermore, participants in the sector will be held in high regard and will be provided with social, physical and environmental amenities to improve their quality of life.

DEVELOPMENTAL OBJECTIVES

The broad developmental objectives of the 2020 Vision include the following:

- To improve efficiency and competitiveness of the agricultural sector in Trinidad and Tobago on a sustained basis through strategic interventions on policy framework, physical and institutional infrastructure and support services.
- To achieve an acceptable level of food and nutritional security through the production, processing and distribution of strategic commodities and to reduce the country's dependence on external sources of supplies.
- To achieve and sustain the quality of life for rural communities in Trinidad and Tobago envisaged in a 2020 VISION and commensurate with their social, cultural, and political aspirations.
- To contribute to the conservation and enhancement of the natural environment and rural landscape and to promote and maintain their integrity.
- To enhance the multifunctional contribution of agriculture to societal well-being.
- To attain balanced development between rural and urban communities throughout Trinidad and Tobago in terms of social and physical amenities.
- To contribute to the socio-economic development of rural communities through training and skill development, harnessing of indigenous knowledge and establishment of a facilitative environment for nurturing investment and entrepreneurship.
- To facilitate growth and expansion of the sector to meet food and income opportunities for a growing population.

The fundamental challenge facing Trinidad and Tobago in pursuance of its 2020 agenda for the agricultural sector is how to exploit existing and future opportunities in the sector to increase national food production, availability and food security without further endangering the country's national resource base.

In this context, a number of issues will affect the platforming and capacity building processes.

These include technology, soil and water management, increase capitalisation; Research and Development (R&D), the changing nature of rural development, the repositioning of agriculture on the economic development agenda, the impact of urbanisation on food demand and the impact of trade liberalisation and regional economic integration.
Food sanitation and hygienic issues, food safety standards, animal and plant health requirements as well as quality of life indices add to the complexity of the 2020 agenda matrix.

With specific reference to the food security objective, excessive demands will be placed on technology, farming systems, soil and water management and agricultural intensification given the limitations imposed by the unavailability of prime, cultivatable and productive land.

The demand for intensification and changes in enterprise mix should have a favourable impact on both rural poverty and resource conservation at the small farm level. Small farmers account for a significant proportion of the production of food staples, exports and traditional crops such as tropical fruits, vegetables, spices and herbs.

Stronger demands for these crops through sustained competitiveness will not only affect incomes and welfare but will also make investments in technology, agro-industry and resource conservation more attractive.

Promoting the implementation of new technologies and reaching small, resource-poor, tenure-insecure, individual farmers will require sizeable and significant investment in technology transfer infrastructures as well as the capacities to bring a wide array of perspectives and capabilities together on a site-specific community basis.

In this regard, the creation of linkages and partnerships with research institutions to allow for more interaction and participation of beneficiaries will pose a rewarding challenge particularly in the context of integrated rural development.

OVERVIEW OF THE AGRICULTURAL SECTOR

The agricultural sector in Trinidad and Tobago is segmented into the domestic and export-oriented sectors. The domestic sector is primarily involved in the production of root crops, fruits, vegetables, condiments, rice, pulses, poultry and livestock products.

The export sector is involved with cocoa, coffee, sugar, fruits, vegetables, agro-processed products and fish. The sector has been in an almost perpetual state of stagnation or in some cases absolute decline during the 1980s and 1990s. The lacklustre aggregate performance of the sector continues in 2004 for a number of reasons while the country's food import bill continues to increase, and approximated TT $1.7 billion in 2003.

The main performance indicators for the five (5) year period 1998-2002 are summarised as follows:

- Agriculture's contribution to GDP over the period 1996-2002 averaged 3.3% per annum. The highest level achieved in the last 10 years was 3.6% in 1994.
- With regard to the breakdown on agriculture's GDP over the period, domestic agriculture's contribution averaged 50% per annum, while sugar and other export agriculture accounted for 47% and 3% respectively. The highest level for the domestic sector was 54.1% in 1998.
- Average annual growth rates were negative for export agriculture, livestock, coconuts, dairy, beef, cocoa and coffee.
- Average annual growth rates were positive for sugar, food crops, rice, citrus and vegetables.
- The fisheries sub-sector contribution to agricultural GDP declined from 11.1% in 1995 to 8.1% in 2001.
- Exports of cocoa, coffee, fish and fish preparation showed absolute decline over the period.
- Employment in the sector declined from 44,000 in 1997 to 42,000 in 2001, a decline of 4.5%. In 2001 agricultural employment accounted for 7.3% of total national employment. The actual numbers and percentage share would have shown corresponding changes due to the closure of Caroni (1975) Limited in 2004.

- Overall, for the period, price levels of most commodities showed only marginal increases.
- The food import bill stood at $1.7 billion in 2003, increasing from $1.0 billion in 1994, an overall increase of 70%, with fish and fish products (64%), vegetables and fruits (11%) and coffee, cocoa and spices (84%) showing the largest overall increase in the food import bill.
- The share of the food import bill as a percentage of the country's total imports averaged 8.5% per annum over the period 1998-2002.

The reasons for the unimpressive lacklustre performance can be summarised as follows:

- Lack of adequate marketing facilities and marketing opportunities for the production of commodities.
- Lack of adequate mechanisms for providing farmers and other stakeholders with the necessary market intelligence to make informed decisions, for example, on productions, grades, standards, food safety and health.
- The tendency for research to be production-driven rather than market-driven.
- Inability of the sector to compete with other booming sectors of the economy in terms of ability to pay higher wages for labour and for acquiring land.
- Stagnated local prices of agricultural commodities when compared with other consumer goods and services.
- Inadequate levels of investment by the State in infrastructure development (providing and maintaining adequate roads, drainage, irrigation systems and other physical amenities to support and sustain agricultural activity.
- The exclusion of many farmers for agricultural credit and incentives offered by the State because of their insecure land tenure position. Long delays in credit disbursement have also stymied credit availability to farmers.
- The inability of researchers to adequately respond to the specific needs of the farming community. For example, little progress has been made to produce or adapt machinery, equipment and develop advanced production systems within recent times.
- Slow pace of mechanisation on farms,

including extensive use of irrigation technology.

- Limited use of irrigation for crop and livestock production
- Weak linkages between primary producers and processors.
- Inadequate and targeted incentives for agricultural production.
- Inability of farmers to form themselves into effective groups for promoting development of a vibrant sector.
- The perception by many in the society that there is too much drudgery with little rewards in agriculture.
- High levels of praedial larceny. This has been a major disincentive to investments in small stock and fruit crops in particular. Other types of risks such as crop and livestock damage due to perennial flooding, severe dry period, fires, etc. must also be considered.

Considerable difficulty was experienced in reviewing the sector primarily because the data-gathering mechanism is archaic and non-responsive. Moreover, the national accounting system does not allow in any practical way for identifying, calculating and presenting measurement indicators with respect to performance or achievements, for example, there is no data to indicate what proportion of our food consumed is met from domestic production.

Similarly, it is not possible to state with any degree of certainty whether market demand for frozen as opposed to chilled foods is increasing or decreasing or even to predict changing patterns of consumer preferences so as to guide farmers' decision-making

The agricultural sector of Trinidad and Tobago contributes significantly to the economic and social development of the country. However, the true contributions and linkages of the agriculture sector are grossly understated and are not captured in the national statistics.

Official statistics, for example, indicate that agriculture's contribution has not grown beyond 3.5 percent of national Gross Domestic Product (GDP) in the last 10 years. The more comprehensive and meaningful approach suggests that national statistics for agricultural GDP ought properly to include all value-added activities related to the products of entrepreneurial activity in the agriculture sector.

It is in this context that *"agriculture"* is taken to encompass the entire agri-food chain. It is indelibly linked to agro–processing, marketing, and other services provided in support of agricultural activities.

The promotion of sound husbandry and agronomic management systems and practices also contribute in a meaningful way to the sustainable use of natural resources, conservation of the environment and preservation of bio-diversity.

Additionally, the agriculture sector is important for ensuring food and nutrition security and is pivotal in providing employment opportunities in rural communities.

GLOBALISATION

WTO came into existence on January 1st 1995 and is responsible for overseeing the multilateral trading system, which has evolved over the past fifty years.

The improved and strengthened rule-based system that has come into existence with the establishment of WTO is designed to promote the expansion of international trade. The primary goal is to provide liberal, secure and predictable access to foreign markets for the goods and service products of exporting enterprises.

The multilateral trading system therefore is the body of international rules by which countries are required to abide in their trade relations with one another.

Against this background the global trade issues that will impact upon the agricultural sector under the 2020 vision are:

- The outcome of negotiations for a New Agreement on Agriculture at the WTO.
- The outcome of the negotiations currently taking place at the FTAA.
- The outcome of the Economic Partnership Agreement (EPA) between ACP countries and the EU. Negotiations are expected to conclude in 2006.
- The Everything But Arms (EBA) initiative between the EU and LDCs for preferential export of all goods into the EU.
- The ACP market for sugar in the EU is also likely to be threatened post 2009, when duties on LDC

sugar into the EU are reduced to zero percent.

- The CARICOM Single Market and Economy (CSME) arrangement that will facilitate the flow of goods and services to and from Trinidad and Tobago.
- The impact of the Trade Agreement signed between CARICOM and other countries.

FOOD AND NUTRITION SECURITY

The 2020 vision platform for capacity building is developed on the basis of a sound and appropriate food strategy. This entails sustained contribution in a coherent way to a food system that guarantees access, throughout the year, and for the entire population (rural and urban) to a sufficient quality and quantity of food. A sound and appropriate food strategy for Trinidad and Tobago must therefore be part of a broader development strategy including agricultural development.

Food security is a broad concept incorporating issues related to production, storage, processing, distribution and consumption of food.

The objective of any food security system therefore, is the untrammelled right to food by the entire population. The food and nutrition security issue in the country was examined within the context of food availability (meeting energy, protein, and fat requirements) at the national level; food accessibility or ability to purchase food at the level of households; and food import dependence.

Food security is the ability to meet food requirements year round for an active healthy life.

Food Dependence

This refers to the degree to which a country is dependent on imports to meet the total consumption needs of the population. It is usually calculated for significant food items on an individual basis. For Trinidad and Tobago there is almost total dependence (75% to 100%) on imports of wheat, soybeans, peas, potato, milk, maize, beans, rice, beef, veal, mutton and goat meat.

A medium dependence (50% to 75%) exists for pulses, sweet potato, coffee, and pork. A low dependence (25% to 50%) exists for copra oil, fish and seafood, fruits and vegetables. There are very low import dependencies (< 25%) for poultry, pork, pineapple, yams, plantain,

cocoa, beans and root crops. However, there are some commodities (principally pork and poultry) that depend heavily on imported inputs for conversion into finished products.

Food Accessibility

This refers to the intake of food at the household level. In 1997, the Caribbean Food and Institute (CFNI) estimated that in respect of a minimum wage earner, 80% of the weekly wage earnings (estimated at ($150.00 per worker per week) was required to meet the cost of basic ingredients for well-balanced diets for the average household.

The Institute concluded that such households were food insecure. Since the inflation rate of food in 2001 was 40.4% greater than the value in 1997, it is evident that many more households would have become food insecure.

Food Availability

This refers to the sufficiency of the food supply at the national level in terms of quantity and quality. The average requirements on a per caput basis per day are 2250 k cal of energy, 43g of protein and 50g of fat (CFNI.) A comparison of these average requirements with data for the year 2000 suggests that there is excess daily consumption of energy (20%), protein (44.2%), and fat (54.8%). Excesses in consumption of energy, protein, and fat predispose the population to chronic nutrition–related diseases.

Food Nutrition Issues

- Cost effective agricultural and food policies in order to achieve security objectives
- National food strategy to achieve:
  - Sustained growth in domestic food production
  - Improved income distribution
  - Satisfactory nutritional status for the population
  - Adequate food security overtime to ensure against poor harvests, national disasters and uncertain world food supplies.
- Disaster preparedness

TECHNOLOGY

Technology, Research and Development

The success of many countries in the world with highly productive, efficient and competitive agriculture sectors can be ascribed, in large measure, on a well-developed, supportive and proactive research programme.

Research and development (R&D) in the context of agriculture is particularly critical in order to find feasible and cost-effective solutions to the rapidly changing situations, problems and challenges of agriculture such as pest and disease, storage of produce, development of higher yielding varieties of crops, and genetically superior livestock. R&D is required for development of more efficient and cost effective types of technology, production systems, best management practices, farming techniques, machinery and equipment for agriculture use. Research and development activities are therefore mandatory to sustain competitiveness and promote the development, expansion and growth of the agriculture sector. In this regard, R&D has two major roles to enhancing the sector's competitiveness:

- Maintenance of current levels of productivity, and
- Long-term sustained improvement in productivity and product attributes.

Technology, Research and Development Issues

- Fragmentation and duplication of research effort by institutions involved in agricultural research.
- Low level of communication and limited co-ordination among different institutions.
- Lack of farmer and private sector involvement in setting of research agenda.
- Inadequate evaluation of research systems and products.
- Inadequate mechanisms for transfer of research result from researcher to farmer as well as for obtaining feedback from farmers and entrepreneurs.
- Absence of a clearly articulated policy on science, technology and R&D.
- Inadequacy of administrative arrangements and systems for programming the research agenda.

KEY RESOURCES

Land and water resources have been identified as being critical in charting a development path for building productive capacity for the agriculture sector. Hence, these resources have been analysed in depth. A critical success factor with respect to the use of these resources is the development of a cadre of scientists and researchers to provide the human capital to drive the sector forward.

The Key Issues of Land

- Rapid conversion of prime agriculture land
- for non- agriculture uses.
- Absence of policy to zone and conserve agricultural land.
- Absence of policy to retain available agricultural lands for agricultural pursuits.
- Fragmentation of agricultural land parcels into 5-acre units.
- Absence of a comprehensive land use physical plan and effective enabling legislation.
- Lack of harmonisation of rental policies among various state land agencies.
- Absence of a system for quick resolution of land disputes.
- Absence of a rational squatter regularisation policy.
- Absence of an institutional framework for management of all lands designated agricultural, including the implementation of a policy to retain agriculture lands and a mechanism for data sharing.
- Insecurity of tenure.

Land

Sustainable competitive agriculture is not possible without productive arable lands. Statistics show that in Trinidad and Tobago approximately 30% of the arable and most productive lands (Classes I, II and most of III) best suited to intensive cropping have been converted irreversibly for non-agricultural uses.

Trinidad and Tobago therefore has limited remaining productive land – predominantly capability Classes IV and V - for productive agriculture (mainly tree and food crops). Intensive cultivation may be possible only under special management practices and with proper irrigation infrastructure, which imposes severe cost burdens on farmers.

As a consequence, the food security situation can be compromised by any further alienation of arable lands. (Classes VI and VII are susceptible to erosion and are

mostly valued for tree cover and watershed/ forest impact). Further details on capability classes and their suitability for food crop agriculture are provided in Appendix 1.

The Major Issues - Water

- Most agricultural lands cannot be successfully farmed because of the absence of irrigated water (only 3,000 of a possible 150,000 HA irrigated)
- Lack of a master plan to guide irrigation development, projects within a framework of priority areas for irrigation development including establishment of water user groups and a system of charges.
- Deficiency in draft policy in terms of adequate provision for agriculture as well as the issue of water quality.
- Need for targeted crop/ livestock research programmes to effectively utilise irrigation water.
- Inattention to the social engineering (soft) aspects and farmer education programmes on water management/ conservation strategies.
- Need for a clear delineation of responsibility for irrigation between various government agencies, appropriate water policy, focussing particularly on price of irrigation water and cost recovery.
- Absence of appropriate legislation
- Inadequacy of curriculum at UWI on water management.

Water

With abundant annual rainfall – 2,200 mm for Trinidad and 1,900 mm for Tobago – a 1998 study estimated the available surface water resources at 3,600 million cubic metres per year for Trinidad and 136 million cubic metres per year for Tobago. In addition, the groundwater safe yield for both islands was estimated at 107 million cubic metres per year.

In spite of this, irrigation or the managed use of water for agriculture in Trinidad and Tobago is not well developed. Large-scale water winning (catchments development) has been limited to four rivers in Trinidad and Tobago: Caroni and Oropouche in the Northern Basin; the Navet in the Central Range; and the Hillsborough in Tobago.

Shortage of rainfall during the dry season and the Petite Careme make irrigation necessary for crop production in some parts of the country. Improvements in drainage and flood control/ relief measures are also needed to enable wet season cultivation in some areas thereby increasing the productive capacity of the land. The Land and Water Development Division (LWDD) estimates that of the 100,000 to 150,000 hectares of land available for irrigation, only approximately 3,000 hectares (less than 2%) are serviced with basic irrigation systems.

The largest irrigation scheme is the Caroni system constructed to serve the surrounding rice fields. This system diverts water from the Caroni River and distributes the water over an area of about 1800 ha. Major crops grown under irrigation are paddy rice, root crops and vegetables. Water for utilitarian purposes and livestock consumption have not traditionally been given active consideration.

It should also be noted that water quality is deteriorating due to rapidly increasing effluent discharge. Moreover, the potential negative impact on exports and local consumption makes this an environmental issue with food safety and food quality implications.

At present four (4) different ministries are directly involved in water resources planning and management and the distinction between their role, functions and jurisdiction is not always clear.

Human Resources

Human resources in the form of skills, knowledge, capabilities and competencies are the human engines in the agricultural transformation and modernisation agenda. Specifically, to remain competitive in the sector, training requirements are essential at all levels to facilitate sector expansion and sustained competitiveness under the 2020 vision.

Most previous efforts at training activities for the sector have had limited results because of their narrow focus, discontinuous nature, insufficiency of funding and misalignment to specific objectives and targets. In this regard, training for the 2020 agenda must be customised on a specific needs basis of each rural community or rural geographic area. Further, the focus will be on chosen strategic areas to include application of technology to increase competitiveness in a dynamic and evolving market place and training needs related to optimal utilisation of natural resource endowment in a particular community.

The customised programmes will also focus on women and youth participation in agriculture in the context of permanent, long-term remunerative opportunities in a technologically driven sector.

The essence of the training programmes is that they will have greater emphasis on production type activities and accordingly structured to allow for maximum shareholder/ community participation and interaction and the development of a new breed of agricultural entrepreneurs.

Traditionally, training activities were undertaken by the public sector with a limited role for the private sector and with low emphasis on entrepreneurship skills development and marketing. Participants in the sector should have ready and immediate access to market information and intelligence to ensure that optimum investment, production and marketing decisions are made at all times.

Accordingly, the provision of opportunities for human resource upgrading will constitute the best medium to long-term investment for sector expansion and sustainability and secondly, farmers with the required knowledge and skills will be better able to respond to the new techniques, technologies, market opportunities and risks.

Suitable and rapid application methodologies for new skills based on technological improvements will be critical for sustained growth productivity and competitiveness.

Human Resource Issues

- Past programmes narrow in focus, under-funded and not productivity targeted.
- Limited role by private sector.
- Not community-based.
- Absence of follow-up measures.
- New model and approaches required to make agriculture sustainable and competitive

Gender Issues

From a historical perspective when policy-makers took account of women in development planning, they focused principally on their reproductive roles. Policy-makers have come to regard family planning as the key to promoting sustainable development because of the notion that population growth slows down economic growth, accelerates resource depletion and further exacerbates environmental degradation through increased pressures on land resources.

The fundamental shortcomings, weaknesses and issues with regard to gender issues in Trinidad and Tobago relate to:

- Absence of specialised policies and programmes to fully integrate women in agricultural and rural development, and by extension national economic development.
- Absence of an appropriate macro policy framework to correct gender inequalities and allow for economic valuation of women's work and their wider role in a developmental context.
- A greater need for micro-economic incentives to support women's' productive capabilities as resourceful entrepreneurs in their own right.
- The need for a database to reduce the invisibility of

women and to provide a meaningful agenda for development planning, education, training and technological changes.

- The urgent need for a gender mainstreaming strategy and targeting.
- The need for structured programmes to promote women's access to land, credit, agricultural techniques, new technologies and extension services and the creation of an appropriate environment for participative decision-making at the community level.

Efforts to promote sustainable development under the 2020 vision therefore require a broadened focus and a shift in the allocation of resources to take into account women's productive role, an important element of which is strengthening women's land rights. Measures are needed to address constraints to women's access to land, to reduce women's poverty, enhance their productivity and build their human capital including better access to credit, agricultural extension, new technologies, more education and quality health care and entrepreneurial opportunities.

Policies to strengthen women's land rights, complemented by policies to improve their access to productive resources and services will enhance women's commitment, incentives and capacity, improve their productivity and allow for a more meaningful contribution to community and rural development and by extensive economic development.

Gender Issues

- Need for specialised policies and programmes to fully integrate women in agricultural and rural development.
- Macro policy framework to allow for economic valuation of women's work.
- Need for policy intervention mechanisms to correct gender inequalities at the micro level.
- Need for programmes and projects to enhance benefits to women.
- Need to address and reformulate approaches:
  - Equal opportunity to land,
  - Property rights,
  - Labour markets,
  - Family law and financial regulations, and
  - Need to legal barriers.
- Microeconomic incentives to support women's productive capabilities.
- Need for gender mainstreaming strategy and targeting.
- Need for affirmative programmes to promote women's access to land, credit, modern agricultural techniques, methods and extension services.

Youth in Agriculture

The fundamental issue is that there is no medium to long-term structured policy framework for meaningful participation and contribution to the sector. The existing programmes are ad hoc, under-funded and not linked to permanent agricultural career opportunities. In the absence of commitment and long-term allocation of resources, youth development facilities and amenities are virtually non-existent. Given the structural and economic impediments that characterise the sector, youths generally find agriculture laborious, unattractive and uneconomic and opt for the urbanisation ride. Further, agricultural jobs and careers are low on the social status ladder.

A medium to long-term agenda for youth

development, involvement and contribution to agriculture under the 2020 vision must be immediately developed given the existing age profile of participants in the sector. Allocation of resources and fiscal support will be required on a continuous basis.

In summary, youth contribution to sector development has been underestimated and accorded low priority.

A more co-ordinated, structured and systematic approach for youth involvement and participation in the wider context of agricultural and national development is now mandatory under the 2020 vision.

Youth in Agriculture Issues

- No structured policy framework for meaningful participation in sector development.
- Existing programme not linked to permanent agricultural employment opportunities.
- Youth find traditional opportunities unattractive.
- Facilities and amenities lacking.
- NGO status of Leader's Council to be regularised.
- Need for concerted effort to effectively and coherently structure all programmes in agriculture geared to youth.
- Minimal fiscal support.
- Tenuous links with international youth programmes.
- Preferential access to resources by youth for role in sector.
- More co-ordinated, structured and systematic approach for youth participation in the wider context of agricultural and national development.

SERVICES

Given the dominance of small farming operations on the agricultural landscape of Trinidad and Tobago, successful performance of the sector depends on an enabling environment comprising a full range of functioning support services including:-

- Extension and training and research and development.
- Credit/ financial services.
- Market intelligence/ market services.
- Utilities.
- Communications network.

In so far as physical infrastructure is concerned, these include access roads, drainage and irrigation infrastructure and facilities and marketing infrastructure, in particular packing houses and storage and export facilities. At the moment, these are not of the required standards to support modern and profitable agricultural ventures.

The provision of quality services on a continuous basis cannot be compromised in the context of sector performance and expansion initiatives. The existing reality is that the level and quality of services are simply too weak to support a productive, competitive and sustainable sector and indeed poor quality services have retarded the performance of the sector over the years.

In this regard, there must be adequate and recurrent investment in support and social services with special emphasis on the specific needs of the agricultural population in different geographic/ rural areas. The range of services to support the sector must be provided by the state.

Services

- Limited effectiveness of extension and training.
- Lack of co-ordination and collaboration with R&D.
- Modern challenges required up to date information generated by science and technology.
- Physical infrastructure weak and poorly maintained.
- Market intelligence/ market services uncoordinated and of limited effectiveness.
- Services in general not of the required standards to support modern and profitable agriculture.

Agricultural Credit

With specific reference to agricultural credit, lending policies and administration continue to be rooted in commercial banking principles and fundamentals. For instance, small farmers still find it difficult to access and obtain credit. One of the principal operational impediments has always been the failure of lending institutions to accept productive on-farm assets as collateral/ security investments for example, flock of sheep, and therefore, the farmer's borrowing capacity is seriously impaired with negative impact on capital investment in the sector.

Agricultural Credit Issues

- Punitive lending criteria
- Timeliness in disbursement of funds
- Low levels of private sector investment
- High cost of capital
- Inability of small resource-poor and tenure insecure farmers to access credit because they lack collateral.
- New approaches and models required.

The current realities and emerging scenario suggests that immediate strategic restructuring of the lending models will be required, with regard to:

- The preponderance of small farmers and small farming activities
- Resource – poor agricultural/ farming households
- The nature of risks on small farm operations.

Strategic restructuring of the lending/ borrowing models and the emergence of new models should incorporate the new dimensions of micro-financing, community-based credit schemes and agricultural insurance.

Micro-credit

Rural farm producers need credit to allow investment in their farms and small businesses and to reduce the vulnerability to weather economic shocks. Given the limited access to formal credit institutions (lack of security) agricultural households follow sub-optimal risk-management.

Credit agencies generally have a dismal track record in reaching the poor; hence innovative lending models are required. Existing commercial interest rates are not supportive of agriculture given the relative levels of risk and profit margins, seasonality, etc.

Micro-credit in recent years has changed the view on agricultural credit. It views the small rural farmer as a business entity and offers collateral-free loans at near market interest rates through community-based programmes.
The implementation of a micro-credit scheme is not a substitute for traditional agricultural credit or traditional banking given its micro-scale of operation. What is important is that it fills the gap in credit delivery that is not addressed by other providers. Micro-credit will therefore overcome market and institutional barriers and still be financially viable.

The overall economic impact can be summarised as follows:

- Income diversification opportunities.
- Increased income from farm production activities.
- Production effects on savings and consumption.

Marketing

In a general sense, very little emphasis has been placed on domestic marketing efforts to stimulate food production efforts and enhance producer's income. The export thrust is fragmented and exporters are basically on their own, fully exposed to the vagaries of the market place.

Limited market intelligence capability, failure to adopt quality standards, inclusive of residues and food safety issues, lack of market intelligence (domestic and export) on demand, supply, price and market performance, have individually and aggregatively, negatively impacted productivity and competitiveness. Quality assurance systems and food safety standards are lacking and must be addressed in the emerging scenario under the 2020 vision for the sector. In order to make the sector more vibrant, robust and competitive, several interventions are required:

- Upgrading of the physical supportive infrastructure for both the domestic and export market segments.
- Expansion and upgrading of packing houses, chill rooms and warehousing.
- Pre-shipment, export facilitation and product certification facilities/ schemes.
- Implementation of systems and grades, overall quality standards product certification procedures and food safety measures including SPS and HACCP.
- Organisation of exporters to enhance export efficiency, export larger volumes, facilitates promotional activities and to take advantage of freight cost and cargo consolidation through economies of scale and effective reductions in marketing transaction costs.
- Promotion and development of export market opportunities to optimise farm linkage effects and producer's income.
- Redefinition of the role of the state in facilitating exports market development.

Marketing Issues

- Marketing linkages to food safety and food security.
- Little emphasis on domestic marketing efforts.
- Concentration on foreign markets.
- Need to develop creative ways to market local products (school nutrition).
- Development of support systems (R&D).
- Reduction of post-harvest losses.
- Marketing policies to stimulate demand for local fruits and vegetables.
- Physical infrastructure.
- Market/ product intelligence.
- Quality standards and residues SPS and HACCP.
- Environmental issues.
- Development of foreign markets.

Input Supply

The input supply sub-sector is highly competitive and is dominated by the private sector. There is an extremely wide variation in the size of operations and commodity mix. They provide a limited range of technical and advisory services on the application and usage of a fairly wide range of agricultural inputs. Overall, the agricultural sector is highly dependent on imported inputs, with extra-regional sources accounting for an extremely high percentage on an annual basis. Of particular concern are the poultry and pork industries, with extraordinarily high levels of dependence on hatching eggs, feed ingredients and animal health care products. Ironically, marginal emphasis has been placed on the indigenous development of crop and livestock genetic material more suited for local climatic and production systems. The commercial manufacture of bagasse-based ruminant feed offer tremendous cost-effective

possibilities as off-the-shelf commercial production technology is now available for example as in Pakistan and the Middle East.

Under the 2020 vision the main focus calls for an enlistment of suppliers to facilitate maximum private sector participation with special emphasis on seeds and planting material generally and superior genetic stock for both ruminant and non-ruminant livestock. Further, the state must deepen its involvement and participation in implementing certification and regulatory mechanisms as well as closer monitoring and scrutiny of pesticides and agro-chemical use in general, in so far as they impact upon food safety standards.

The expansion of training opportunities by agri-input firms and the creation of an appropriate framework for continuous dialogue will be beneficial with regard to the choice and application of safe chemicals in the context of environmentally sound and sustainable technologies and production systems.

Input Supply Issues

- Highly competitive.
- Private sector dominance.
- Extremely high dependence on imports for example, livestock feed requirements and agro-chemicals.
- Little emphasis on indigenous development of inputs example, local feeds for livestock.
- Lack of certification and regulatory mechanisms.
- Monitoring and evaluation of pesticides.
- Framework for training and dialogue.

Plant and Animal Health and Food Safety

Trinidad and Tobago has an essentially open economy, with constant and frequent movement of people, goods and agricultural commodities. Intra-regional and international trade provide the means for high-risk exposure for the spread of pest and diseases and therefore the need to protect animal, plant and human health is critically important.

Plant and Animal Health and Food Safety Issues

- No clear vision, policy or development plant.
- Minimum diagnostic capabilities.
- Limited capacity with respect to traceability.
- Weak and ineffective co-ordination between agencies.
- Inadequate system for regulation and enforcement of food safety regulations.
- Inadequate legal framework.
- Outdated and antiquated legislation.
- Monitoring and control systems need to be addressed.
- Data non-existent for performing measurement indices.
- Food safety issues are fragmented, inadequate facilities.
- Limited HACCP and SPS audit capability.
- No safe storage and disposal of laboratory/ contaminated waste.
- No residue analysis capabilities.
- No regulations and enforcement of food safety regulation of roadside vendors e.g. poultry, fish, oysters, red meats etc.
- No regulation of fresh produce for local consumption in residue analysis.
- Diagnostic capabilities deficient.
- Enabling legislation outdated.

At the national level, there is no clear vision, policy or development plan with regard to agricultural health and food safety issues. Inter-agency collaboration and co-ordination are weak or non-existent and systems for regulation and enforcement of food safety controls are inadequate.

Diagnostic and traceability capabilities are equally weak while supportive legislation is obsolete and meaningless. In other words, Trinidad and Tobago has not kept abreast with new agricultural health and food safety issues over the last decade.

Preventative strategies are a key element of modern food safety systems, including such measures as best agricultural practices, best manufacturing practices and HACCP for the production and processing of food.

In pursuance of the 2020 vision, Trinidad and Tobago needs to modernise its agricultural health and food safety systems with a thorough diagnostic study and needs assessment involving both public and private sector participation. Legislation must be redrafted and updated.

A single regulatory authority for agricultural health and food safety will significantly enhance co-ordination and efficiency. Investments in human capital, laboratory facilities and inspection centres are critical ingredients in the modernisation and upgrading strategy envisaged under the 2020 vision for the agricultural sector.

QUALITY ASSURANCE

Sanitary and Phytosanitary Measures *(SPS)*

In recent years SPS has emerged as one of the main artificial barriers to trade (exports). Essentially, SPS are implemented to protect:

- Human or animal life from food-borne risks, which arise from the use of additives, contaminants, toxins, or disease causing organisms.
- Human health from animal or plant-carried diseases.
- Animals and plants from pests and diseases.

Regulations and procedures impact upon agricultural marketing and trade since they control the physical movement of commodities across borders and boundaries. The fundamental issues with regard to SPS in Trinidad and Tobago are now summarised:

- Production and marketing of food that is safe and of high quality (free of toxic chemicals and residues) that will be acceptable to all consumers in local, regional and international markets.
- Provision of market intelligence to all producers and stakeholders in a timely manner.
- Establishment of appropriate mechanisms to ensure timely dissemination to target groups.
- Educational and promotion programmes to ensure that producers and

stakeholders are fully aware of international health and food safety standards, regulations and requirements.

- Establishment and co-ordination of institutional mechanisms for monitoring, surveillance and to provide technical guidance and support.

Hazard Analysis Critical Control Points (HACCP)

The market driven phenomenon of the international food industry regarding food safety has its roots in the primary production sector from plant and animal breeding principles and throughout the food chain.

HACCP has become a new facet of food safety laws and is internationally recognised and accepted by the WTO. So far, HACCP is not mandatory throughout the agricultural chain but will soon be required to conduct business locally, regionally and internationally.

The major benefits are summarised as follows:

- A management tool providing a more structured approach to the control of identified hazards, than those achievable by traditional inspection and QC procedures.
- Has potential to identify problems where failure has not yet been experienced.
- Finished product analysis becomes part of the verification process.
- Particularly useful for checking potential hazards in new operations.
- Covers all aspects of product safety, from growing the crop, selection of raw materials, raw material storage and haulage, manufacture in the feed mill, finished product storage, transport to farm, etc.
- Provides cost-effective control of hazards.
- Focuses attention on critical areas in the production chain.
- Can lead to reduction of product losses.
- Complementary to ISO 9002.

The Seven HACCP Principles

- Conduct a hazard analysis that is related to all the steps in the process.
- Determine the critical control points (CCPs) required to prevent and control the identified hazards.
- Establish critical limits, which must be met at each identified CCP.
- Establish procedures to monitor critical limits (what, why, how, where, who and when must be answered).
- Establish corrective action to be taken when monitoring indicates that there is a deviation from an established critical control point.
- Establish effective record-keeping system that documents the HACCP plan.
- 7. Establish procedures for verification that the HACCP system is working.

AGRICULTURAL MECHANISATION

Agricultural mechanisation has significantly increased resource use efficiency and farm productivity. The proper identification, evaluation and selection of mechanical applications, systems and processes will have a direct and positive impact on farm productivity and profitability, market competitiveness, the environment as well as the quality of life for participants in the sector.

Experience has shown that the inadequacy of farm power and undercapitalisation (in mechanisation) can negatively impact on farm productivity, agricultural sustainability and market competitiveness.

The 2020 agricultural agenda envisions mechanisation of the agricultural sector through wider and accelerated application of science and technology, inclusive of higher levels of adoption of farm mechanisation systems and processes.

In this regard, the vision for agricultural mechanisation within the 2020 framework is the increased application of farm mechanisation technology to enhance productivity, profitability, cost-effectiveness and competitiveness, and to

effectively reward all stakeholders in the sector.

In the context of the vision outlined, a critical issue is the absence of a clear, focused and purposeful agricultural mechanisation policy to complement other strategic initiatives for sustainable sector development in the years ahead.

Accordingly, short and medium term interventions have been identified and are now summarised:

- Demonstration and exhibition of new and appropriate technologies throughout the sector.
- Selection, training and evaluation of farmers in machinery and equipment maintenance and safety issues.
- Identification and evaluation of appropriate cost-effective technology and recommendations for adoption and transfer.
- Training and assistance in the choice of implements/ machinery in accordance with international standards.
- Modification and adoption of implements/ machinery best suited to local farm conditions and production systems.
- Appropriate fiscal incentives.

Agricultural Mechanisation Issues

- Absence of clear and purposeful agricultural mechanisation policy.
- Inadequacy of farm power to increase agricultural productivity.
- Need for demonstration and exhibition of new and appropriate technologies.
- Absence of machinery and equipment, machinery and safety issues.
- Identification and adoption of cost-effective technology needed.
- More emphasis on small and medium sized farm mechanisation application.
- Absence of appropriate facilities for testing, modification and adoption.
- No evaluative mechanism for productivity impact and cost effectiveness.

PRAEDIAL LARCENY

Notwithstanding the establishment of the Praedial Larceny Prevention Act and the accompanying formation of a specialised praedial larceny squad in the late1990s, a high incidence of praedial larceny prevails throughout the agricultural sector. The bottom line is that the existing systems and approaches are grossly inadequate and frustratingly ineffective.

The current scenario with regard to the inadequacies and ineffectiveness manifest themselves at the farm level in the following negative ways: -

- Direct loss of physical output and consequently, farmout income.
- Disincentive to re-invest in existing operations.
- Disincentive to invest in new farming operations.
- Abandonment of farms and farming enterprises.

New approaches and systems are therefore mandatory not only to effectively reduce the existing high incidence of praedial larceny, but also to eliminate all acts of praedial larceny thereby creating the appropriate stimulus to safeguard existing and new investments in agricultural enterprises. The State must take the leadership initiative in this regard as well as allowing for maximum stakeholder participation in the development of well-focused, cost-effective and meaningful strategic programme initiatives. Community based approaches will also have to be developed.

Praedial Larceny Issues

- Low rates of detection and prosecution.
- Escalating incidence act as a disincentive to existing producers.
- Disincentive to new investors and banks.
- High incidence with fruits and livestock.
- Abandonment of farms.
- Monitoring, surveillance and legislation needs strengthening.
- Redefined role for state and all stakeholders.

AGRO INDUSTRY

The principal issues with regard to agro-industry relate to weak linkages, lack of competitiveness of the local farm sector in terms of price, supply unreliability throughout the year and limited research and development in terms of innovation and product development. Further, there is a high concentration of resources on condiments and spices and the exclusion of other products. In terms of the sub-sector's structural characteristics, there are few large processors and a growing number of cottage type entrepreneurs. Food safety and quality assurance programmes are needed in the agro-industrial sub-sector.

From a strategic standpoint, the agro-industrial sub-sector is important to the domestic farm economy because it is more difficult to sustain competitiveness in the case of primary production (raw materials). Linkages with the primary production sector must be strengthened through new business models as well as accelerating the rate of technology adoption given the dynamics of the emerging trade environment.

Agro Industry Issues

- Absence of clear-cut, well-defined strategy and policy.
- Ineffective support systems.
- Weak linkages with domestic farm sector.
- High import content for raw materials.
- Concentration of resources on spices and condiments.
- Low rate of technology adaptation.
- Strengthening of food safety, quality assurance programmes and regulatory environment.

LEGAL ISSUES

There are numerous pieces of legislation affecting business conduct and performance in the agricultural sector for instance, land laws. They are in the main fragmented, obsolete and no longer relevant in the context of current realities in the sector.

Legal Issues

- Too many bits and pieces of legislation.
- Obsolete and fragmented.
- Review and updating of legislation to support ownership and management of agricultural enterprises.

While recognising the importance of an appropriate legal framework and supporting legislation in the ownership, management and success of agricultural enterprises, updating and consolidation of the existing laws and supporting legislation are immediately require.

INTERNATIONAL AGREEMENTS

Trinidad and Tobago is a signatory to a number of international agreements affecting developments in the sector for example,

commodity prices, trade agreements etc. In addition, the country has membership in a selected number of international fora where issues are discussed and decisions made.

While some of these are of limited usefulness and costly to maintain, participation in a general sense is important, particularly from the standpoint of accessing technology and influencing global trade and food policy decisions. One of the fundamental shortcomings is the lack of awareness on the functions and benefits by the farming population, and indeed, the general population at large.

A full rationalisation of these agreements and membership arrangements is now required, with particular emphasis on costs and benefits. Information should be widely disseminated to all stakeholders with the establishment of an appropriate website. The revised framework should allow for effective participation and representation of key shareholders.

INTERNATIONAL AGREEMENTS

- UN Convention on Biological Diversity
- UN Framework Convention on Climate Changes.
- Ramsar Convention on Wetlands of International Importance.
- Convention on International Trade in Endangered Species on Wild Flora and Fauna.
- UN Convention to Combat Diversification.
- Cartegena Convention for the protection and development of the Marine Environment.
- Kyoto Protocol.
- Basel Convention: UN Convention to Control Trans-boundary Movement of Hazardous Wastes and their Disposal.

FISHERIES

Marine Fisheries

Marine fisheries development has always been accorded low priority even though fish and fish products generally have been known to positively impact on nutritional status. The absence of a fisheries sub-sector master plan to chart a developmental agenda for the sector remains a prime requisite in 2004. Indeed, outdated legislation, inadequacy of marketing systems, inability to enforce provisions with respect to over exploitation, the poor state and lack of facilities at landing sites and lack of production data and market intelligence are all characteristics of the sector in 2004.

A comprehensive master plan is required to address the multiplicity of issues described above and to chart a phased development and transformational agenda over the next 10-15 years.

Marine Fisheries Issues

- No master plan for development.
- Inadequate resources to ensure compliance.
- Inadequacy of marketing system.
- Outdated legislation.
- Inability to enforce provisions with respect to over exploitation of coastal resources.
- High cost and inadequacy of funds to upgrade landing sites.
- Lack of systems to generate market intelligence data.

Aquaculture

Similar to marine fisheries, the aquaculture sub-sector remains dormant with regard to its developmental potential. While over the years some pilot and commercial development work have been undertaken, the sector's tremendous potential remains largely untapped because of the absence of a master plan for development. In addition, while export markets continue to expand for selected species, limited programmes are available for training, skills development and commercial production research-oriented initiatives.

The development of an appropriate data base and market intelligence facility, together with a meaningful and systematic framework for identification of water availability and quality, cost and management issues and specific species production protocol will be required to exploit the tremendous potential under semi-intensive and fully intensive production systems.

Aquaculture Issues

- Absence of master plan for development
- Limited programmes for research and development.
- Absence of strategies for identification and access to export markets.
- Inadequacy of resources for sub-sector development.
- Upgrading skills and new training in specific species production.
- No procedures for systematic identification of suitable land.
- Need for upgrading and modification of marketing infrastructure.

STAKEHOLDER INSTITUTIONS

Under the 2020 vision the fundamental role of stakeholder institutions is to empower stakeholders and to allow for greater participation in sector-related decision making at all levels. In Trinidad and Tobago, the sector has a large number of producers and agri-business entrepreneurs, and stakeholder institutions, appropriately established and configured could constitute an important developmental strategy in pursuance of the 2020 agenda for agriculture.

The emerging issues therefore relate to the harnessing of the productive capacity of a large number of small producers to create leverage and scale economies with regard to promoting production and developing market opportunities. This approach also allows for a greater participative role in policy formulation and accessing national and international support.

Stakeholders' institutions in a general sense continue to have limited impact and therefore, the development of strong institutions is indeed a critical development strategy.

Likewise, the need for rejuvenated and modern institutions, technical support and fiscal incentives constitute elements of the strategy in this regard. Immediate benefits can be expected in the case of export development (agro-industry and fisheries).

In summary, there is the need to develop more relevant business models for stakeholders' participation and government support will be required. Indeed, the Caribbean Poultry Association is a classic success story in the areas of technology adoption and market development.

Stakeholder Institutions Issues

- No mechanism for harnessing the productive capacity of small producers.
- Existing institutions too narrow in development focus.
- Weak inter-institutional co-ordination
- Low priority to small farmers in broad-based strategy development.
- Must create appropriate environment for greater participation in sector-related decision-making.
- Development of more relevant business models.

POLICY FORMULATION

Domestic Policy – Macro And Sectoral Issues

In a historical sense, past policy formulation approaches have been too narrowly focused and policies evolved as various interest groups imposed implicit or explicit pressure on the political system to afford support for preferred access to productive resources or special incentives for selected commodities. Such an approach triggered responses that resulted in an unsystematic assortment of ad hoc policies, negatively impacting upon the sector. There was no formal specification of the objectives and no systematic selection of the objectives, targets and strategies to comprise a development strategy with meaning or purpose. Further, there was no monitoring or evaluation of the performance and in most instances; no reliable data existed to permit the required evaluation. Indeed, evaluation and accountability were not required.

The net result from past approaches at agricultural

policy formulation was an ambiguous agricultural policy with unclear objectives involving instruments that were operated with inadequate rigour and purpose, superimposed upon an institutional environment that lacked the basic fundamentals, cohesion and dynamism to stimulate the transformation and modernisation of the sector. Indeed, capacity building, modernisation, competitiveness and sustainability require a fundamentally different approach to platform a new development, growth and modernisation agenda in fulfilling a 2020 vision for the sector.

Sector performance analysis supports the inevitable conclusion that policy and institutional reforms need to be revisited and strengthened in the context of the emerging challenges. An appropriate enabling productive environment must be created to feed a growing population with a wider range of more nutritious foods from domestic sources through new approaches with regard to resource utilisation; physical and institutional support requirements, technology and R&D, and the creation of new business models to make agriculture attractive and profitable.

The macro-policy framework for the post 1988 period was relevant, conducive and facilitative to sector development.

The problems that emerged related to sector-specific policies are summarised as follows: -

- Too frequent changes in agricultural policy direction based on changes in successive political administration.
- Weak implementation mechanisms particularly in terms of inadequate funding and ineffective management of implementation.
- Limited stakeholder participation in policy formulation.

Overall, the policies have not strengthened the inter-sectoral linkages with concurrent negative impact on the aggregate performance of the sector. The 2020 Agenda calls for a fundamental and radical realignment of sector-specific policies consistent with the developmental objectives outlined earlier.

Domestic Policy Issues

- Inadequate consideration of agricultural policies in macro-policy formulation.
- Weak implementation capacity.
- Inadequate funding.
- Ineffective management of implementation.
- Limited stakeholder participation.
- Too frequent changes in policy direction.

Trade Policy And Liberalisation Issues

Within the last decade, trade liberalisation and economic deregulation in general have expanded market opportunities. Trade reform in particular has generally emerged as a centrepiece in the formulation of new agricultural development strategies, and is indeed a key factor to influence future developmental agenda.

The net effect of the changes has been a creation of a drastically different set of relative prices for agricultural commodities in general. These new conditions will benefit export agriculture (processed products) the most on the basis of quality and sustained competitiveness, as they are better able to exploit export market opportunities. Simultaneously, previously protected domestic markets are likely to be negatively affected from increasing exposure to external competition unless appropriate adjustments are made with regard to production structure, enterprise mix, technology adoption to benefit from scale economies and lowered production costs.

In summary, WTO and the liberalisation of global trade can be expected to impact upon future land use and production patterns. The emerging regional economic integration (CSME) and trade agreement (FTTA) will also impact on land use, agricultural production system and sector performance in general.

Notwithstanding these emerging developments, the sector can become competitive and sustainable once timely corrective action; policy and support requirements are provided in an enabling environment.

The trade and macro-economic policies that characterised the industrialisation growth strategy of the 1970s, 1980s and 1990s, severely

discriminated against the agricultural sector, so much so that the performance of the sector in Trinidad and Tobago had been determined by policies with economy-wide impact, like trade and macroeconomic policies, rather than sector-specific food and agricultural policies. These policies depressed the sector considerably, by reducing the incomes and living standards of participants in the sector, the levels of investment in the sector, its productivity and overall rate of growth. By impoverishing agriculture, these policies encouraged rural-urban migration led to the abandonment of farms in rural areas.

Regional trade agreements since the 1970s never fulfilled their exciting promises. Problems of policy co-ordination, exchange regulatory control, import substitution policies, the limited number of commodities and ultimately, small market sizes prevented the realisation of benefits from specialisation and economies of scale.

The WTO of 1995 witnessed the inclusion of agriculture in the agreement. The most significant influence on the agricultural sector is now coming from the International Trade Policy Agreement, in particular, the removal of obstacles to trade including non-trade barriers, lowering of tariffs and removal of subsidies. It follows therefore that the future of agriculture depends on its ability to attain levels of sustained competitiveness both in the domestic and export market place.

In this scenario, many countries have already employed the SPS and food safety concerns as the major import barriers to access their markets. The 2020 vision therefore recognises that the future of agriculture and the agro-industry will be dominated by global trade policies.

From the standpoint of Trinidad and Tobago, clearly the emerging imperatives are:

- Meaningful and maximum participation in regional and international trade fora.
- The use of the provisions of the existing agreement to optimise the position of agriculture on the global scene.

With specific reference to policy issues, as a country, sufficient attention has not be paid to global trade policy in four fundamental and critical areas: -

- Training and exposure of policy formulation.
- Participation of stakeholders in the process, particularly empowering the stakeholders groups which results in limited participatory activities.
- Low priority and insufficiency of attention on SPS and food safety issues as export trade impediments.
- Limited research to guide and inform strategic decisions in global trade discussions.

Appropriate strategic interventions are required in this regard.

Trade Issues

- Market liberalisation will create higher levels of competition for all producers.
- Creation of opportunities for access to foreign markets.
- Special problems for small developing economies.
- SPS and HACCP for food safety and quality.
- Use of trade provisions of existing agreements to maximise opportunities on the global scene.
- Limited research to guide and inform strategic decisions in global trade discussions.
- Low levels of stakeholder participation.

ENVIRONMENTAL MANAGEMENT

The environmental management issue in the 2020 vision is of paramount importance given its inextricable link to the sustainability issue.

The natural resource base for capacity building is critical for agricultural development, and in many cases is threatened by population growth, unemployment and squatting, water pollution, toxic wastes, species extinction, fisheries depletion, deforestation and 'slash and burn' practices. The net effect is compounded by indiscriminate land and water use leading to further degradation and destruction of natural resources.

Effective policy interventions are required to influence environment-related behaviour of temporary small-scale resource-using persons across the national economic landscape.

New approaches are needed to address:

- Increase inter-agency co-operation
- Overlapping jurisdiction
- Determination of vested interests

Alternatives to current behaviour must be technically feasible and reasonably inexpensive.

Environmental Management Issues

- Absence of population awareness programmes.
- Unstructured and uncoordinated relationships in inter-agency co-operation.
- Overlapping jurisdiction.
- No specific programmes for the agricultural sector.
- Indiscriminate land and water use.
- High levels of deforestation, degradation and destruction of natural resources.

Waste Disposal And Management

Sustainable agricultural production system must be maintained and optimised, in the context of food production expansion and food security issue under the 2020 vision for agriculture. It follows therefore, that cost effective waste management and disposal systems must be developed, implemented and monitored to eliminate negative environmental impact. Moreover, the use of certain animal by-products in animal feed can spread disease (BSE) or chemical contamination.

The fundamental issues are identified as follows:

- The absence of a national waste management, utilisation and disposal programme (agro-industry, livestock and poultry in particular).
- A major issue is the high incidence of water pollution, reducing the irrigation potential for dry season agriculture.
- Indiscriminate dumping at any place, any time (crop residues and poultry) and the creation of disease bearing potential to the national community.
- Lack of relevant expertise in waste disposal management systems.
- Absence of meaningful population awareness education programmes.

With specific regard to responsibility, the institutions involved (EMA, SWMCOL, Regional Corporations, Ministry of Health) are not appropriately equipped in terms of human resources, capital and equipment to make a positive impact at the farm or national level. Indeed, there are no systems in place in rural areas where agricultural activities are concentrated. Quite apart, lack of co-ordination between institutions is a major shortcoming.

Under the 2020 agenda the entire issue of agricultural waste disposal and management must be priority. Investments are needed in human and technological capital and the specific roles and responsibilities of state agencies must be defined and articulated to ensure compliance, surveillance and effective monitoring. Simultaneously, population education awareness programmes, incentives and related programmes will have to be developed and monitored. Further, there is also the need for the full traceability of animal feed ingredients as one of the key principles to guarantee a high level of food safety.

Waste Disposal and Management Issues

- Absence of national waste management programme.
- Lack of expertise in waste disposal system.
- Dispersed responsibility and authority.
- Absence of appropriate incentives.
- No database to identify sources of agricultural waste production.
- Absence of mechanisms for the assessment of disease bearing potential of waste.
- High incidence of water pollution.
- Absence of meaningful population awareness education programmes.
- Low level of priority in national development.

SPECIAL CASE OF AGRICULTURE IN TOBAGO

Prior to the 1970s, agricultural activities dominated the landscape in Tobago. Over the last two decades, agricultural growth and productivity have been virtually dormant. While statistics are unavailable, current production activities are in the areas of food crop and vegetables, small ruminant and poultry production, fishing and fish processing, and cottage based agro-processing.

The structural and policy dilemma now calls for a revisit of the vision for agricultural development on Tobago against the background of the following production and productivity constraints:

- Low levels of productivity of existing production systems.
- Deficiencies in the existing land tenure systems.
- Low levels of technology utilisation and the insufficiency of irrigation water for dry season production activities.
- Agricultural labour shortages and part-time farming due to low productivity and incomes.
- Praedial larceny and high input costs
- Absence of commercial agro-processing linkages.

While the land capability characteristics cannot support modern, commercial and mechanised production systems, expansion and developmental possibilities exist in the areas of small stock production, root crops, vegetables and herbs, organic farming, fishing and horticulture.

With regard to the new developmental paradigm for Tobago's agricultural sector in the 2020 vision, the master plan and new vision must focus on issues related to soil conservation, irrigation potential, land tenure and land distribution issues, quality of extension services and training and functional institutional support.

Additionally, the new vision must address the areas of linkages, ecotourism, farmers' organisations and producer groups, special incentives and institutional markets. There needs to be a fundamental change in the approach to agriculture and a new business approach and business model are the requisite imperatives. Abandoned and idle government agricultural

estates have remained dormant and unproductive for too long and reactivation and rehabilitation now constitute areas for priority action.

In summary, increased productivity and transformation of the agricultural sector in Tobago will require intensification of production systems and optimal resource use, increased use of knowledge-intensive and environmentally-friendly technologies including improved management techniques, improved production and institutional infrastructure, continuous involvement in research and development and a policy framework supportive of the new transformation paradigm. The status of the agricultural producer has to be elevated and dignified with special emphasis and incentives for the active participation of youth and women in the agricultural development process. Facilities and support services are also required to create the needed capacity in the fishing industry.

Agriculture in Tobago Issues

- Deficiencies in land tenure systems
- Low levels of technology utilisation
- Inadequacy of marketing systems, credit, extension services and production related infrastructure.
- Weak linkages between producers, marketers and processors.
- Cost inputs, high levels of pests and diseases and low farm productivity.
- Labour shortages, part-time farming and high levels of praedial larceny.
- Land capability characteristics cannot support commercial, modern, mechanised production systems.
- No commercial agro-processing.
- No meaningful database and market intelligence.

AGRICULTURAL RISKS

Developments in the agricultural sector over the last 10 - 15 years have left a backlog of unresolved problems, challenges, risks and uncertainties. The sector has not achieved the expected level of growth and dynamism. Apart from a wide range of operational

implements and sector-specific shortcomings, a high degree of risk and uncertainty continue to afflict the sector. Traditionally, domestic agricultural producers (and the entire farm sector) have limited access to mechanisms to deal with production and marketing risks and uncertainties.

In addition to the vagaries of the market place, heavy rains, drought, flood, pests and diseases, praedial larceny and poor crops cause severe income losses to producers, particularly in the small farm sector. Ad hoc payments and other stopgap measures do not constitute the bases for rational decision making to sustain modern profitable enterprises and to attract new investment.

The net effect can be summarised as follows:

- Direct income loss to farmers.
- Lack of interest and no capital to reinvest.
- Periodic shortages and high prices for some foods, in particular vegetables.
- Development of part-time farming.
- Inefficient resource use at the farm level.

The absence of appropriate mechanisms to deal with sector-specific risks on a systematic basis continue to be the fundamental issue as far as agricultural risk is concerned.

In this respect, an effective mechanism for risk management in agriculture needs to be developed and implemented. The specific approach will involve the development of programmes for insuring farmers against multiple risks through an appropriately administered agricultural insurance programme

Agricultural Risks Issues

- High levels of production, marketing and price risks.
- Limited mechanisms to deal with multiple risks.
- High-income losses at farm level.
- Disincentives for existing and potential farmers.
- Absence of appropriate mechanisms to deal with sector-specific risks on a systematic basis.
- Effective mechanism needed for risk management in the sector.

RURAL DEVELOPMENT

One of the major issues in the 2020 vision relates to the challenge of sustained rural development. Agriculture in Trinidad and Tobago is essentially a rural-based activity, which provides a livelihood for a large percentage of rural households, particularly farmers and agricultural labourers. Agricultural development and transformation cannot be fully optimised in rural communities without a fully functional range of physical and social amenities to enhance the quality of life and facilitate modern, productive and profitable agriculture.

Within the rural sector, there is the growing technological productivity and income gap between modern and traditional production systems. Rural development therefore requires a holistic type of developmental paradigm which is rural farmer-centred involving building rural people and communities, providing for a better quality of life and sustainable living, providing the appropriate safety nets and community support and participation. Provision of appropriate social and physical amenities inclusive of, but not limited to, recreational facilities, health facilities, continuous learning space and greater access to productive resources are the key issues.

Under the 2020 vision, specific intervention mechanisms will be required to:

- Elevate the quality of life, consciousness and economic status of the rural agricultural population.
- Foster the organisation of communities into units of sufficient scale that will be of interest to commercial service providers.
- Build institutions and partnerships among different levels of government, the private sector and the rural sector.
- Building a solid foundation for effective organisations and an enabling environment.

Rural Development Issues

- Inadequate attention and resources to physical and social amenities in rural agricultural areas.
- Weakening of agriculture as the dominant rural activity.
- Migration and part-time farming.
- Abandonment of farms.
- Environmental degradation and decay.
- Lacking social, cultural and traditional norms and values.

FARMER'S CO-OPERATIVES

The overall experience with the development, management and operations of farmer's co-operatives in Trinidad and Tobago, has been one of limited success in terms of overall performance and contribution to agricultural development. The reasons relate to scepticism, mistrust, self-centred decision-making and unfulfilled promises by various state agencies.

Farmer's Co-operatives Issues

- Limited success.
- Scepticism and mistrust with common interests.
- Poor quality organisational and management models.
- Lack of information to make optimal decisions.
- High levels of individual and family interests.
- No co-ordination with national policies for agricultural development.

Given the dominance of individual small farmers operating in an uncertain production and marketing environment, a new business model is required to harness the potential of the entire farming community to create new challenges and opportunities as the sector platforms itself in pursuance of the 2020 vision.

The overriding issue in the new approach will be now to link small farmers to the institutions and resources of the state and give farmers the opportunity to manage their own development initiatives.

CARONI (1975) LIMITED

The organisational entity known as Caroni (1975) Limited was de-established in June 2003.

A new sugar manufacturing company Sugar Manufacturing Company Limited was formed with the following mandate:

- Annual production of up to 80,000 tonnes of sugar.
- Operation of a sugar milling and refinery operation at Usine, and
- Purchase the total cane requirement from the private cane farm sector.

The closure of Caroni (1975) Limited effectively reduced the quantum of sugar cane grown in Trinidad and Tobago on approximately 25,000 acres of land. The former Caroni (1975) Limited itself owned and managed 77,000 acres of land, with roughly 10,000 acres under food crop and livestock enterprises in the 1990s, including the largest mechanised rice farm (2,000 acres) at Caroni.

Caroni (1975) Limited Issues

- Productivity in non-sugar agriculture requires drainage and irrigation.
- Large percentage of land flat with good infrastructure and utilities.
- Some areas suitable for housing.
- Rationalisation of land use.
- Heavy clays will require special management practices.
- Continuous areas of arable land.
- Integration of resources into natural development strategy for agriculture.

The fundamental issue emerging out of the closure of Caroni (1975) Limited is how to integrate the resources in a national development strategy for agriculture. While there is a wide variation in soil type and land capability characteristics, which can support a fairly wide range of diversified agricultural activities, the predominant soil type is heavy clay. The lands owned by Caroni (1975) Limited comprise continuous acreages of arable land with developed infrastructure and utilities.

Productivity in non-sugar agriculture will require investments in drainage and irrigation even though in some areas the land capability characteristics will allow for orchard crops and pastures. In this regard, environmental, soil and enterprise management are key issues to be addressed. At the present time most of the lands are idle, underutilised, abandoned or being squatted upon. A national land use rationalisation plan and policy will be required to determine allocation efficiency and utilisation.

ROLE OF GOVERNMENT AND THE PRIVATE SECTOR

There are a number of views on the role of government (or state) in supporting agricultural growth, development and transformation. One view is that there is the need for selective interventions in the market place, in creating an enabling environment, in providing productive resources and the appropriate policy and regulatory environment. It is equally well recognised that not every problem requires government action, but on the other hand,

well designed and implementable government policies and actions can improve aggregate sector performance and quality of life where there are sector-related structural rigidities and market imperfections. Another view is that government is unnecessary, ineffective and complicates simplicity and to the extent it does anything, the impact is counterproductive. By and large, the state is good at promises, but weak in terms of implementation and delivery. The view is that, in the agricultural sector in particular, anything the government can do, the private sector can do better, and rather than improve resource allocation efficiency, it makes matters worse.

The fundamental issue therefore is that in the context of the 2020 vision, would the sector be better off with government's intervention, or would selective interventions be required?

Accordingly, the following roles are identified for government under the 2020 vision for agriculture:

- To promote educational opportunities in a universal sense to build human capital as a necessary part of the agricultural transformation process.
- To promote science and technology to drive the sector in terms of agricultural intensification, technology adoption, productivity growth and sustained competitiveness.
- To foster the development of a modern and appropriate enabling environment with investments in institutions, services, infrastructure, communication and amenities. Trade policies, property rights, land laws, praedial larcenies etc. are all requirements in this regard.
- Specific interventions to ensure sustainability and prevent environmental degradation.
- To create and maintain a social safety net including access to health services.
- To implement specific programmes to ensure sustained rural transformation through community participation.
- To establish quality assurance systems and satisfaction for goods and services presented to the sector provided by the private sector for example.

In joint collaborative efforts, the public and private sectors will be required to make

investments in new areas such as biotechnology, genetic engineering, precision farming, organic farming etc. so that the farm sector will receive the required quantum leap. Both sectors must develop the required synergistic relationship to develop and promote "win-win" production technologies that increase productivity while maintaining and improving natural resources. Jointly, both sectors must work to improve productive infrastructure, including drainage and irrigation, roads, telecommunications, financial services and a supply channel for inputs with particular focus on rural farming communities.

Government must promote and where necessary, regulate the private sector so that private firms and individual entrepreneurs can take a lead role in developing a dynamic food and agricultural sector. Further, collaborative efforts are needed to ensure high quality human resources are available to support agro-industrial development. They must ensure that the conditions exist to promote the development of a dynamic class of 21st century agricultural entrepreneurs willing to invest in all aspects of the food and agriculture systems, including services, agri-business and agro-industries.

To gain the confidence of the private sector, government will have to ensure that macro economic stability as well as continuity and complementarities exist in macro economic and sectoral policies.

In summary, while recognising that the private sector has profit-related rather than social motives, the state should promote private investment in production, distribution, and processing sectors, allow for a more meaningful role in creating the enabling environment and eliminate the legal and administrative obstacles to private entrepreneurship in agricultural and rural development in pursuance of the 2020 vision

CAPACITY BUILDING AND DRIVERS

Capacity building for the sector required fundamental radical changes and interventions to create a new generation of physical and institutional infrastructure, farmers, technicians and professionals under the 2020 vision for agriculture. The inappropriateness and irrelevance of traditional approaches stem from two major concerns:

- The capacity of the agricultural research system to generate relevant technology to provide the needed productivity and income to the farm sector and
- The capacity to promote productive, competitive and environmentally sustainable agricultural production systems through integrated rural development.

In this regard, and under the 2020 vision for agriculture, drivers for capacity building have been identified with their respective implementation strategies, courses of action, time frame and executing agency. Developing indigenous capacity is the best insurance for growth under the 2020 vision and emphasis over the next three years will be placed on:

- Capacity building in policy, planning and analysis.
- Scientific and technological applications.
- Efficient trade and marketing system.
- Developing human capital, infrastructure and institutions.
- Community and producer-based organisations.
- Management of the environment.

Successful implementation of the key components of the reform and transformation agenda requires specific indigenous capacity to ensure that planned activities are satisfactorily undertaken and completed.

In summary, the principal areas of capacity building under the 2020 vision are:

- Capacity building in policy, planning and analysis to establish a framework and enabling structure from which policy planners and analysts can develop and analyse desirable policies. The policy framework should address existing public research and extension institutions.
- Capacity building for the technology component of the sector, which will involve investments in key competencies and

capabilities and enhancing the local stock of scientific talents.

- Capacity building in farmers (and farmer institutions) to enhance their overall ability to sustain productivity and competitiveness.
- Capacity building in physical and social infrastructure, agri-business development and domestic and export factor and product markets.
- Capacity building in marketing infrastructure to support and access market intelligence, to foster efficiency in the marketing and distribution channels and to reduce marketing transaction costs.
- Building capacity in the governance of agricultural institutions and agencies to enhance the calibre and level of interest/ commitment in building productive communities in the rural transformation process.
- The social infrastructure component, which will impact positively on the welfare of resource-poor agricultural households and the overall importance of human capital in capacity building, cannot be underestimated

DRIVERS FOR A 2020 AGRICULTURE: STRATEGIES, ACTION AND IMPLEMENTATION LOGISTICS

Drivers	Strategies	Action	Time Frame	Critical Success Factors	Executing Agency
1. Research, Technology Development and Extension (RTDE)	▪ To strengthen present RTDE capability.	- Establish autonomous institution for agricultural RTDE. - Identify and fill competency gaps. - Strengthen and maintain existing and fill competencies.	2004-2006 2004-2009 2004-2020	(i) Expeditions resolution of HR issues relating to terms and conditions of employment for RTDE staff. (ii) Strategic plan for RTDE.	Tripartite Committee comprising: MALMR, Private sector, Research Institutions, THA.
	▪ To establish priorities for RTDE based on commodity priorities.	- Establish a National, RTDE Council.	2004-2006	Articulation of long-term developmental priorities for T&T	Same as in (i) above.
	▪ To create linkages and partnerships among institutions and stakeholders in the sector.	- Establish an Advisory Committee of stakeholders to facilitate co-ordination, collaboration and effective participation.	2004-2006	Same as above.	Agricultural Society (T&T), THA.

Drivers	Strategies	Action	Time Frame	Critical Success Factors	Executing Agency
	▪ To encourage private sector investment in RTDE.	- Design and implement fiscal incentive packages. - Establish a competitive grant for research and development. - Establish a framework for private providers of Extension Services. - Establish Communications Network	2004-2006 2004-2006 2004-2006	Existence of an efficient science and technology database.	Min. of Finance, Min. of Agric. MALMR Advisory Committee, CARDI, THA
2. Drainage, Irrigation and Water Management	▪ To Improve coordina-tion among agencies responsible for water resources.	- Establish inter-ministerial/inter-agency committee to coordinate all efforts. - Review legislative and regulatory framework for water winning/ Conservation/ utilisation.	2004-2006 2004-2006	Willingness of agencies to collaborate.	Technical Committee comprising MALMR, UWI Min. of Works, THA, Min. of Public Utilities & Environment, Stakeholders.

Drivers	Strategies	Action	Time Frame	Critical Success Factors	Executing Agency
	▪ To systematic-cally develop and maintain drainage, irrigation and water management infrastructure in T&T.	- Develop a master plan for drainage, irrigation and water management. - Implement Master Plan as above. - Maintain drainage, irrigation and water management infrastructure.	2004-2006 2004-2009 2010-2020	Technical and financial resources.	Technical Committee as above.
	▪ To promote efficient water allocation and water use in agriculture.	- Develop a water policy for irrigation including allocation policy, user charges and management systems. - Conduct research on irrigation technology and optimal irrigation practices.	2004-2006 2004-2020	Stakeholder consultation/ participation. Cadre of scientists with expertise in drainage and irrigation.	Same as above. National RTDE Institute, MALMR, CARDI. UWI

Drivers	Strategies	Action	Time Frame	Critical Success Factors	Executing Agency
	▪ To minimise water quality degradation.	- Conduct research on best agricultural practices (BAP) to avoid pollution/ degradation. - Undertake training in the adoption of BAP. - Enforce water pollution regulations.	2004-2020 2004-2020 2004-2020	Cadre of scientists with expertise in BAP. Support of law enforcement agency.	NRTDE Institute, UWI, CARDI. MALMR EMA
	▪ To encourage private sector investment in water conservation/storage infrastructure.	- Design and implement fiscal incentive packages for water conservation/storage infrastructure. 2.5.2 Review existing legislation.	2004-2009 2004-2006	Stakeholders consultation	MALMR, Min. of Fin., THA MALMR, THA, Legal Affairs

Drivers	Strategies	Action	Time Frame	Critical Success Factors	Executing Agency
	▪ To improve the effectiveness of water management for agriculture (flood protection, drainage and irrigation).	- Develop and implement a master plan for flood protection and water conservation throughout T&T.	2004-2006	Design and implement appropriate policies, regulations and incentives	MALMR, THA, Forestry, Min. of Works, Min. of Public Utilities & Environment
3. Land Resources	▪ To improve the efficiency in land administration.	- Establish autonomous land administration authority to consolidate responsibilities of various agencies. - Complete ongoing consultancy on development of digital land and identification systems. - Establish database for land–information sharing among agencies. - Modernise and update legislation on land use, land tenure and property rights.	2004-2006 Expected completion 2005. Expected completion 2005. 2004-2006	Stakeholders' participation and public consultation.	Steering Committee comprising: - MALMR, THA, Town & Country, Planning Div., Lands & Surveys, Registrar General. MALMR MALMR, CSO, THA. MALMR, THA Min. of Legal Affairs

Drivers	Strategies	Action	Time Frame	Critical Success Factors	Executing Agency
	▪ To promote more efficient agricultural land use through rationalisation.	- Develop a GIS database on existing land use in T&T. - Develop a physical land use plan for agriculture within the context of a national physical plan.	2004-2006 2004-2006	Consultation & stakeholder participation. Same as above	Land Admin. Authority, THA, UWI.
	▪ To prevent further alienation of arable lands and keep same in productive agriculture.	- Implement a system of zoning for agricultural lands based on the physical plan as in (ii) above (including Legislation and Regulation). - Design and implement fiscal incentives/measures to keep agricultural land in productive use. - Designate areas with high production potential as exclusive **food baskets** to be permanently kept in agriculture by decree to support long-term food security for T&T.	2004-2006 2004-2020 2004-2006	Full consultation/ Stakeholder participation. Consultation/ Stakeholder participation and the necessary enabling legislation and regulation.	MALMR, THA, Land Admin. Authority, Stakeholders. MALMR, THA. Min. of Finance, Stakeholders. Land Admin. Authority, MALMR, THA, Stakeholders' representa-tives.

Drivers	Strategies	Action	Time Frame	Critical Success Factors	Executing Agency
4. Finance and Credit	▪ To stimulate new investment in the agricultural sector.	- Conduct agribusiness investment profile and pro-mote investments in strategic areas aligned to MALMR sectoral policies based on potential for competitiveness and food security. - Identify and create partnerships to support the investments with appropriate institutional support.	2004-2020 2004-2006	Commodity priorities to be established by MALMR -	MALMR ADB, THA MALMR ADB, THA
	▪ To make credit more accessible to the rural sector by developing new lending models.	- Develop new lending/ business models for different borrowers on the basis of economic situations and specific needs. - Create special soft loan packages for developmental activities in rural communities including agribusiness.	2004-2006 2004-2006 2004-2020 2004-2009	Willingness of financial institutions to develop alternative lending models.	Bank and non-bank financing institutions. Same as above. Same as above.

Drivers	Strategies	Action	Time Frame	Critical Success Factors	Executing Agency
		- Implement supervised credit schemes with technical support. - Establish community- based credit schemes (revolving credit, micro- financing and integrated rural development funding).			ADB, Agricultural organizations, UWI, THA, MALMR
	▪ Reduction of credit risks.	- Establish and implement an appropriate agricultural insurance scheme.	2004-2006 (Feasibility) 2007-2009 (Implement-ation)	Timely develop-ment and implement-ation of agricultural insurance programme.	MALMR THA, Min. of Finance Insurance companies ADB Private sector
5. Marketing	▪ To provide market intelligence information.	- Develop and maintain an efficient and comprehensive market intelligence system. (Systematic collection, analysis and dissemination of market intelligence to guide investments and decisions).	2004-2006	Efficient and cost effective IT infrastruct-ure as well as alternative delivery modes.	MALMR NAMDEVCO THA

Drivers	Strategies	Action	Time Frame	Critical Success Factors	Executing Agency
	▪ To improve the availability and quality of physical marketing infrastructure.	- Upgrade and modernise public marketing facilities, e.g. chill rooms, packing houses etc. - Provide fiscal incentives for private sector investment in modern marketing facilities.	2004-2009 2004-2009	- -	MALMR NAMDEVCO THA MALMR, THA, Min of Finance
	▪ To improve product competitive-ness and consumer acceptability of locally produced foods.	- Develop and promote a national system of grades and standards including enabling legislation. - Implement specialised training modules to farmers and marketers. - Promote local foods to consumers focusing on safety, wholesomeness and nutritional quality.	2004-2006 2004-2020 2004-2020 2004-2006	Stakeholders Farm certification and implementa-tion of SPS Enabling legislation	MALMR, UWI, NAMDEVCO Stakeholders MALMR MALMR, CFNI, Consumer Affairs, School Nutrition, Hotel &Tourism Industry MALMR, IICA, THA

Drivers	Strategies	Action	Time Frame	Critical Success Factors	Executing Agency
		Consolidate the authority for food safety and standards by establishing NAHFSA (National Agricultural Health and Food Safety Authority).			
	▪ To enhance the marketing performance of small producers who are disadvantaged by small volumes and relatively high trans-action costs for marketing.	- Mobilise productive capacity of small farmers through development and implementation of new business/organisa-tional models.	2004-2020	Training and technical support in organisation-al management.	MALMR, NAMDEVCO, THA, UWI, Stakeholders
6. Access Roads	▪ To Improve co-ordination among agencies responsible for access roads.	- Establish an inter-agency committee to co-ordinate all efforts with respect to access roads including defining roles and responsibilities.	2004-2006	Willingness to collaborate.	Technical committee comprising: MALMR, THA, Min. of Works, Regional Corporations, Private Sector, Agric. Society (T&T).

Drivers	Strategies	Action	Time Frame	Critical Success Factors	Executing Agency
	▪ To improve access to production holdings.	- Develop GIS database on existing and planned roads. - Develop specifications for design and maintenance of roads. - Prepare a development plan for new access roads with priorities aligned to drainage and irrigation master plan as well as commodity priorities. - Review legislation and regulatory framework. - Implement systems of planned maintenance.	2004-2006 2004-2006 2004-2006 2004-2006 2004-2020	Availability of master plan for drainage and irrigation and identification of commodity priorities.	Technical committee comprising: MALMR, Min. of Works, THA, Regional Corporations. Private Sector Agric. Society (T&T).

Drivers	Strategies	Action	Time Frame	Critical Success Factors	Executing Agency
7. Policies and Regulations	▪ To improve the policy framework for agricultural investments, sectoral growth and improved efficiencies.	- Enhance competitive-ness through training of existing staff and recruitment of specialists in the following areas: - Policy analysis - Agricultural trade policy negotiation - Commodity analysis (analysis of profitability, productivity and competitiveness)	2004-2006 and on-going	Recognition, promotion and awards, which are performance-based. Financial resources to fill competencies gaps.	MALMR, THA, UWI, Min. of Finance.
	▪ To create an effective policy formulation mechanism.	- Develop an operational participatory mechanism to facilitate effective involvement in policy formulation involving stakeholders and agencies of government and other institutions.	Commencing 2004 and on going.	MALMR to develop a creditable and transparent relationship with stakeholders.	MALMR

Drivers	Strategies	Action	Time Frame	Critical Success Factors	Executing Agency
	▪ To keep stakeholders informed on a continuous basis with relevant and timely information on policy developments and related issues.	- Establish effective communication networks. - Produce regular policy briefs for dissemination to stakeholders using effective media channels.	2004-2006 2004 and on going.	MALMR to develop effective communica-tions unit with supporting equipment and facilities.	MALMR, THA, Min. of Information.
	▪ To protect plants, animals and biodiversity resources to ensure food security and safety.	- Establish a dedicated National Agricultural Health and Food Safety Authority (NAHFSA) to protect plants, animals and biodiversity resources. - Modernise and rationalise existing legislations that are obsolete.	2004-2006 2004-2006 2004-2006	Willingness to consolidate responsibiliti es for food, plant and animal health in a single agency.	MALMR, THA, Min. of Trade, Min. of Health. Same as above. Ministry of Legal Affairs.

Drivers	Strategies	Action	Time Frame	Critical Success Factors	Executing Agency
		- Enhance competencies in areas related to plant, animal health and food safety through training of existing staff and filling competencies gaps. - Establish modern laboratory and diagnostic capabilities with state of the art equipment.	2004-2006	Identification of suitable training programmes and provision of financial resources. Funding.	MALMR, THA, Min. of Health, FAO/Tech-nical Assistance. MALMR, Min. of Finance, Min. of Trade, Min. of Health.
8. Fisheries Manage-ment and Infra-structure	To improve the management and regulatory efficiencies in the fisheries sub-sector.	- Establish a clear policy for marine fisheries and aquaculture and finalisation of the Marine Fisheries Management Act (MFMA).	2004-2006	MALMR to assign higher priorities to both marine and aquaculture fisheries.	MALMR, THA.

Drivers	Strategies	Action	Time Frame	Critical Success Factors	Executing Agency
		- Implement training programmes and fill competencies gaps in policy, management, research, fisheries economics and marketing including international trade in fisheries products (marine fisheries and aquaculture). - Establish a monitoring, surveillance and enforcement unit for fisheries including the provision of personnel, equipment and facilities.	2004-2006 2004-2006 2004 and on-going to 2020 2004-2006 and on-going,		MALMR, THA MALMR. Min. of Legal Affairs. THA. MALMR, THA. MALMR, THA.

Drivers	Strategies	Action	Time Frame	Critical Success Factors	Executing Agency
		- Develop and maintain a computerise database system including an effective system of data collection as well as the integration of other various databases. - Review and update fisheries resource management systems and regulations based on ongoing analysis of fisheries resources data. - Develop an effective training/extension programme for fisher folks and marketers.	2004-2006 and on-going,		MALMR, THA.

Drivers	Strategies	Action	Time Frame	Critical Success Factors	Executing Agency
9. Building Human Capital at the Levels of: • ***Professional Scientists, technologists*** • ***Entrepren-eurs and farm managers*** • ***Labourers***	▪ To improve the product-ivity and efficiency of human capital in the agricultural and fisheries sub-sectors.	- Develop a long-term human resource development plan for agriculture and fisheries to support the 2020 vision including: - Needs analysis - Training programmes including vocational training and internships - Execution plan including the provision of fiscal incentives e.g. scholar-ships, tax incentives, grants.	2004-2006 2004-2006 2004-2006 and on going.	Establishment of inter-agency coordination committee to include key stakeholders.	MALMR, THA, UWI, Min. of Education, Min. of Science & Technology.
10. Information and Communic-ation	▪ To improve the efficiency and effectiveness of information and communicati on, specifically improving quality, expanding	- Establish an electronic database and communication system to provide stake-holders with information on: - Government policies, programmes, regulations and support services etc.	2004-2006 2004-	Establish a specialised information and communica-tion unit within the MALMR. Establishment of marketing	MALMR MALMR, NAMDEVC,

Drivers	Strategies	Action	Time Frame	Critical Success Factors	Executing Agency
	the information base and improving access.	- Trade policies and agreements. - International regulations. - Technology information. - NAMDEVCO to complete establishment of comprehensive marketing database (local, regional, international) including intelligence on: - Local market conditions, volumes traded, prices on a daily basis. - International market prices. - Grades and standards (including SPS). - Potential buyers and local supply sources. - Market reports to include trends, new developments and forecast.	2004-2006 2004-2006	intelligence unit within NAMDEVCO Establishment of an effective IT system. Develop framework for implementation and training of stakeholders.	THA MALMR, Min. of Information, Community Development and Education. MALMR, Min. of Information, Education.

Drivers	Strategies	Action	Time Frame	Critical Success Factors	Executing Agency
		- Establish IT centres in the major agricultural communities (to also serve other government ministries and agencies). - Develop alternative communication strategies for dissemination of information to augment IT using existing media channels e.g. TV, Radio.			

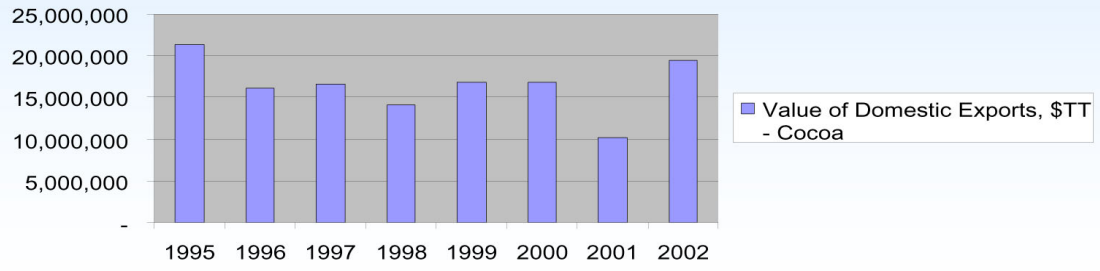
A performance review of the agricultural sector in Trinidad and Tobago, and specifically the situation analysis, provided a sound and meaningful basis for identification of the key issues and strategies to be addressed in pursuance of the 2020 vision.

The broad developmental objectives are specifically aligned to the key issues in the gap analysis and results-oriented development strategies are identified. The choice of developmental objectives and sector transformation growth and food security related strategies were informed in the main by a meticulous and detailed consideration of the following factors:

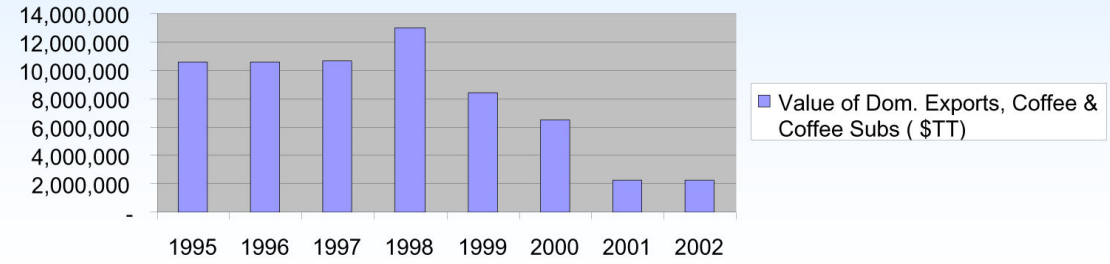
- The global policy environment, which provided the framework for the determination of priorities and developmental objectives to drive the sector forward.
- The diagnostic analysis, which identified the key issues to be addressed in the sector.
- Identification of shortcomings, sector-specific impediments and weaknesses for instance priorities, approaches, relationships, access to critical resources, institutional shortcomings and infrastructure.

The developmental objectives therefore focus on the targets for the 2020 vision. However, the developmental objectives and targets cannot be achieved unless the capacity and key drivers are in place. A matrix has been developed for each of the eight development objectives. For each of these, specific (sub) objectives have been developed with the corresponding target achievements, strategies and time frame over the period 2004-2020.

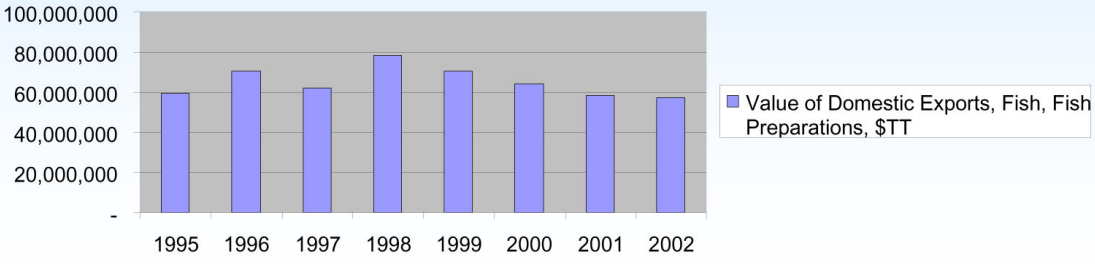
VALUE OF DOMESTIC EXPORTS, $TT - COCOA



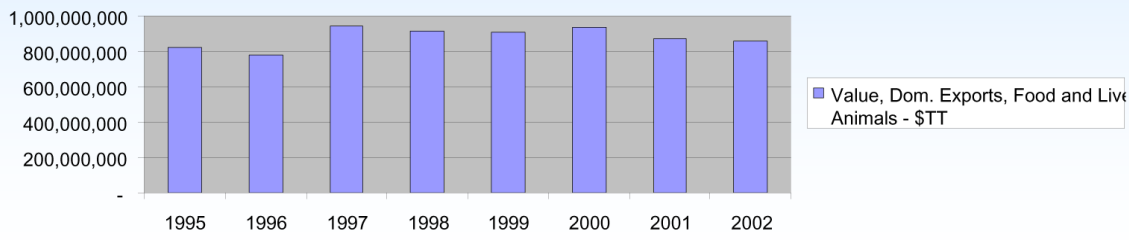
VALUE OF DOM. EXPORTS, COFFEE & COFFEE SUBS ($TT)

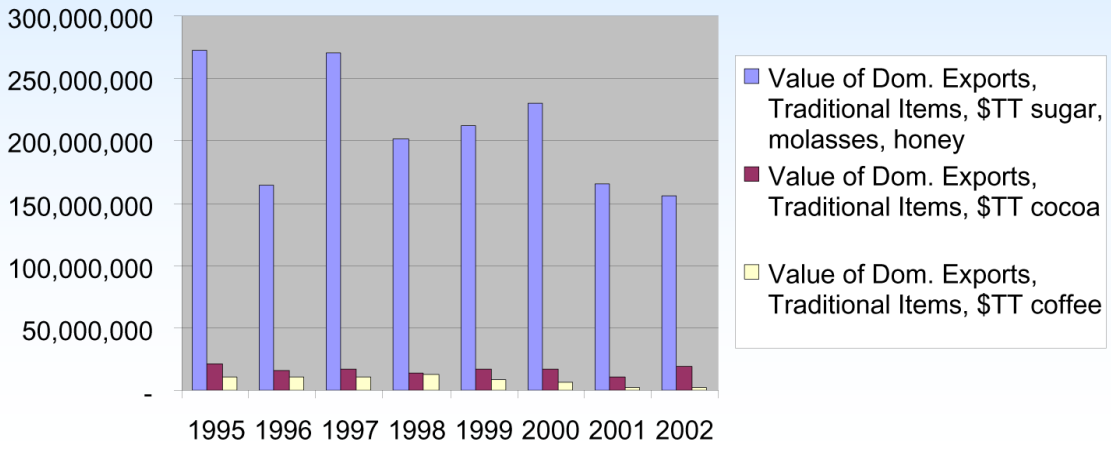


VALUE OF DOMESTIC EXPORTS, FISH, FISH PREPARATIONS, $TT

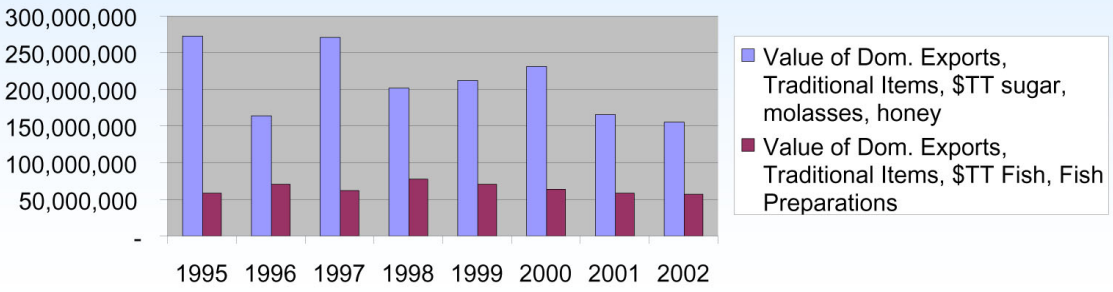


VALUE, DOM. EXPORTS, FOOD AND LIVE ANIMALS - $TT

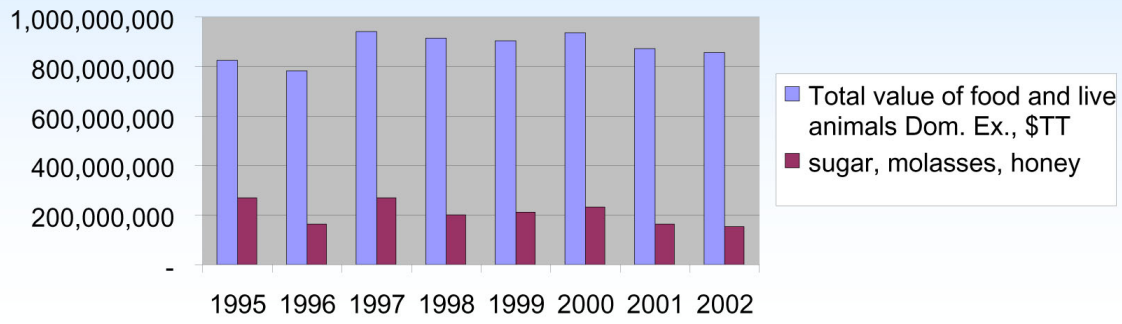




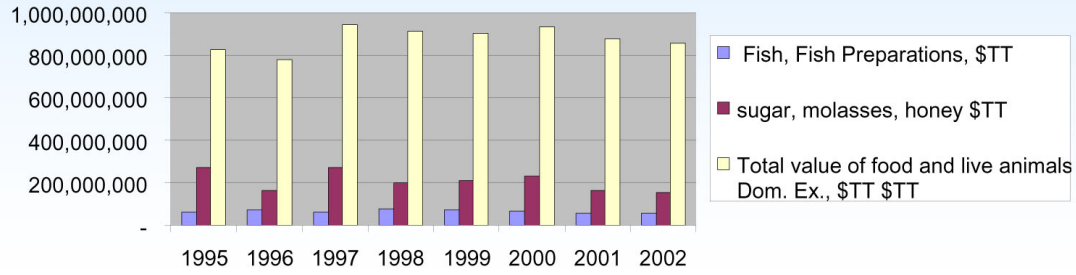
DOMESTIC EXPORTS 1995 TO 2002, SELECTED ITEMS



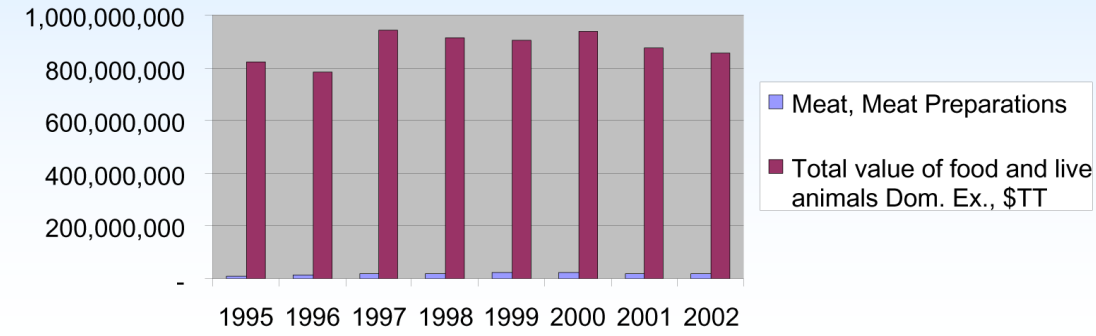
VALUE OF TOTAL FOOD AND LIVE ANIMALS AND SUGAR, MOLASSES, HONEY DOM.EXP.



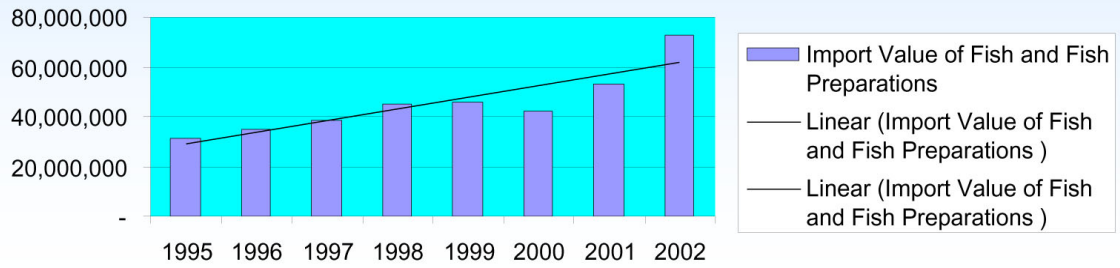
DOMESTIC EXPORTS, 1995 TO 2002,($TT)



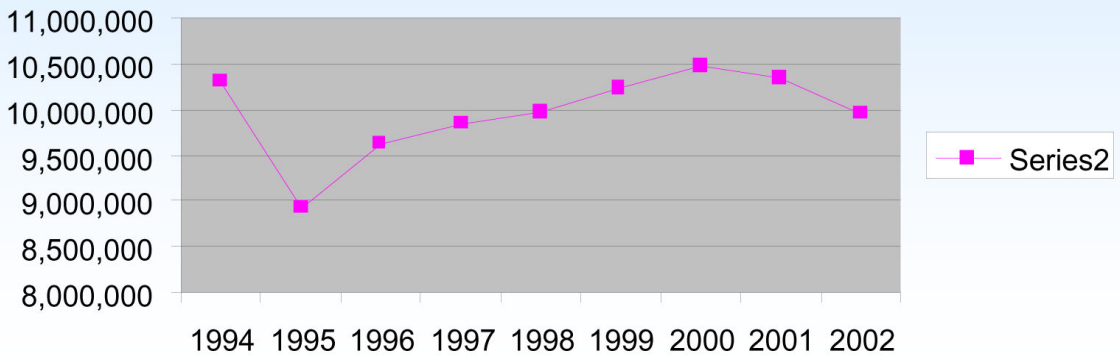
DOMESTIC EXPORTS ($TT)



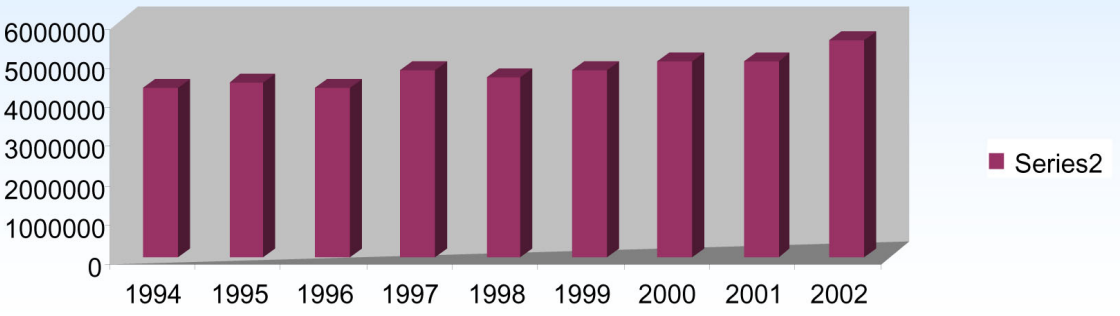
IMPORT VALUE OF FISH AND FISH PREPARATIONS 1995 TO 2002



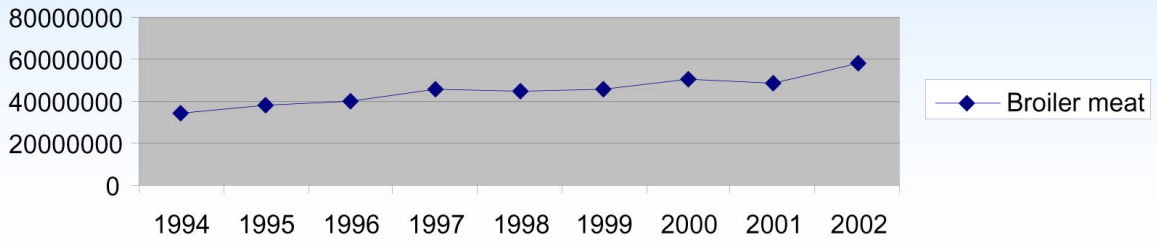
LOCAL PRODUCTION OF MILK, 1994 TO 2002



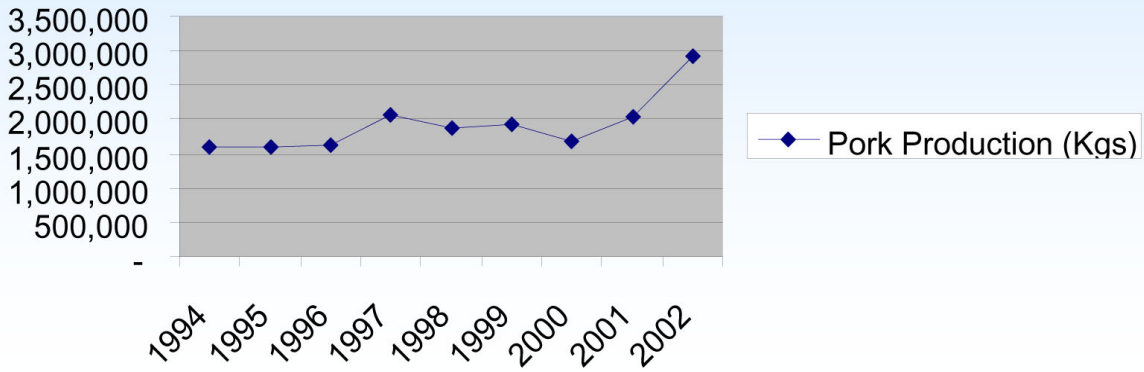
DOMESTIC TABLE EGG PRODUCTION (DOZENS) - 1994 TO 2002



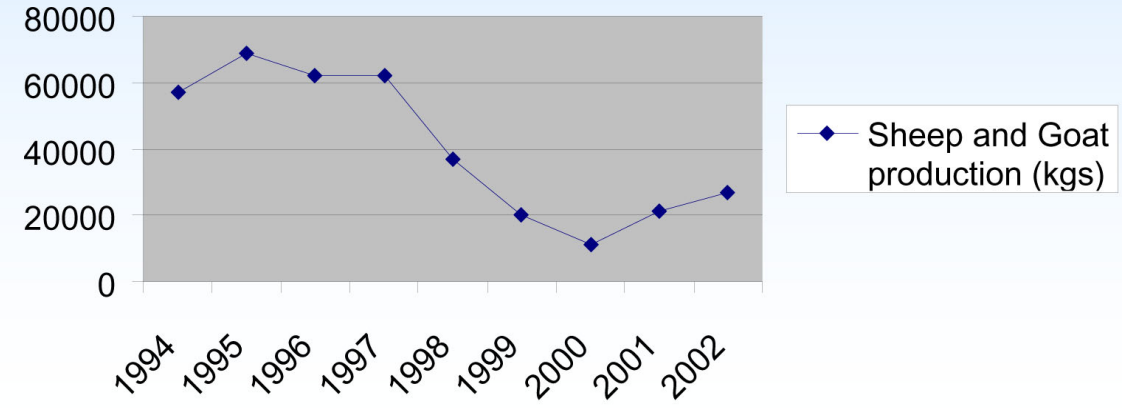
ESTIMATED BROILER MEAT PRODUCTION 1994 TO 2001

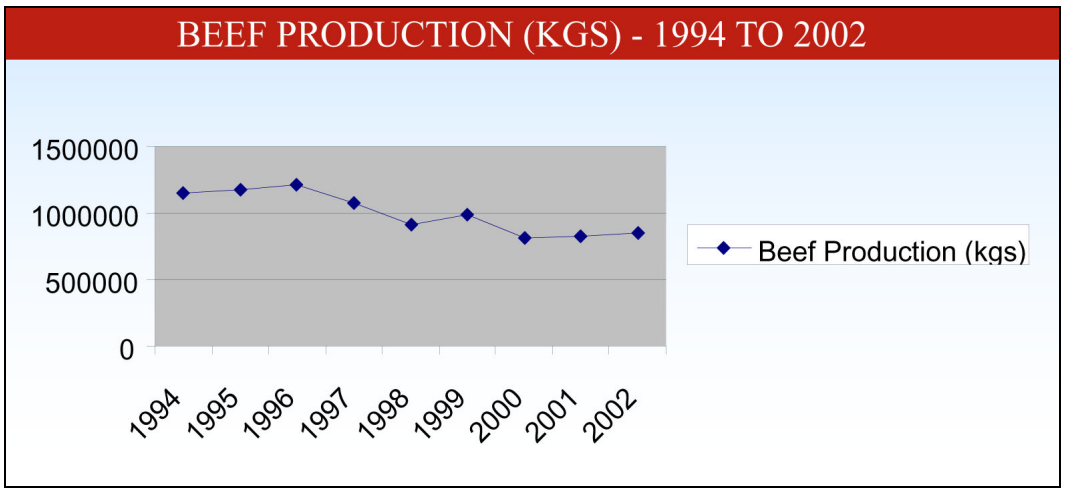


PORK PRODUCTION (KGS) 1994 TO 2001



SHEEP AND GOAT PRODUCTION (KGS) 1994 TO 2001




BEEF PRODUCTION (KGS) - 1994 TO 2002
1500000
1000000
500000
0
1994
1995
1996
1997
1998
1999
2000
2001
2002
Beef Production (kgs)

THE 2020 VISION FOR AGRICULTURE: OBJECTIVES, TARGETS, STRATEGIES AND TIMELINE

Objectives	Targets	Strategies	Timeframe *(Yrs.)*
Development Objective: **1. To Improve Efficiency and Competitiveness of the Sector.**			
Specific Objectives: 1.1 To improve productivity in agriculture	Three (3) commodities in each phase I, II, III	1.1.1 Develop water management infrastructure in strategic areas. 1.1.2 Technology adoption for higher yields, best agricultural practices etc. 1.1.3 Mechanization to reduce costs. 1.1.4 Facilitate adoption of irrigation and drainage technology. 1.1.5 Adoption of technology to reduce post-harvest losses. 1.1.6 Implement soil management programmes	0-9 0-9 0-9 0-9 0-9 0-9
1.2 To improve quality and safety of agricultural products.	Improvements by 80% over two phases Phase I - 40% Phase II - 40% Phase III – 20%	1.2.1 Adoption of best agricultural practices. 1.2.2 Introduce system of farm and product certification. 1.2.3 Implement national systems for grades and standards. 1.2.4 Introduce new varieties based on higher quality and improved safety. 1.2.5 Implement programmes to improve water quality usage.	0-6 0-6 0-6 0-16* 0-16*
1.3 To improve efficiency of local and export marketing systems.	Reduction in marketing transaction costs by 30% at the end of Phase II.	1.3.1 Establish and facilitate adoption of business models and private sector institutions for mobilizing the productive capacity of the small farm sector for efficient marketing. 1.3.2 Facilitate easy access to market intelligence. 1.3.3 Streamline marketing services e.g. products export certification, packinghouses, pre-shipment export certification.	0-6 0-16* 0-3

Objectives	Targets	Strategies	Timeframe *(Yrs.)*
Development Objective: **2. To Improve Efficiency and Competitiveness of the Sector.**			
1.4 To develop and commercialize unique agricultural products through innovation and market research.	Three (3) commodities/ products in each phase I, II, III	1.4.1 Identify unique genetic material with commercial potential. 1.4.2 Establish priorities in the development of new varieties and products, which have the potential to successfully compete in the market place. Priorities to be based on competitiveness market potential and opportunities for sustained growth. 1.4.3 Provide fiscal incentives for innovation (discovery) of unique products with commercial potential.	0-16* 0-16* 0-16*

Faze I – 2004-2006, Phase II – 2007-2009, Phase III – 2010-2012. * *Ongoing.*

THE 2020 VISION FOR AGRICULTURE: OBJECTIVES, TARGETS, STRATEGIES AND TIMELINE

Objectives	Targets	Strategies	Time Frame *(yrs.)*
Development Objective: **2. To contribute to food and nutrition security on a sustained basis by increasing self-sufficiency in strategic foods.**			
***Specific Objectives*:** 2.1 To increase the production and supply of nutritionally strategic foods to meet minimum requirements.	Targets by 2020 as follows: • Cereals (rice) 20% • Fruits and vegetables (80%) • Root crops and tubers (80%) • Livestock, dairy (15%), beef (20-25%), small ruminants (25%), poultry (95%), • Marine fisheries (20%), aquaculture (10%)	2.1.1 Develop policies to promote production processing, utilization and marketing of those foods. 2.1.2 Promote the use of such foods generally and via programmes such as the School Nutrition Programme, folk fairs, chef's competition, agricultural exhibitions and in tourism industry. 2.1.3 Develop specific incentive programmes to encourage production of strategic food commodities that may not otherwise be competitive.	0-1 0-3 0-3 0-16*

Objectives	Targets	Strategies	Time Frame *(yrs.)*
Development Objective: **2. To contribute to food and nutrition security on a sustained basis by increasing self-sufficiency in strategic foods.**			
2.2 To ensure food safety (locally produced and imported).	100% of food supplied should be certified safe.	2.2.1 Review and modernize sanitary and phyto-sanitary legislation (SPS). 2.2.2 Establish efficient and effective advisory and regulatory support institutions and systems for food safety certification. 2.2.3 Invest in modern efficient diagnostic equipment and facilities. 2.2.4 Promote public awareness on food safety and food handling. 2.2.5 Update legislation and regulations as required.	0-1 0-1 0-3 0-16* 0-16*
2.3 To safeguard arable lands for production/food security needs.	90% of soil capability class up to IV, excluding areas under forestry and already built up.	2.3.1 Reserve lands of suitable quality for agriculture 2.3.2 Designate selected areas as "Green Belt/Food Basket" areas. 2.3.3 Develop legislation to protect and safeguard available lands. 2.3.4 Establish monitoring mechanisms. 2.3.5 Enforce regulations, sensitise the population and publicize programmes.	0-1 0-1 0-3 0.16* 0-16*
2.4 To safeguard fisheries resources and augment stocks to optimal levels.	100% of fisheries (EEZ) protected and sustainably managed and optimal stock levels achieved.	2.4.1 Establish artificial fishing reefs in suitable areas. 2.4.2 Collect and review baseline fisheries data. 2.4.3 Conduct research on optimal stock and fisheries efforts. 2.4.4 Develop comprehensive fisheries management plan including institutional strengthening. 2.4.5 Review and update legislation. 2.4.6 Implement plan as well as a monitoring and enforcement system.	0-1 0-6 0-6 0-6 0-16*

Objectives	Targets	Strategies	Time Frame *(yrs.)*
Development Objective: **2. To contribute to food and nutrition security on a sustained basis by increasing self-sufficiency in strategic foods.**			
2.5 To develop aquaculture as a major enterprise in Trinidad and Tobago as a basis for diversification, income, growth and enhanced food security.	At least 10% of fish production derived from aquaculture.	2.5.1 Identify potential fish, shrimp and other species for aquaculture in Trinidad and Tobago. 2.5.2 Conduct feasibility studies on alternative production techniques as a basis for promoting investments. 2.5.3 Develop national aquaculture strategies, including identification of target areas, choice of technology, marketing, research, and value-added. – Production systems – Processing 2.5.4 Develop appropriate incentive system for investment (financial, training, marketing and stock). 2.5.5 Provide training and advisory support in the management technology, business management and produce marketing throughout the investment cycle.	0-1 0-3 0-3 0-16* 0-16*

THE 2020 VISION FOR AGRICULTURE: OBJECTIVES, TARGETS, STRATEGIES AND TIMELINE

Objectives	Targets	Strategies	Time Frame *(yrs.)*
Developmental Objectives **3. To achieve and sustain quality of life in rural communities comparable to the larger society, commensurate with their social, cultural, economic and political aspirations.**			
Specific Objectives: 3.1 To increase knowledge and skills of rural communities in agribusiness and other rural-based economic activities (services, eco-tourism, agro-tourism, cottage industries, forestry, etc.)	100% rural labour force trained to employable and productive levels.	3.1.1 Conduct baseline studies of communities including resource profiles, and economic activities. 3.1.2 Formulate strategic development plans for each rural district/community based on resources and opportunities, using a participatory approach. 3.1.3 Develop and implement customized training and support programmes for the development of entrepreneurial activity in targeted communities. 3.1.4 Sustain competencies and skills development through scholarships/internship programmes	0-3 0-3 0-16* 0-16*
3.2 To encourage entrepreneurial activities and investments in rural communities.	Rural investment per capita is at least equal to the average per capita investment for Trinidad and Tobago.	3.2.1 Develop, encourage and promote specific investment packages that offer profitable potential for rural-based economic activities. 3.2.2 Establish institutional support for rural entrepreneurs in the areas of project planning, financing and implementation. 3.2.3 Provide fiscal incentives for financial institutions and the private sector for rural-based investments in productive activities. 3.2.4 Provide grant funding for high impact and sustainable investment activities.	0-3 0-3 0-16* 0-16*

Objectives	Targets	Strategies	Time Frame *(yrs.)*
Developmental Objectives **3. To achieve and sustain quality of life in rural communities comparable to the larger society, commensurate with their social, cultural, economic and political aspirations.**			
3.3 To reduce crime in rural communities including praedial larceny (objectives 1 and 2 will also contribute to this objective).	Reduce the number of incidences of crime, including praedial larceny by 15% per year.	3.3.1 Establish community-based crime, larceny watch groups and create positions of crime/larceny wardens. (Also to monitor squatting on state lands.) 3.3.2 Establish district-based agricultural tribunals to deal with incidence of squatting, praedial larceny, resource-based conflicts and contractual issues. 3.3.3 Develop enabling legislation to support item (3.3.1) including need to have a certificate of sale as proof as a producer. 3.3.4 Institute a national system for identification of animals. 3.3.5 Review and increase the minimum penalty for offences. 3.3.6 Establish closer relationships between police and community.	0-1 0-3 0-3 0-16* 0-16*
3.4 To provide adequate social, recreational and public amenities and infrastructure in rural communities.	Achieve a level at least commensurate with urban communities by 2010.	3.4.1 Conduct baseline survey to identify needs in pilot communities. 3.4.2 Establish multi-sect oral and multidisciplinary teams to develop plans of action. 3.4.3 Allocation of public sector resources for investments. 3.4.4 Implementation of 3.4.1, 3.4.2 and 3.4.3 (above) including maintenance and development in partnership with communities.	0-3 0-3 0-3 0-16*

Objectives	Targets	Strategies	Time Frame *(yrs.)*
Developmental Objectives **3. To achieve and sustain quality of life in rural communities comparable to the larger society, commensurate with their social, cultural, economic and political aspirations.**			
3.5 To develop a social safety net programme.	100% of farmers have access to social safety net programmes by 2006.	3.5.1 Establish a formal programme of crop/livestock insurance for disaster relief targeted at major commodities. 3.5.2 Implement programmes to diversify the economic base of communities. 3.5.3 Compensation for major income losses due to import surges as a result of trade liberalization.	0-3 0-16* 0-16*
3.6 To promote and showcase rural communities.	By 2009 all rural communities will be showcased and promoted.	3.6.1 Commission the development of resource material on the history, culture, traditions and other unique attributes of rural communities, including the environment. 3.6.2 Encourage government institutes, media houses to showcase the history, beauty, and culture of rural communities. 3.6.3 Promote rural communities in the local and foreign tourist markets.	0-6 0-16* 0-16*

THE 2020 VISION FOR AGRICULTURE: OBJECTIVES, TARGETS, STRATEGIES AND TIMELINE

OBJECTIVES	TARGETS	STRATEGIES	Time Frame *(yrs.)*
Developmental Objective: **4. To contribute to the conservation of the natural environment and promote and maintain its integrity.**			
Specific Objectives: 4.1 To promote sustainable resource use and best practices in the farming, fishing, forestry, eco-tourism and natural resource-based economic activities and to preserve the positive attributes of rural culture and life styles.	90% of farmers, service providers and entrepreneurs will have adopted best practices by 2020.	4.1.1 Identify best practices for sustainable resource use in each community. 4.1.2 Promote and implement training programmes in best practices. 4.1.3 Provide appropriate recognition to communities and individuals for adoption of best practices.	0-1 0-16* 0-16*

OBJECTIVES	TARGETS	STRATEGIES	Time Frame *(yrs.)*
Developmental Objective: **4. To contribute to the conservation of the natural environment and promote and maintain its integrity.**			
4.2 To enhance and preserve agriculture's contribution to the environment.	Progressive reduction in natural resource degradation.	4.2.1 Avoid further fragmentation/alienation of agricultural holdings by instituting regulations on land use and land. 4.2.2 Promote compatible agriculture activities on contiguous land holdings, e.g. orchards of citrus, field of sugarcane, coconut groves. 4.2.3 Promote and train farmers in the use of IPM and biological control of pest and diseases. 4.2.4 Develop and enforce regulations/practices prohibiting agricultural activities and systems of production that are environmentally degrading. 4.2.5 Establish a protocol for the importation and safe use of agricultural chemicals. 4.2.6 Implement SPS measures (see 2.6.1). 4.2.7 Design and implement a system of farm certification to encourage the adoption and best farm practices and supply of safe foods. 4.2.8 Provide fiscal incentives for beautification and improvement of farm aesthetics. 4.2.9 Implement a system of recognition/award for farm beautification. 4.2.10 Design and promote best practices in handling of agricultural waste, residues and set machinery/equipment; also to monitor and enforce regulations. 4.2.11 Develop protocols for the use and disposal of agrochemicals.	0-1 0-16* 0-16* 0-16* 0-1 0-1 0-3 0-3 0-1 0-1 0-1

OBJECTIVES	TARGETS	STRATEGIES	Time Frame *(yrs.)*
Developmental Objective: **4. To contribute to the conservation of the natural environment and promote and maintain its integrity.**			
4.3 To contribute to the protection of the diverse indigenous plant and animal species of Trinidad & Tobago in a sustainable manner.	No further loss of plant and animal species after 3 years, following the establishment of the National Biodiversity Centre.	4.3.1 Establish and operationally the proposed National Biodiversity Centre at UWI to preserve the gene pool of indigenous plant and animal species. 4.3.2 Develop and implement programmes to preserve indigenous species in situ. 4.3.3 Develop and enforce appropriate legislation to protect and preserve indigenous plant and animal lands.	0-16* 0-16* 0-16*
4.4 To promote the restoration of degraded lands and to prevent further degradation.	100% of degraded lands restored by 2008	4.4.1 Identify degraded lands. 4.4.2 Develop appropriate programmes to restore degraded lands with incentives. 4.4.3 Determine and promote alternative uses for restored lands. 4.4.4 Ensure restoration clause is included in land use tenancy contracts as well as provision for restoration deposits; also to enforce restoration clause in tenancy agreements.	0-1 0-3 0-16* 0-16*

OBJECTIVES	TARGETS	STRATEGIES	Time Frame *(yrs.)*
Developmental Objective: **4. To contribute to the conservation of the natural environment and promote and maintain its integrity.**			
4.5 To promote sustainable rural community-based economic activities that will contribute to conservation of natural resources including biodiversity.	Sustainable economic activities identified for all rural communities by 2010.	4.5.1 Identify opportunities based on resource endowments of each community (refer to 2.7.2.). 4.5.2 Promote investment options based on feasibility studies, inclusive of market and financing. 4.5.3 Train prospective entrepreneurs in technology know – how, business management and marketing. 4.5.4 Provide sustained mentoring/advisory support to investors. 4.5.5 Promote joint or collaborative investment initiatives within communities. 4.5.6 Provide recognition/award for successful community-based entrepreneurial initiatives.	0-10 0-10 0-16* 0-16* 0-16* 0-16*

THE 2020 VISION FOR AGRICULTURE: OBJECTIVES, TARGETS, STRATEGIES AND TIMELINE

OBJECTIVES	TARGETS	STRATEGIES	Time Frame *(yrs.)*
Development Objective **5. To recognize and promote the multifunctional contribution of agriculture to societal well-being.**			
Specific Objectives: 5.1 To recognize and promote the specific multifunctional contributions of agriculture, fisheries and the rural sector that are strategically important for Trinidad and Tobago.	Multifunctional contributions fully promoted by year 3.	5.1.1 Develop and apply an appropriate methodology to identify and capture the various non-economic contributions of agriculture (multifunctional) to socio-economic development including the country's environmental assets. 5.1.2 Develop a collaborative mechanism to bring to the forefront the multifunctional role of agriculture in trade, environment, health, gender and other relevant policy, involving media houses, NGO's, Ministry of Education and private sector. 5.1.3 Promote the concept of multi-functionality to media houses, NGOs, private sector and government ministries and agencies	0-1 0-3 0-16*
5.2 To promote and showcase the multifunctional contributions of agriculture to societal development; and also to integrate in the school curriculum.	Multifunctional contributions identified by year 1 and quantified by year 3. Material on multi-functionality integrated in school curriculum by year 3.	5.2.1 Establish and undertake a programme of research to uncover the value of the linkages between agriculture and other sectors (e.g. manufacturing and tourism). 5.2.2 Develop appropriate policies and fiscal measures in support of agriculture based on its real contributions to the socio-economic development and justified using socio-benefit cost analyses. 5.2.3 Promote traditions, customs and indigenous know-how of rural committees.	0-3 0-3 3-10

OBJECTIVES	TARGETS	STRATEGIES	Time Frame *(yrs.)*
Development Objective **5. To recognize and promote the multifunctional contribution of agriculture to societal well-being.**			
5.3 To promote the importance of agriculture as a pillar of the economy.	Host agribusiness fairs annually, showcasing various commodities.	5.3.1 Establish and operationally an Agribusiness Fairs committee and implementation an awards system for excellence in farming.	0-16*

THE 2020 VISION FOR AGRICULTURE: OBJECTIVES, TARGETS, STRATEGIES AND TIMELINE

OBJECTIVES	TARGETS	STRATEGIES	Time Frame *(yrs.)*
Development Objective **6. To promote holistic development of rural communities.**			
Specific Objectives: 6.1 To fully develop the social, institutional and physical infrastructure/amenities in rural communities so as to support the standard of living as envisioned for 2020 (and as reflected by other objectives contained in this document.)	All rural committees provided with amenities by 2020.	6.1.1 Based on community base-line studies (2.7.2), prioritize social, institutional and physical infrastructural needs with full participation of the community. 6.1.2 Develop programmes for delivery based on 3.1.3.	0-3 0-16*
6.2 To facilitate growth and expansion of a diversified range of community-based economic activities, e.g. value- added food industries, handi-craft, agro-tourism services.	By the end of Phase II to achieve a high level of employment – 90% and levels of remuneration comparable with other sectors and a diversified economic base.	6.2.1 Encourage the development and use of appropriate technology (see 2.3.1 to 2.3.4). 6.2.2 Encourage production of value-added and community-based economic activities (see 3.2.1 to 3.2.4). 6.2.3 Implement measures to reduce praedial larceny (see 3.3.1 to 3.3.6). 6.2.4 Encourage farmers to keep records for registration and certification.	0-16* 0-16* 0-16* 0-16*

THE 2020 VISION FOR AGRICULTURE: OBJECTIVES, TARGETS, STRATEGIES AND TIMELINE

OBJECTIVES	TARGETS	STRATEGIES	Time Frame *(yrs.)*
Development Objective **7. To contribute to the socio-economic development of rural communities through the exploitation of indigenous knowledge particularly herbal/medicinal application, knowledge, skills and positive attributes.**			
Specific Objectives: 7.1 To showcase indigenous knowledge and positive attributes of rural communities.	Indigenous know-how and positive community attributes showcased by 2010 for all commodities	7.1.1 Identify indigenous know-how, skills and positive attributes in rural commodities. 7.1.2 Highlight and promote it through print and electronic media.	0-3 0-3
7.2 To develop bankable projects based on indigenous knowledge.	At least 10 net products/innovations developed by 2010 and a further 30 by 2020.	7.2.1 Establish a special R&D contestable fund for monetizing indigenous knowledge and bio resources. 7.2.2. Highlight through the print and electronic media the unique features of rural communities and talent for its people. 7.2.3 Provide resources for documenting and showcasing uniqueness of rural communities.	0-3 0-16* 0-16*

APPENDICES

APPENDIX 1

ACREAGE OF LAND IN EACH CAPABILITY CLASS ACREAGE

Class type	I	II	III	IV	V	VI	VII
Group A: Soil of Alluvial plains and Valley x/o. of Soil Type = 49	5301	17,420	154,116	79.558	19,209	25,147	-
Group B: Soils of terraces and subsidiary ranges x/o of soil type = 20	-	599	6,652	23,671	48,429	45,111	835
Group C: Soil of Uplands x/o of soil type = 51	-	-	3,405	151,433	228,194	191,242	189.377
Total Areas	5,301	17,920	164,173	254,662	295,832	261,500	190,212
Class as % of Total	.004	1.5	13.8	21.4	24.9	21.9	15.9

Grand Total: 1189,6000 Acres

APPENDIX 1

DESCRIPTION OF LAND CAPABILITY CLASSES

Class I:

- Very good land from every standpoint
- Level of almost level land; safely cultivated with mechanical equipment
- No permanent limitations under intermediate and high levels of management
- Wide latitude for agricultural usage. Can grow most commercial crop plants.

Class II:

- Good land from a general standpoint
- Level to gently sloping land
- Safely cultivated with mechanisation
- Moderate limitations under intermediate and high levels of management
- Limitations:
- Soil erosion
- Excessive dryness/ wetness based on chasm

Class III:

- Fairly good land from general standpoint
- Level to moderately sloping. Fairly safe cultivation
- Severe limitation under intermediate and high levels of management
- Requires moderate to intensive management practices to make it productive
- Best suited to pasture and forage
- Require high levels of capital input to make it productive
- Limitations:
- Soil erosion on steeper slopes
- Excessive dryness or wetness.

Class IV:

- Moderately good from a general standpoint. Marginal land
- Level of gently to highly sloping land. Difficult to cultivate on steep slopes
- Severe limitations under intermediate and high levels of management
- Highly intensive management practices required to make it economically productive
- Best suited to pastures and forestry or special crops
- Requires large inputs of capita;
- Limitations:
- Unsatisfactory inherent soil characteristics
- Erosion on steep slopes
- Adverse water relations

Class V:

- Fairly good to poor land
- Level to gently to highly sloping land. Can be cultivated with difficulty

- Extremely severe limitations under intermediate to high levels of management
- Land not suited for agriculture
- Requires highly intensive management practices
- Best suited for pastures and forestry
- Limited potential and high capital inputs required
- Limitations:
- Erosion
- Unsatisfactory water relations

Class VI:

- Poor to very poor from a general standpoint
- Level of extremely steep. Cannot be readily cultivated
- Extremely severe limitations
- Unsuitable for agriculture
- Best left under natural forest
- Limited range of potential use
- Certain areas can be presented for wild life and recreation
- Limitations:
- Unsatisfactory inherent soil type
- Erosion on steep slopes
- Unsatisfactory water relations
- Too stony or rocky for cultivation.

Class VII:

- Very poor land not suitable for agriculture
- Should never be cultivated
- Slopes too steep
- Land too stony or rocky for cultivation
- Should be kept permanently on indigenous forest without any interference
- Valuable for water conservation, preservation of wild life and recreation.

APPENDIX 2

TOTAL IMPORTS AND FOOD IMPORTS AND EXPORTS (current prices)

Year	Total Imports	Food Imports	Food as a share of Total Imports	Total Exports	Food Exports	Food as a share of Total Exports	Food Imports as a % of Total Consumption
	(TT$m)	(TT$m)	(%)	(TT$m)	(TT$m)	(%)	(%)
1966	778.6	89.7	11.52	717.2	54.9	7.65	163.39
1967	725.3	87.0	12.99	752.7	57.0	7.57	152.63
1968	856.5	87.6	10.23	923.9	75.3	8.15	116.33
1969	968.5	106.2	10.97	935.8	77.2	8.25	137.56
1970	1,087.2	103.4	9.51	963.3	81.5	8.46	126.87
1971	1,329.2	114.5	8.61	1,041.5	80.1	7.69	142.95
1972	1,471.1	132.9	9.03	1,071.5	92.3	8.61	143.99
1973	1,564.0	161.0	10.29	1,374.9	87.8	6.39	183.37
1974	3,777.8	250.3	6.63	4,166.3	158.8	3.81	157.62
1975	3,243.7	284.9	8.78	3,878.5	232.1	5.98	122.75
1976	4,908.8	321.3	6.55	5,394.9	190.2	3.53	168.93
1977	4,371.7	366.6	8.39	5,241.9	163.6	3.12	224.08
1978	4,721.0	438.2	9.28	4,895.1	138.0	2.82	317.54
1979	5,067.1	536.0	10.58	6,264.7	171.0	2.73	313.45
1980	7,626.4	707.8	9.28	9,784.8	176.9	1.81	400.11
1981	7,498.9	834.7	11.13	9,025.9	159.7	1.77	522.67
1982	8,873.1	904.7	10.20	7,372.4	125.5	1.70	720.88
1983	6,196.7	929.8	15.00	5,646.3	107.6	1.91	864.13
1984	4,605.9	894.1	19.41	5,216.2	100.7	1.93	887.88
1985	3,739.0	764.1	20.44	5,247.1	88.4	1.68	864.37
1986	4,939.9	786.7	15.93	4,988.6	160.6	3.22	489.85
1987	4,387.5	833.4	18.99	5,264.6	190.4	3.62	437.71
1988	4,291.5	720.2	16.78	5,423.5	241.7	4.46	297.97
1989	5,195.4	863.8	16.63	6,706.9	331.6	4.94	260.49

APPENDIX 2

Year	Total Imports	Food Imports	Food as a share of Total Imports	Total Exports	Food Exports	Food as a share of Total Exports	Food Imports as a % of Total Consumption
	(TT$m)	(TT$m)	(%)	(TT$m)	(TT$m)	(%)	(%)
1990	5,361.8	859.9	16.04	8,842.0	363.5	4.11	236.56
1991	7,084.8	895.1	12.63	8,436.4	383.2	4.54	233.59
1992	6,096.5	896.7	14.71	7,898.0	373.9	4.73	239.82
1993	7,495.3	938.9	12.53	8,800.9	498.5	5.66	188.35
1994	6,867.2	1,017.8	14.82	11,607.2	669.3	5.77	152.07
1995	11,363.3	1,345.9	11.84	14,512.1	882.8	6.08	152.46
1996	12,989.1	1,422.9	10.95	15,028.9	823.7	5.48	172.74
1997	18,934.4	1,560.8	8.24	15,902.9	979.6	6.16	159.33
1998	18,966.8	1,699.6	8.96	14,220.5	959.0	6.74	177.23
1999	18,965.6	1,700.8	8.97	17,661.2	938.3	5.31	181.26
2000							
2001							
2002							
2003							

Source: Central Statistical Office, Overseas Trade Report, various years.

APPENDIX 3

FARM STRUCTURE OF PRIVATE AGRICULTURAL HOLDINGS

Farm Size (ha)	No. of Farms	Total Area (ha)	No. of Farms (%)	Area (%)
< 0.5	13,860	3,439	31.54	3.34
0.5 – 1.0	6,788	5,021	15.65	4.87
1 – 2	7,318	9.697	16.87	9.42
2 – 5	12,224	34,089	28.18	33.10
5 – 10	2,297	15,742	5.30	15.29
10 -50	939	16,819	2.16	16.33
50 – 100	66	4,362	0.15	4.24
100 – 200	42	5,762	0.10	5.59
> 200	22	8,057	0.05	7.82
Total	43,376	102,987	100	100

Source: CSO 1982. Agricultural Census Report 1986.

APPENDIX 4

NATIONAL AND AGRICULTURAL SUBSECTOR EMPLOYMENT

Year	National Employment	Agriculture Employment
1986	390,500	46,800
1987	372,300	43,600
1988	371,600	48,400
1989	366,600	51,000
1990	367,800	46,400
1991	401,000	47,100
1992	405,900	47,400
1993	404,500	46,100
1994	415,600	51,800
1995	431,500	46,200
1996	444,200	42,800
1997	458,600	44,000
1998	479,300	39,300
1999	563,400	42,400
2000	572,700	39,900
2001	576,500	42,000

Source: CSO Labour Force Reports.

APPENDIX 5

EXPENDITURE ON AGRICULTURAL DEVELOPMENT PROJECTS, 1997 TO 2002

Year	Expenditure ($TT)
1997/98	28,357,351
1998/99	36,271,006
1999/2000	68,169,851
2000/01	16,851,110
2001/02	26,880,397

APPENDIX 6

AVERAGE ANNUAL PRICES (Per Kg) RECEIVED BY FARMERS FOR SELECTED COMMODITIES AND PERCENTAGE CHANGE IN PRICE (1993/2000)

Commodity	1993	2000	Percentage change in price (1993/2000)
Tomato	3.71	4.38	18
Cabbage	2.72	2.53	-7
Sweet pepper	4.76	7.24	52
Hot pepper (each)	0.05	0.11	120
Cauliflower	3.77	4.63	23
Cassava	1.62	1.94	20
Dasheen	1.58	1.79	13
Eddoes	1.35	2.65	96
Sweet potato	1.78	2.90	63
Rice (paddy)	1.93	1.67	-13

Source: CSO Agricultural Report, 2000.

APPENDIX 7

FOOD EXPORTS AS A PERCENTAGE OF TOTAL EXPORTS

Category	1994	1995	1996	1997	1998	1999	2000	2001
Live animals	0.055	0.02	0.01	0.03	0.03	0.04	0.03	0.06
Meant/meat	1.356	1.31	2.15	2.15	2.03	2.41	2.41	2.03
preparations	3,778	4.32	3.82	3.75	2.76	2.95	3.10	1.97
Dairy products	8.219	7.46	9.01	6.57	8.54	7.77	6.87	6.68
Fish/fish preparations	15.401	16.01	19.93	20.50	24.84	23.06	21.46	26.04
Cereals	8.578	7.60	8.68	9.00	11.77	14.41	12.39	13.62
Vegetables/fruits	31.967	37.23	25.48	33.04	26.65	28.44	29.14	23.12
Sugar/sugar	9.221	8.31	7.44	6.57	7.14	6.47	6.39	5.01
preparations	11.666	8.70	12.43	7.67	3.48	2.87	11.90	10.80
Coffee/cocoa/spices	9.758	9.04	11.06	10.71	12.76	11.57		
Animal feeds								
Food preparation								

Source: CSO, Overseas Trade Reports.

APPENDIX 8

FOOD IMPORTS AS PERCENTAGE OF TOTAL IMPORTS

Year	Food Imports as % of Total Imports	Food Import Bill ($'000TT)
1990	16.0	850,365
1991	12.6	895,143
1992	14.7	895,906
1993	12.5	938,901
1994	14.8	1,001,099
1995	11.8	1,343,965
1996	10.9	1,410,440
1997	8.2	1,559,140
1998	9.0	1,699,586
1999	9.9	1,651,815
2000	7.3	1,519,907
2001	5.7	1,260,937

Source: CSO, Overseas Trade Reports.

APPENDIX 9

FOOD IMPORT BILL: BREAKDOWN BY FOOD GROUPS/ COMMODITIES, 1998-2002 ($'000)

Food Group/Commodity	1998	1999	2000	2001	2002
1. Live Animals	4,530	2,332	3,227	1,978	5,252
2. Meat & Meat	150,571	138,525	161,644	151,297	136,240
Preparations	39,559	46,820	40,424	36,823	37,495
Meat (fresh/chilled)	66,765	53,728	62,977	74,575	58,441
Other Meat (fresh/chilled)	9,933	9,104	10,988	10,245	10,785
Meat (salted/smoked)	34,311	28,872	46,893	29,652	29,519
Meat Products (NES)					
3. Dairy Products & Eggs	294,017	286,001	309,188	325,752	282,322
Milk & Cream	160,119	156,045	176,242	196,805	151,874
Butter, Fats, Oils	13,397	14,509	13,992	9,439	10,114
Cheese	85,901	82,299	84,445	85,951	86,289
Eggs & Birds	34,559	33,095	34,059	33,056	34,045
4. Fish & Fish Products	44,921	45,770	41,861	52,754	72,932
Fresh, Chilled, Frozen	2,942	2,257	3,224	9,763	27,880
Salted, Dried, Smoked	16,684	18,912	16,623	18,052	22,872
Molluscs etc.	1,256	468	456	727	827
Fish Prep, NES	24,037	24,132	21,266	24,210	21,353
5. Cereals & Preparations	382,187	372,251	205,914	415,103	336,762
Wheat (unmilled)	126,977	98,867	15,716	101,212	90,577
Rice	86,286	120,401	38,301	106,642	45,323
Barley (unmilled)	15	10	3	9	1
Maize (unmilled)	65,242	52.219	47,128	76,092	75,741
Cereals (unmilled)	1,317	1,112	864	1,985	1,125
Flour, Wheat, Meals	16,777	13,819	13,137	23,551	21,540
Other Cereals	14,605	15,845	16,009	21,917	17,950
Flour (stored)	70,965	69,975	74,012	84,592	84,525

APPENDIX 9

Food Group/Commodity	1998	1999	2000	2001	2002
6. Vegetables & Fruits	289,171	297,165	295,450	320,813	320,474
Fresh/Dry	134,262	133,138	125,152	129,781	131,803
Preserved	63,871	63,430	63,118	72,659	78,640
Fruits & Nuts (dry)	37,211	48,793	51,256	52,140	50,216
Fruits & Nuts (preserved)	11,035	12,699	14,498	16,921	14,547
Fruit Juices	42,789	39,104	40,925	49,310	45,268
7. Sugar, Sugar Prep. &	171,892	107,826	96,926	135,379	89,625
Honey	162,900	92,498	82,316	122,147	75,416
Sugar, Molasses, Honey	8,992	15,327	14,223	13,232	14,209
Sugar Confectionery					
8. Coffee, Tea, Cocoa &	43,969	69,245	66,147	65,378	79,298
Spices	5,950	11,732	8,437	11,342	10,869
Coffee & Coffee	5,161	7,678	7,162	6,737	7,786
Preparations	16,526	27,724	28,934	28,388	32,245
Cocoa	3,625	7,829	8,556	7,124	7,515
Chocolate Preparations	12,706	14,278	13,008	11,786	10,014
Tea					
Spices					
9. Animal Feedstuff	145,581	155,193	152,717	141,895	155,637
10. Miscellaneous Food Prep. Margarine, Oil	173,909	178,254	193,719	220,553	224,542
Total Food	1,700,752	1,652,565	1,519,907	1,830,907	1,681,784
% of Total Imports	8.97	9.56	7.29	8.25	7.35

Source: Ministry of Agriculture.

APPENDIX 10

AGRICULTURE GDP GROWTH RATES – TOTAL AGRICULTURE, EXPORT AGRICULTURE, SUGAR AND OTHER CATEGORIES OF CROP AND LIVESTOCK, 1985-1999.

Item	1985-1999
Total Agriculture Gross Domestic Product (%)	+2.2
Export Agric. GDP	-0.5
Sugar	+6.1
Crop	+0.2
Livestock	-0.5
Coconuts	-7.2
Vegetable and Root Crops	+5.9
Rice	+8.3
Poultry and Eggs	-0.9
Pork	+2.2
Dairy and Beef	-0.8
Cocoa	-2.3
Coffee	-9.6
Citrus	+6.3

Source: Trinidad & Tobago Agricultural Sector Performance Evaluation Report, 2000, Texas at A&M University.

APPENDIX 11

CONTRIBUTION OF DOMESTIC AGRICULTURE, EXPORT AGRICULTURE AND SUGAR INDUSTRY TO AGRICULTURE GDP, 1985-2002.

Year	Export Agriculture	Domestic Agriculture	Sugar
1985	11.0	69.0	21
1986	7.4	61.4	31
1987	7.1	64.0	29
1988	7.4	56.5	35
1989	4.8	71.9	23
1990	6.3	61.3	32
1991	4.2	58.9	37
1992	3.4	59.5	37
1993	5.8	55.2	39
1994	5.8	50.8	43
1995	5.9	53.7	40
1996	6.8	54.0	44
1997	5.9	49.4	45
1998	3.9	54.1	42
1999	3.8	49.2	47
2000	3.3	47.0	50
2001	2.8	49.2	48
2002	2.6	45.1	52

APPENDIX 12

PERCENTAGE CONTRIBUTION OF AGRICULTURE, MANUFACTURING, SERVICES AND PETROLEUM TO NATIONAL GROSS DOMESTIC PRODUCT, 1985-2002 (based on 1985 constant prices)

Year	Agriculture	Manufacturing	Services	Petroleum
1985	2.11	7.0	68.0	27.0
1986	1.67	8.1	67.4	26.9
1987	2.00	7.6	67.3	26.7
1988	1.89	7.3	67.3	27.0
1989	2.90	7.0	61.1	26.9
1990	3.43	8.0	63.7	27.1
1991	3.42	8.1	63.9	26.5
1992	3.40	8.2	64.9	26.0
1993	3.55	8.1	66.4	24.6
1994	3.60	8.4	65.2	25.7
1995	3.40	8.4	65.7	25.3
1996	3.40	9.7	66.2	24.6
1997	3.50	8.7	67.0	23.8
1998	3.00	9.4	67,0	23.0
1999	3.30	9.6	65.0	24.6
2000	3.30	9.9	64.0	24.7
2001	3.10	10,0	65.0	24.5
2002	3.40	9.8	66.0	25.0

Source: CSO, Annual Statistical Digest, Review of Economy, 1985-2002.

APPENDIX 13

ESTIMATED BROILER MEAT PRODUCED BY PLUCKSHOPS AND PROCESSING PLANTS, 1990-2001

Year	Estimated Total Production	Processing Plant Production	Estimated Pluck Shop Production	Pluck Shop % Share	Processing Plants** % Share	Imports as % of Consumption
	(Kgs)					
1990	34,013,991	11,989,606	22,024,385	64.75	35.25	
1991	35,456,439	16,032,170	19,424,270	54.78	45.22	
1992	35,966,121	16,822,915	19,143,206	53.23	46.77	
1993	35,886,240	15,194,636	20,691,604	57.66	42.34	
1994	34,538,164	15,161,361	19,376,803	56.10	43.90	
1995	38,507,812	17,342,922	21,164,890	54.96	45.04	
1996	39,754,093	17,554,529	22,199,564	55.84	44.16	
1997	45,582,912	20,595,706	24,917,206	54.66	45.18	
1998	44,627,524	19,775,638	24,851,886	55.69	44.31	
1999	45,874,865	21,746,135	24.128,731	52.60	47.40	
2000	50,639,256	20,259,704	30,383,555	59.30	40.70	
2001	48.430,483	19,372,193	29,058,290	60.01	39.99	
2002						

Notes: +Total c\s Hatching Eggs utilized to produce broilers in corresponding years (allowing 3 months from eggs to meet).

*** Formula for estimate**: 1c\s=360 eggs * 75% Hatchability – 10% Mortality * 1.8kg live weight * 80% dressed weight

Source: Planning Division, Ministry of Agriculture, Land and Marine Resources.

APPENDIX 14

SUPPLY OF SHEEP AND GOAT – LOCAL AND IMPORTED, 1990-2001 (Revised)

Year	Imports	Local Production	Total Supply (local + imports)	Local (% of Total)
	(Kgs)			
190	1,191,011	57,000	1,248,011	4.0
1991	1,922,923	58,000	1,980,923	3.0
1992	1,493,002	55,000	1,548,002	3.0
1993	2,034,538	46,000	2,080,538	2.0
1994	1,091,967	57,000	1,148,967	5.0
1995	1,240,026	69,000	1,309,026	5.2
1996	764,019	62,000	826,019	7.5
1997	2,052,408	62,000	2,114,408	2.9
1998	2,924,136	37,000	2,961,136	1.2
1999	1,318,992	20,000	1,338,992	1.4
2000	1,626,871	11,000	1,637,871	
2991	2,083,192	21,000	2,104,192	
2002				

Source: CSO, Overseas Annual Trade Report, 1990-2001Quarterly Agricultural Report, 1995, 2000.

PORK PRODUCTION AND IMPORTS, 1990-2002

Year	Imports	Local Production	Total Supply (local + imports)	% Land
	(Kgs)			
1990	207,000	2,443,000	2,650,000	
1991	478,000	2,449,000	2,927,000	
1992	187,000	2,458,000	2,645,000	
1993	2954,000	1,938,000	2,232,000	
1994	529,000	1,592,000	2,121,000	
1995	320,000	1,585,000	1,905,000	
1996	1,817,000	1,625,000	3,442,000	
1997	1,492,000	2,076,000	3,568,000	
1998	2,131,000	1,878,000	4,009,000	
1999	2,500,000	1,924,000	4,424,000	
2000	2,144,000	1,693,000	3,837,000	
2001	2,835,000	2,039,000	4,874,000	
2002	2,304,000	2,935,000	5,239,000	

Source: CSO.

DOMESTIC TABLE EGG PRODUCTION, 1987-2002

Year	Table Egg Production *(dozens)*	Import %
1987	3,077,000	
1988	3,198,000	
1989	4,242,000	
1990	3,683,000	
1991	3,860,000	
1992	4,118,000	
1993	4,868,000	
1994	4,315,000	
1995	4,448,000	
1996	4,328,000	
1997	4,646,000	
1998	4,586,000	
1999	4,761,000	
2000	5,001,000	
2001	5,022,000	
2002	5,454,000	

Source: CSO, Poultry Bulletin

SUPPLY OF BEEF – LOCAL AND IMPORTED, 1990-2001

Year	Production	Imported	Total Supply (production + imports)	Local (% of Total)
	('000 Kgs)			
1990	1,206	3,046	4,252	28.0
1991	1,203	4,813	6,016	20.0
1992	989	3,812	4,801	20.5
1993	1,007	5,390	6,397	15.7
1994	1,148	3,693	4,841	23.7
1995	1,175	2,429	3,604	32.6
1996	1,210	2,502	3,712	32.5
1997	1,069	3,200	4,269	33.4
1998	914	3,480	4,394	26.2
1999	982	3,594	4,576	21.4
2000	810	3,052	3,862	
2001	823	2,944	3,767	
2002	848	2,740	3,588	

Source CSO.

APPENDIX 18

EXTENSION SERVICE/AGRICULTURE INCENTIVE PROGRAMME

Year	Quantum of Incentives *($TT)*
1995	2,420,217.32
1996	1,274,292.20
1997	2,639,680.15
1998	2,763,767.84
1999	2,974,169.74
2000	3,076,370.01
2001	3,288,567.35
2002	

Source: Fisheries Division, 2002

ARTISANAL (including shrimp for all fleets), TRINIDAD

Year	Landings *(tones)*	Value *($TT'000)*
1995	7,761.60	81.24
1996	6,765.84	61.17
1997	8.054.25	73.85
1998	9,188.75	93.91
1999	8,369.07	85.55
2000	8,435.53	83.59
2001	11,335.00	108.54
2002		

Source: Fisheries Division 2002.

FISHERIES GDP AND AGRICULTURE GDP

Year	Fisheries GDP *(TT$m)*	Agriculture GDP *(TT$m)*
1994	86.0	651.0
1995	81.6	733.1
1996	77.6	721.1
1997	66.3	777.4
1998	73.7	783.4
1999	74.2	830.3
2000	64.1	838.2
2001	65.9	806.4
2002		

Source: CSO

VALUE OF IMPORTS/EXPORTS OF FOOD FISH

Year	Imports *(TT$m)*	Exports *(TT$m)*
1994	30.7	54.9
1995	31.6	60.4
1996	35.2	72.6
1997	38.3	63.9
1998	44.9	92.4
1999	41.1	64.1
2000	20.0	56.1
2001	27.7	53.4
2002	50.7	63.1

Source: CSO

APPENDIX 22

QUANTITIES OF IMPORTS/EXPORTS OF FOOD FISH

Year	Imports *(tonnes)*	Exports *(tones)*
1994	2,586	4,590
1995	3,055	4,945
1996	3,128	5,740
1997	3,078	10,305
1998	26,253	8,633
1999	2,247	7,901
2000	1,791	4,160
2001	2,716	4,833
2002	6,604	4,877

Source: CSO

OFFSHORE FLEET (Large Pelagic)

Year	Landings *(metric tones)*
1993	22.46
1994	360.20
1995	304.71
1996	403.51
1997	463.77
1998	420.00
1999	391.68
2000	173.75
2001	258.00
2002	

Source: Fisheries Division, 2001

TOTAL IMPORTS AND EXPORTS

Year	Exports *(TT$)*	Exports *(TT$)*
1995	29,953	1,732,548
1996	66,639	2,091,239
1997	68,730	2,808,202
1998	91,423	2,602,239
1999	51,957	2,414,483
2000	63,129	2,200,841
2001	105,450	2,104,745
2002	93,618	1,870,218

Source: CSO

APPENDIX 25

PRODUCTION OF FOOD FISH (AQUACULTURE)

Year	Tilapia		Cascadura		Prawn	
	Qty. (kg)	Value (US$)	Qty. (kg)	Value (US$)	Qty. (kg)	Value (US$)
1990	1,250	1,600	2,000	12,000	-	-
1991	1,250	1,600	1,250	8,100	5,200	20,000
1992	2,500	1,600	4,000	16,900	2,000	4,000
1993	2,800	4,000	2,500	9,600	2,500	8,800
1994	16,000	23,460	1,250	4,100	2,500	9,600
1995	18,000	29,000	1,200	4,000	5,000	1,600
1996	18,000	29,000	1,200	4,000	500	1,600

Source: Caroni (1975) Ltd.

APPENDIX 26

PRODUCTION ('000 KG) OF SELECTED COMMODITIES (1994-2001)

Commodity	1994	1995	1996	1997	1998	1999	2000	2001
Tomato	2,004	2,000	2,337	1,832	1,548	2,728	2,737	2,412
Cabbage	1,281	1,864	1,450	1,471	2,660	1,533	1,411	2,251
Pumpkin	4,915	7,548	6,653	7,549	7,657	2,64	11,449	5,795
Watermelon	2,258	3,023	1,779	1,328	2,746	1,918	804	2,465
Sweet pepper	219	214	5.3	289	395	390	448	287
Cauliflower	263	425	228	306	300	240	172	565
Cassava	933	696	1,430	799	322	1,107	801	268
Eddoes	1095	2,366	1,308	1,090	969	1,757	1,417	843
Hot pepper (single)	39,773	22,624	36,920	55,123	64,856	64,856	44,849	80,776
Meats & products:								
Broiler	34,538	38,507	39,754	45,582	44,627	45,874	50,639	48,430
Pork	1,592	1,565	1,625	2,076	1,878	1,924	2,751	2,934
Sheep & goat	57	69	62	62	37	20	11	21
Beef	1,148	1,175	1,210	1,069	914	982	810	823
Fresh Milk	10,300	8,928	9,623	9,83	9,974	10,241	10,476	10,352
Table Eggs (doz.)	4,315	4,445	4,328	4,769	4,585	4,761	5,000	5,022
Copra ('000 tons)	3	3	2	2	3	2	2	2
Orange ('000 crate)	156	146	175	166	103	151	95	41
Grapefruit ('000 crate)	111	118	128	100	97	124	97	61
Sugar (tons)	127,314	116,935	115,205	119,903	80,235	91,914	114,366	90,578

Source: CSO Agricultural Report 2002

COCOA PRODUCTION AND EXPORT, 1986-2001 (P)

Year	Production *('000 kg)*	Export *('000 kg)*
1986	1,426.1	1,305.1
1897	1,501.1	1,478.4
1988	1,796.0	1,639.0
1989	1,491.8	1,377.2
1990	2,110.0	2,016.9
1991	1,511.4	1,876.8
1992	1,139.1	934.7
1993	1,777.7	1,502.9
1994	1,488.6	1,342.4
1995	1,762.2	1,427.4
1996	2,291.8	1,740.9
1997	1,740.2	1,453.5
1998	1,270.3	1,319.0
1999	1,159.9	1,155.0
2000	1,592.8	1,208.9
2001	648.8	718.5
2002		

Source: CSO Quarterly Agricultural Report
Reproduced by: ADIU, MALMR
Dated: February 21, 2003

APPENDIX 28

REAL PRICES OF SELECTED COMMODITIES (Bases year – 1993)

Commodity	1993	1994	1995	1996	1997	1998	1999	2000	2001
Tomato	0.90	3.60	4.00	4.00	2.90	3.80	2.50	2.00	1.20
Cabbage	0.70	3.20	2.00	1.90	1.40	2.20	2.20	1.20	1.59
Sweet pepper	1.90	3.50	3.20	3.10	2.40	3.00	3.00	3.20	1.94
Cauliflower	0.90	4.00	2.90	2.60	2.20	3.10	3.70	2.20	2.51
Pumpkin	0.23	0.70	1.06	0.79	0.78	0.82	0.63	9.67	0.41
Watermelon	0.36	1.18	1.14	0.87	0.85	1.09	0.98	1.05	0.88
Hot pepper	0.01	0.04	0.05	0.05	0.03	0.05	0.03	0.05	0.02
Cassava	0.39	1.34	1.39	1.13	1.14	1.38	1.07	0.91	0.99
Dasheen	0.38	1.42	1.29	1.01	0.90	1.22	0.85	0.84	1.07
Eddoes	0.33	1.82	1.25	1.28	1.17	1.52	0.98	1,24	1.32
Sweet potato	0.43	1.40	2.01	1.18	1.07	1.72	1.10	1.35	1.40
Rice paddy	0.47	1.57	1.14	1.15	1.04	1.02	0.96	0.78	0.71

Source: CSO & Trinidad and Tobago Gazette

FRAMEWORK FOR ACTION

FRAMEWORK FOR ACTION

Phase 1

Vision

The Agricultural Sector in Trinidad and Tobago by the year 2020 will be competitive and will sustain competitiveness by being resilient, adaptive and market-driven.

Summary

The development of the Agricultural Sector Framework for Action comprises essential preconditions that must be effected before other aspects of development may be initiated. The first section of this Framework For Action plan can be considered Phase 1, with the issues identified necessitating resolution, before subsequent developments (i.e. Phase 2) can be undertaken.

GOAL 1: To develop the Research, Technology Development and Extension capabilities to support agricultural development.

Objective	Measures &/Or Indicators	Actions	Time	Owner	Linkages
1.1 To strengthen present Research, Technology Development and Extension (RTDE) capability.	Number of research facilities established throughout Trinidad.	1.1.1 Establish an autonomous institution to conduct agricultural RTDE.	P1	Tripartite Committee comprising MALMR, Private Sector Representatives, Research Institutions, THA.	Education
		1.1.2 Identify and fill competency gaps.	P1	Tripartite Committee comprising MALMR, Private Sector Representatives, Research Institutions, THA.	Education

Objective	Measures &/Or Indicators	Actions	Time	Owner	Linkages
		1.1.3 Strengthen and maintain existing competencies.	P1, P2	Tripartite Committee comprising MALMR, Private Sector Representatives, Research Institutions, THA.	Skills Development and Training
1.2 To establish priorities for RTDE based on commodity priorities.		1.2.1 Establish a National RTDE Council.	P1	Same as above.	Skills Development and Training. Governance
1.3 To create linkages and partnerships among institutions and shareholders in the sector.	Number of joint ventures within the sector (public and private)	1.3.1 Establish an Advisory Committee of stakeholders to facilitate co-ordination, collaboration and effective participation.	P1	Agricultural Society. THA.	

Objective	Measures &/Or Indicators	Actions	Time	Owner	Linkages
1.4 To encourage private sector investment in RTDE.	Increase in the number of funds for private sector initiatives in agriculture.	1.4.1 Design and implement fiscal incentive packages.	P1	Ministry of Finance. Ministry of Agriculture.	Macro Economy Sub-Committee Report.
		1.4.2 Establish a competitive grant for research and development.	P1	MALMR.	Education. Macro Economy
		1.4.3 Establish a framework for private providers of Extension Services.	P1	Advisory Committee. CARDI. THA.	Law Administration
		1.4.4 Establish a Communications Network.			Science and Technology, Public Administration, ICT.

GOAL 2: To develop the Drainage, Irrigation and Water Management infrastructure to support agricultural development.

Objective	Measures &/Or Indicators	Actions	Time	Owner	Linkages
2.1 To improve co-ordination among agencies responsible for water resources.		2.1.1 Establish an inter-Ministerial / inter-agency committee to co-ordinate all efforts.	P1	Technical Committee comprising MALMR, UWI, MOW, THA, Ministry of Public Utilities and Environment, other Stakeholders.	Governance
		2.1.2 Review legislative and regulatory framework for water mining / conservation / utilisation.	P1	Technical Committee comprising MALMR, UWI, MOW, THA, Ministry of Public Utilities and Environment, other Stakeholders.	Law Administration

Objective	Measures &/Or Indicators	Actions	Time	Owner	Linkages
2.2 To systematically develop and maintain drainage, irrigation and water management infrastructure in T&T.	% of arable lands under irrigation.	2.2.1 Develop a master plan for drainage, irrigation and water management.	P1	Technical Committee comprising MALMR, UWI, MOW, THA, Ministry of Public Utilities and Environment, other Stakeholders.	Infrastructure. WASA.
		2.2.2 Implement Master Plan as above.	P1-P2	Technical Committee comprising MALMR, UWI, MOW, THA, Ministry of Public Utilities and Environment, other Stakeholders.	Infrastructure. WASA.

Objective	Measures &/Or Indicators	Actions	Time	Owner	Linkages
		2.2.3 Maintain Drainage, irrigation and water management.	P2-P3	Technical Committee comprising MALMR, UWI, MOW, THA, Ministry of Public Utilities and Environment, other Stakeholders.	Infrastructure. WASA.
2.3 To promote efficient water allocation and water use in agriculture.		2.3.1 Develop a water policy for irrigation including allocation policy, user charges and management systems.	P1	Technical Committee comprising MALMR, UWI, MOW, THA, Ministry of Public Utilities and Environment, other Stakeholders	Law Administration. Infrastructure
		2.3.2. Conduct research on irrigation technology and optimal irrigation practices.	P1, P2, P3	National RTDE Institute, MALMR, CARDI, UWI.	Education

Objective	Measures &/Or Indicators	Actions	Time	Owner	Linkages
2.4 To Minimise water quality degradation.	Implementation of water quality standards.	2.4.1 Conduct research on best agricultural practices (BAP) to avoid pollution / degradation.	P1, P2, P3	NRTDE Institute, UWI, CARDI	Education
		2.4.2 Undertake training in the adoption of BAP.	P1, P2, P3	MALMR	Skills Development
		2.4.3 Enforce water pollution regulations.	P1, P2, P3	EMA	Environment
2.5 To encourage private sector investment in water conservation / storage infrastructure.	Quantity of consumption of water by Private Sector.	2.5.1 Design and implement fiscal incentive packages for water conservation / storage infrastructure.	P1, P2	MALMR, Ministry of Finance, THA	Macroeconomy. Infrastructure

Objective	Measures &/Or Indicators	Actions	Time	Owner	Linkages
		2.5.2 Review existing legislation.	P1	MALMR, THA, Legal Affairs.	Law Administration.
2.6 To improve the effectiveness of water management for agriculture (flood protection, drainage and irrigation).	% of farmlands under water management system.	2.6.1 Develop and implement a master plan for flood protection and water conservation throughout T&T.	P1	MALMR, THA, Forestry, Ministry of Works, Ministry of Public Utilities and Environment.	Infrastructure. WASA

GOAL 3: To maximise the utilisation and Administration of available Land Resources.

Objective	Measures &/Or Indicators	Actions	Time	Owner	Linkages
3.1 To improve the efficiency in land Administration.		3.1.1 Establish an autonomous land Administration authority to consolidate the responsibilities of various agencies.	P1	Ministry of Planning along with Steering Committee comprising MALMR, THA, Town and Country, Planning Division, Land and Surveys, Registrar General.	Law Administration
		3.1.2 Complete ongoing consultancy on development of digital land and identification systems.	P0	MALMR	Infrastructure. Housing

Objective	Measures &/Or Indicators	Actions	Time	Owner	Linkages
		3.1.3 Establish database for land-information sharing among agencies.	P0	MALMR, CSO, THA,	Infrastructure. Housing
		3.1.4 Modernise and update legislation on land use, land tenure and property rights.	P1	MALMR, THA, Ministry of Legal Affairs.	Law Administration
3.2 To promote more efficient agricultural land use through rationalisation.	% of arable lands allocated / utilized for agriculture.	3.2.1 Develop a GIS database on existing land use in T&T.	P1	Land Administration Authority, THA, UWI	Infrastructure. Housing
		3.2.2 Develop a physical land use plan for agriculture within the context of a national physical plan.	P1	Land Administration Authority, THA, UWI	Infrastructure. Housing.

Objective	Measures &/Or Indicators	Actions	Time	Owner	Linkages
3.3 To prevent further alienation of arable lands and keep same in productive agriculture.		3.3.1 Implement a system of zoning for agricultural lands based on the physical plan as in (ii) above (including legislation and regulation).	P1	MALMR, THA, Land Administration Authority, Stakeholders	Law Administration
		3.3.2 Design and implement fiscal incentives / measures to keep agricultural land use productive use.	P1, P2, P3	MALMR, THA, Ministry of Finance, Stakeholders	Macroeconomy
		3.3.3 Designate areas with high production potential as exclusive food baskets to be permanently kept in agriculture by decree to support long term food security for T&T.	P1	Land Administration Authority, MALMR, THA, Stakeholders representatives.	Law Administration

GOAL 4: To enhance accessibility and availability of Financial resources and Credit facilities to the agricultural sector.

Objective	Measures &/Or Indicators	Actions	Time	Owner	Linkages
4.1 To stimulate new investment in the agriculture sector.		4.1.1 Conduct an agri-business investment profile and promote investments in strategic areas aligned to MALMR sectoral policies based on potential for competitiveness and food security.	P1, P2, P3	MALMR, ADB, THA	
		4.1.2 Identify and create partnerships to support the investments with appropriate institutional support.	P1	MALMR, ADB, THA	Financial Services

Objective	Measures &/Or Indicators	Actions	Time	Owner	Linkages
4.2 To make credit more accessible to the rural sector by developing new lending models.		4.2.1 Develop new lending / business models for different borrowers on the basis of economic situations and specific needs.	P1	Bank and non-bank financing institutions.	Financial Services.
		4.2.2 Create special soft loan packages for developmental activities in rural communities including agri-business.	P1	Bank and non-bank financing institutions.	Financial Services.
		4.2.3 Implement supervised credit schemes with technical support.	P1, P2, P3	Bank and non-bank financing institutions.	Financial Services.
		4.2.4 Establish community-based credit schemes (revolving credit, micro-financing and integrated rural development funding).	P1, P2	MALMR, ADB,	Financial Services. Labour

Objective	Measures &/Or Indicators	Actions	Time	Owner	Linkages
4.3 Reduction of Credit Risks.	Implementation of risk reduction initiatives (e.g. insurance schemes, etc).	4.3.1 Establish an appropriate agricultural insurance scheme.	P1	MALMR, THA, Ministry of Finance, Insurance Companies, ADB, Private Sector.	Financial Services
		4.3.2 Implement an appropriate agricultural insurance scheme.	P2	MALMR, THA, Ministry of Finance, Insurance Companies, ADB, Private Sector.	Financial Services

GOAL 5: To enhance marketability of Agri-based products through development of marketing initiatives and infrastructure.

Objective	Measures &/Or Indicators	Actions	Time	Owner	Linkages
5.1 To provide market intelligence information.		5.1.1 Develop and maintain an efficient and comprehensive market intelligence system (systematic collection, analysis and dissemination of market intelligence to guide investments and decisions).	P1	MALMR, NAMDEVCO, THA	
5.2 To improve the availability and quality of physical marketing infrastructure.	Expenditure on development / renovations of physical marketing infrastructure.	5.2.1 Upgrade and modernise public marketing facilities, e.g. chill rooms, packing houses etc.	P1, P2	MALMR, NAMDEVCO, THA	Public Utilities

Objective	Measures &/Or Indicators	Actions	Time	Owner	Linkages
			P1, P2	MALMR, THA, Ministry of Finance	Macroeconomy
		5.2.2 Provide fiscal incentives for private sector investment in modern marketing facilities.			
5.3 To improve product competitiveness and consumer acceptability of locally produced foods.	Expenditure on consumption of local produce.	5.3.1 Develop and promote a national system of grades and standards, including enabling legislation.	P1	MALMR, UWI, NAMDEVCO, Stakeholders	Education. Law Administration
		5.3.2 Implement specialised training modules to farmers and marketers.	P1, P2, P3	MALMR	Skills Development
		5.3.3 Promote local foods to consumers focusing on safety, wholesomeness and nutritional quality.	P1, P2, P3	MALMR, CFNI, Consumer Affairs, School Nutrition, Hotel & Tourism Industry	Health

Objective	Measures &/Or Indicators	Actions	Time	Owner	Linkages
		5.3.4 Consolidate the authority for food safety and standards by establishing NAHFSA (National Agricultural Health and Food Safety Authority).	P1	MALMR, IICA, THA	Law Administration. Health
5.4 To enhance the marketing performance of small producers who are disadvantaged by small volumes and relatively high transaction costs for marketing.		5.4.1 Mobilise the productive capacity of small farmers through development and implementation of new business / organisational models.	P1, P2, P3	MALMR, NAMDEVCO, THA, UWI, Stakeholders	Skills Training

GOAL 6: To effectively develop and manage Access Roads.

Objective	Measures &/Or Indicators	Actions	Time	Owner	Linkages
6.1 To Improve co-ordination among agencies responsible for access roads.		6.1.1 Establish an inter-agency committee to co-ordinate all efforts with respect to access roads including defining roles and responsibilities.	P1	Technical committee comprising: MALMR, THA, Ministry of Works, Regional Corporations, Private Sector, Agric. Society (T&T).	Law Administration. Infrastructure.
6.2 To improve access to production holdings.	Miles of roadways existing and introduced for access to agricultural lands.	6.2.1 Develop GIS database on existing and planned roads.	P1	Technical committee comprising: MALMR, Ministry of Works, THA, Regional Corporations. Private Sector Agricultural Society (T&T).	Infrastructure

Objective	Measures &/Or Indicators	Actions	Time	Owner	Linkages
		6.2.2 Develop specifications for design and maintenance of roads.	P1	Technical committee comprising: MALMR, Ministry of Works, THA, Regional Corporations. Private Sector Agricultural Society (T&T).	Infrastructure
		6.2.3 Prepare a development plan for new access roads with priorities aligned to the drainage and irrigation master plan as well as commodity priorities.	P1	Technical committee comprising: MALMR, Ministry of Works, THA, Regional Corporations. Private Sector Agricultural Society (T&T).	Infrastructure
		6.2.4 Review legislation and regulatory framework.	P1	Technical committee comprising: MALMR, Ministry of Works, THA, Regional Corporations.	Law Administration

Objective	Measures &/Or Indicators	Actions	Time	Owner	Linkages
		6.2.5 Implement systems of planned maintenance.	P1-P3	Private Sector Agric. Society (T&T). Technical committee comprising: MALMR, Ministry of Works, THA, Regional Corporations. Private Sector Agric. Society (T&T).	Infrastructure

GOAL 7: To ensure that Policies and Regulations facilitate the development of the agricultural sector.

Objective	Measures &/Or Indicators	Actions	Time	Owner	Linkages
7.1 To improve the policy framework for agricultural investments, sectoral growth and improved efficiencies.	Introduction of changes to legislation related to agriculture.	7.1.1 Enhance competitiveness through training of existing staff and recruitment of specialists in the following areas: ▪ Policy analysis. ▪ Agricultural trade policy negotiation. ▪ Commodity analysis (analysis of profitability, productivity and competitiveness).	P1 - P3	MALMR, THA, UWI, Ministry of Finance.	Skills Development
7.2 To create an effective policy formulation mechanism.	Facilitation of stakeholder inputs into policy formulation.	7. 2.1 Develop an operational participatory mechanism to facilitate effective involvement in policy formulation involving	P1 – P3	MALMR	Law Administration.

Objective	Measures &/Or Indicators	Actions	Time	Owner	Linkages
		stakeholders and agencies of Government and other institutions.			
7.3 To keep stakeholders informed on a continuous basis with relevant and timely information on policy developments and related issues.	Development of feedback mechanisms of policy developments to stakeholders.	7.3.1 Establish effective communication networks.	P1	MALMR, THA, Ministry of Information. MALMR, Agricultural Society,	Public Administration. ICT.
		7.3.2 Produce regular policy briefs for dissemination to stakeholders using effective media channels.	P1 – P3	MALMR, THA, Ministry of Information, Agricultural Society.	

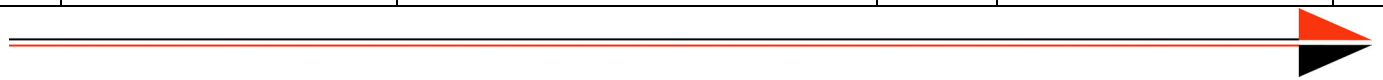
Objective	Measures &/Or Indicators	Actions	Time	Owner	Linkages
7.4 To protect plants, animals and biodiversity resources to ensure food security and safety.	Number of environment protection covenants in the shire (on private Land or public Land) or percentage of area protected. Number of threatened plant and animal species as percentage of known species.	7.4.1 Establish a dedicated National Agricultural Health and Food Safety Authority (NAHFSA) to protect plants, animals and biodiversity resources.	P1	MALMR, THA, Ministry of Trade, Ministry of Health.	Law Administration. Health.
		7.4.2 Modernise and rationalise existing legislation that may be obsolete.	P1	Same as above. Ministry of Legal Affairs.	Law Administration
		7.4.3 Enhance competencies in areas related to plant, animal	P1	MALMR, THA, Ministry of Health,	Health. Skills

Objective	Measures &/Or Indicators	Actions	Time	Owner	Linkages
		health and food safety through training of existing staff and filling competencies gaps.		FAO/Technical Assistance.	Development.
		7.4.4 Establish modern laboratory and diagnostic capabilities with state of the art equipment.	P1	MALMR, Ministry of Health.	Science & Technology. Ministry of Finance

GOAL 8: To develop Fisheries Management and Supporting Infrastructure.

Objective	Measures &/Or Indicators	Actions	Time	Owner	Linkages
8.1 To improve the management and regulatory efficiencies in the fisheries sub-sector.		8.1.1 Establish a clear policy for marine fisheries and aquaculture and finalisation of the Marine Fisheries Management Act (MFMA).	P1	MALMR, THA.	Law Administration
		8.1.2 Implement training programmes and fill competencies gaps in policy, management, research, fisheries economics and marketing including international trade in fisheries products (marine fisheries and aquaculture).	P1	MALMR, THA	Skills Development

Objective	Measures &/Or Indicators	Actions	Time	Owner	Linkages
		8.1.3 Establish a monitoring, surveillance and enforcement unit for fisheries including the provision of personnel, equipment and facilities.	P1	MALMR. Ministry of Legal Affairs. THA.	Governance
		8.1.4 Develop and maintain a computerised database system including an effective system of data collection as well as the integration of other various databases.	P1-P3	MALMR, THA.	
		8.1.5 Review and update fisheries resource management systems and regulations based on ongoing analysis of fisheries resources data.	P1-P3	MALMR, THA.	



Objective	Measures &/Or Indicators	Actions	Time	Owner	Linkages
		8.1.6 Develop an effective training/extension programme for fisher folks and marketers.	P1-P3	MALMR, THA.	
8.2 To improve product safety for fish and fish products (HACCP compliant).	Implementation of Safety and Quality Standards.	8.2.1 Construct and upgrade berthing facilities at principal landing sights.	P1-P2	MALMR, THA.	Infrastructure
		8.2.2 Construct and/or upgrade offshore fish/seafood facilities compliant with international standards (HACCP) at the principal fishing depots including cold storage.	P1-P2	MALMR, Ministry of Works, THA.	Infrastructure

GOAL 9: Building Human Capital at the Professional, Entrepreneurial and Labourers' levels to support Agricultural development.

Objective	Measures &/Or Indicators	Actions	Time	Owner	Linkages
9.1 To improve the productivity and efficiency of human capital in the agricultural and fisheries sub-sectors.	Growth in Labour supply. Increase in sectoral wage rates. Agricultural yield per unit of labour. Implementation of training programmes in agriculture.	9.1.1 Develop a long-term human resource development plan for agriculture and fisheries to support the 2020 vision including: ▪ Needs analysis. ▪ Training programmes, including vocational training and internships. Execution plan including the provision of fiscal incentives e.g. scholar-ships, tax incentives, grants.	P1 P1 P1 and on going.	MALMR, THA, UWI, Ministry of Education, Ministry of Science & Technology.	Skills Development, Secondary & Tertiary Education

GOAL 10: To develop Information and Communication initiatives to enhance operations of the Agricultural Sector.

Objective	Measures &/Or Indicators	Actions	Time	Owner	Linkages
10.1 To improve the efficiency and effectiveness of information and communication, specifically improving quality, expanding the information base and improving access.	Implementation and development of ICT systems within the various segments of the agricultural sector.	10.1.1 Establish an electronic database and communication system to provide stake-holders with information on: ▪ Government policies, programmes, regulations and support services etc. ▪ Trade policies and agreements. ▪ International regulations. ▪ Technology information. 10.1.2 NAMDEVCO to complete establishment of comprehensive marketing	P1 P1	MALMR MALMR, NAMDEVCO, THA.	Public Administration, ICT International Relations

Objective	Measures &/Or Indicators	Actions	Time	Owner	Linkages
		database (local, regional, international) including intelligence on: ▪ Local market conditions, volumes traded, prices on a daily basis. ▪ International market prices. ▪ Grades and standards (including SPS). ▪ Potential buyers and local supply sources. Market reports to include trends, new developments and forecasts.			
		10.1.3 Establish IT centres in the major agricultural communities (to also serve other Government Ministries and agencies).	P1	MALMR, Ministry of Information, Community Development and Education.	

Objective	Measures &/Or Indicators	Actions	Time	Owner	Linkages
		10.1.4 Develop alternative communication strategies for dissemination of information to augment IT using existing media channels, e.g. TV, Radio.	P1	MALMR, Ministry of Information, Community Development and Education.	Public Administration, ICT

PHASE 2

Summary Strategic Development Initiatives To Foster Growth Of The Sector. Linkages Are Included To Phase 1 'Drivers' Action Plan.

GOAL 1: To Improve the Efficiency and Competitiveness of the Sector.

Objective	Measures &/Or Indicators	Actions	Time	Owner	Linkages	Linkages To Phase 1 Plan
1.1 To improve productivity in agriculture.	Three (3) commodities in each phase I, II, III.	1.1.1 Develop water management and infrastructure in strategic areas.	P0	MALMR	UWI, MOW, THA, Ministry of Public Utilities and Environment	Goal 2: Drainage, Irrigation and Water Management. Goal 10.1.2: NAMDEVCO - establishment of grades and standards.

Objective	Measures &/Or Indicators	Actions	Time	Owner	Linkages	Linkages To Phase 1 Plan
		1.1.2 Adopt technology that supports best practices in agriculture and mechanisation to reduce costs.	P2	MALMR, NAMDEVCO, THA.		
		1.1.3 Adoption of technology to reduce post-harvest losses.	P0-P2	MALMR, Farmers		
		1.1.4 Implement soil management programmes.	P1	MALMR		Goal 2: Drainage, Irrigation and Water Management. Goal 3: Land Resources.

Objective	Measures &/Or Indicators	Actions	Time	Owner	Linkages	Linkages To Phase 1 Plan
1.2 To improve the quality and safety of agricultural products.	Improvements by 80% over two phases: P1 - 40% P2- 40% P3– 20%	1.2.1 Adoption of best practices.	P0, P1	NAMDEVCO, Farmers, MALMR		Goal: 2.4.1-4 - Water Quality. Goal: 5.3.1-4 - Product.
		1.2.2 Introduce system of farm and product certification, agricultural practices.			Law Administration	Competitiveness; Goal 10. Goal: 5.3.1 Product Competitiveness
		1.2.3 Implement national systems for grades and standards.	P0-P2	MALMR	Law Administration Science & Technology	
		1.2.4 Introduce new varieties based on higher quality and improved safety.	P0-P3	MALMR, CARIRI,		Goal 5

Objective	Measures &/Or Indicators	Actions	Time	Owner	Linkages	Linkages To Phase 1 Plan
		1.2.5 Implement programmes to improve water quality and usage.	P0-P3	Technical Committee comprising MALMR, UWI, MOW, THA, Ministry of Public Utilities and Environment, other Stakeholders.		Goal 1 Goal 2
1.3 To improve the efficiency of local and export marketing systems.	Reduction in marketing transaction costs by 30%, P2.	1.3.1 Establish and facilitate adoption of business models and private sector institutions for mobilising the productive capacity of the small farm sector for efficient marketing.	P1-P2	NAMDEVCO		Goal 5
		1.3.2 Facilitate easy	P1-P2	NAMDEVCO		Goal 5.1.1

Objective	Measures &/Or Indicators	Actions	Time	Owner	Linkages	Linkages To Phase 1 Plan
		access to market intelligence.				
		1.3.3 Streamline marketing services e.g. product exports certification, packinghouses, pre-shipment export certification.		NAMDEVCO		Goal: 5.1-3
1.4 To develop and commercialise unique agricultural products through innovation and market research.	Three (3) commodities/ products in each time frame.	1.4.1 Identify unique genetic material with commercial potential.	P3	MALMR CARIRI, CARDI		Goal: 1.4.2
		1.4.2 Establish	P3	MALMR, CARIRI,	Macroeconomy	5.2

Objective	Measures &/Or Indicators	Actions	Time	Owner	Linkages	Linkages To Phase 1 Plan
		priorities in the development of new varieties and products, which have the potential to successfully compete in the market place. (Priorities to be based on competitiveness market potential and opportunities for sustained growth.)		CARDI		
		1.4.3 Provide fiscal incentives for innovation (discovery) of unique products with commercial potential.	P3 P2	MALMR MALMR	Macroeconomy	Goal 1.4.1; Goal 5.2.2

GOAL 2: To contribute to food and nutrition security on a sustained basis by increasing self-sufficiency in strategic foods.

Objective	Measures &/Or Indicators	Actions	Time	Owner	Linkages	Linkages To Phase 1 Plan
2.1 To increase the production and supply of nutritionally strategic foods to meet minimum requirements.	Targets by 2020 as follows: ▪ Cereals (rice) - 20%. ▪ Fruits and vegetables - (80%). ▪ Root crops and tubers - (80%). ▪ Livestock: dairy - (15%), beef - (20-25%), poultry - (95%). ▪ Marine fisheries - (20%), aquaculture - (10%).	2.1.1 Develop policies to promote production processing, utilisation and marketing of those foods.	P1	MALMR, NAMDEVCO		Goal: 5

Objective	Measures &/Or Indicators	Actions	Time	Owner	Linkages	Linkages To Phase 1 Plan
		2.1.2 Promote the use of such foods generally and via programmes, such as the School Nutrition Programme, Folk Fairs, Chef's competition, agricultural exhibitions, and in tourism industry.	P1	NAMDEVCO	Ministry of Health	Goal 5
		2.1.3 Develop specific incentive programmes to encourage production of strategic food commodities that may not otherwise be competitive.	P2	MALMR	Macroeconomy	Goal 5

Objective	Measures &/Or Indicators	Actions	Time	Owner	Linkages	Linkages To Phase 1 Plan
2.2 To ensure food safety (locally produced and imported).	100% of food supplied should be certified safe.	2.2.1 Review and modernise sanitary and phyto-sanitary legislation (SPS).	P0	Law Administration	MALMR	Re: Goal 7.4
		2.2.2 Establish efficient and effective advisory and regulatory support institutions and systems for food safety certification.	P1	Ministry of Health.	Law Administration	Goal 7.4
		2.2.3 Invest in modern efficient diagnostic equipment and facilities.	P2	MALMR,	Science and Technology	Goal: 5.3.3; Goal 7.4; Goal 10.1.2

Objective	Measures &/Or Indicators	Actions	Time	Owner	Linkages	Linkages To Phase 1 Plan
		2.2.4 Promote public awareness on food safety and food handling.	P0	NAMDEVCO	Ministry of Health	
		2.2.5 Update legislation and regulations as required.	P0	MALMR	Law Administration	
2.3 To safeguard arable lands for production/food security needs.	90% of soil capability class up to IV, excluding areas under forestry and already built up.	2.3.1 Reserve lands of suitable quality for agriculture.	P0	Land Administration Authority	MALMR	Goal 3
		2.3.2 Designate selected areas as "Green Belt/Food Basket" areas.	P0			

Objective	Measures &/Or Indicators	Actions	Time	Owner	Linkages	Linkages To Phase 1 Plan
		2.3.3 Develop legislation to protect and safeguard available lands.	P2	MALMR	Ministry of Consumer Affairs	
		2.3.4 Establish monitoring mechanisms.	P1	Governance,		
		2.3.5 Enforce regulations, sensitise the population and publicise programmes.	P1	MALMR		
2.4 To safeguard fisheries resources and augment stocks to optimal levels.	100% of fisheries (EEZ) protected and sustainably managed and optimal stock	2.4.1 Establish artificial fishing reefs in suitable areas.	P1-P2	National Fisheries, Ministry of Agriculture.		Goal 8

Objective	Measures &/Or Indicators	Actions	Time	Owner	Linkages	Linkages To Phase 1 Plan
	levels achieved.					
		2.4.2 Collect and review baseline fisheries data.	P0			
		2.4.3 Conduct research on optimal stock and fisheries efforts.	P0			
		2.4.4 Develop comprehensive fisheries management plan, including institutional strengthening.	P1			
		2.4.5 Review and	P1			

Objective	Measures &/Or Indicators	Actions	Time	Owner	Linkages	Linkages To Phase 1 Plan
		update legislation.				
		2.4.6 Implement fisheries management plan as well as a monitoring and enforcement system.	P0-P3	Macroeconomy		
2.5 To develop aquaculture as a major enterprise in Trinidad and Tobago as a basis for diversification, income, growth and enhanced food security.	At least 10% of fish production derived from aquaculture.	2.5.1 Identify potential fish, shrimp and other species for aquaculture in Trinidad and Tobago.	P1	National Fisheries		

Objective	Measures &/Or Indicators	Actions	Time	Owner	Linkages	Linkages To Phase 1 Plan
		2.5.2 Conduct feasibility studies on alternative production techniques as a basis for promoting investments.	P1			
		2.5.3 Develop national aquaculture strategies, including identification of target areas, choice of technology, marketing, research, and value-added: ▪ Production systems; and ▪ Processing.	P2-P3	MALMR	Macroeconomy	

Objective	Measures &/Or Indicators	Actions	Time	Owner	Linkages	Linkages To Phase 1 Plan
		2.5.4 Develop an appropriate incentive system for investment (financial, training, marketing and stock).	P1			
		2.5.5 Provide training and advisory support in the management technology, business management and produce marketing throughout the investment cycle.	P1	Macroeconomy Ministry of Education	Science and Technology	

GOAL 3: To achieve and sustain quality of life in rural communities comparable to the larger society commensurate with their Social, Cultural, Economic and Political aspirations.

Objective	Measures &/Or Indicators	Actions	Time	Owner	Linkages	Linkages To Phase 1 Plan
3.1 To increase knowledge and skills of rural communities in agri-business and other rural-based economic activities (services, eco-tourism, agro-tourism, cottage industries, forestry, etc.).	100% rural labour force trained to employable and productive levels.	3.1.1 Conduct baseline studies of communities, including resource profiles and economic activities.	P0	CSO		Goal 9
		3.1.2 Formulate strategic development plans for each rural district/community based on resources and	P1	Ministry of Planning		Goal 9

Objective	Measures &/Or Indicators	Actions	Time	Owner	Linkages	Linkages To Phase 1 Plan
		opportunities, using a participatory approach.				
		3.1.3 Develop and implement customised training and support programmes for the development of entrepreneurial activity in targeted communities.	P0-P3	Ministry of Education		Goal 9
		3.1.4 Sustain competencies and skills development through scholarships/internship programmes.	P0-P3	Ministry of Education		Goal 9

Objective	Measures &/Or Indicators	Actions	Time	Owner	Linkages	Linkages To Phase 1 Plan
3.2 To encourage entrepreneurial activities and investments in rural communities.	Rural investment per capita is at least equal to the average per capita investment for Trinidad and Tobago.	3.2.1 Develop, encourage and promote specific investment packages that offer profitable potential for rural-based economic activities.	P1	Financial Sector	Macroeconomy	
		3.2.2 Establish institutional support for rural entrepreneurs in the areas of project planning, financing and implementation.	P1	MALMR	Macroeconomy	
		3.2.3 Provide fiscal incentives for financial institutions and the private sector for rural-based investments in productive	P0-P3	Macroeconomy	Ministry of Trade, Education.	

Objective	Measures &/Or Indicators	Actions	Time	Owner	Linkages	Linkages To Phase 1 Plan
		activities.				
		3.2.4 Provide grant funding for high impact and sustainable investment activities.	P0-P3	Ministry of Finance		
3.3 To reduce crime in rural communities including praedial larceny. (Objectives1 & 2 will also contribute to this objective.)	Reduce the number of incidences of crime, including praedial larceny by 15% per year.	3.3.1 Establish community-based crime/larceny watch groups and create positions of crime/larceny wardens. (Also to monitor squatting on State lands.)	P0	Ministry of National Security	Law Administration	
		3.3.2 Establish district-based agricultural tribunals to deal with incidence of squatting, praedial larceny, resource-	P1 P1	MALMR		

Objective	Measures &/Or Indicators	Actions	Time	Owner	Linkages	Linkages To Phase 1 Plan
		based conflicts and contractual issues.				
		3.3.3 Develop enabling legislation to support item 3.3.1, including need to have a certificate of sale as proof as a producer.		MALMR	Science and Technology	
		3.3.4 Institute a national system for identification of animals.	Ongoing	MALMR	Law Administration	
		3.3.5 Review and increase the minimum penalty for offences.				
		3.3.6 Establish closer relationships between police and community.	Ongoing	Ministry of National Security		

Objective	Measures &/Or Indicators	Actions	Time	Owner	Linkages	Linkages To Phase 1 Plan
		and community.				
3.4 To provide adequate social, recreational and public amenities and infrastructure in rural communities.	Achieve a level at least commensurate with urban communities by 2010.	3.4.1 Conduct a baseline survey to identify needs in pilot communities.	P1	MALMR		
		3.4.2 Establish multi-sectoral and multidisciplinary teams to develop plans of action.	P1	Local Development		
		3.4.3 Allocation of public sector resources for investments.	P0	MALMR	Ministry of Finance	
		3.4.4 Implementation of 3.4.1, 3.4.2 and 3.4.3	Ongoing	Same as above		

Objective	Measures &/Or Indicators	Actions	Time	Owner	Linkages	Linkages To Phase 1 Plan
		(above), including maintenance and development in partnership with communities.				
3.5 To develop a social safety-net programme.	100% of farmers have access to social safety--net programmes by 2006.	3.5.1 Establish a formal programme of crop/livestock insurance for disaster relief, targeted at major commodities.	P1	MALMR	Ministry of Finance	
		3.5.2 Implement programmes to diversify the economic base of communities.	Ongoing		Macroeconomy	
		3.5.3 Compensation for major income losses due to import surges as a result of trade liberalisation.	P0-P3			

Objective	Measures &/Or Indicators	Actions	Time	Owner	Linkages	Linkages To Phase 1 Plan
3.6 To promote and showcase rural communities.	By 2009, all rural communities will be showcased and promoted.	3.6.1 Commission the development of resource material on the history, culture, traditions and other unique attributes of rural communities, including the environment.	P1-P2	Ministry of Tourism		
		3.6.2 Encourage Government institutes, media houses, etc. to showcase the history, beauty, and culture of rural communities.	Ongoing Ongoing	Ministry of Information		
		3.6.3 Promote rural communities in the local and foreign tourist markets.		Ministry of Tourism		

GOAL 4: To contribute to the conservation of the natural environment and promote and maintain its integrity.

Objective	Measures &/Or Indicators	Actions	Time	Owner	Linkages	Linkages To Phase 1 Plan
4.1 To promote sustainable resource use and best practices in the farming, fishing, forestry, eco-tourism and natural resource-based economic activities and to preserve the positive attributes of rural culture and life styles.	By 2009, all rural communities will be showcased and promoted.	4.1.1 Identify best practices for sustainable resource use in each community. 4.1.2 Promote and implement training programmes in best practices.	P1 Ongoing	MALMR. Ministry of Education. UWI		

Objective	Measures &/Or Indicators	Actions	Time	Owner	Linkages	Linkages To Phase 1 Plan
		4.1.3 Provide appropriate recognition to communities and individuals for adoption of best practices.	Ongoing			
4.2 To enhance and preserve agriculture's contribution to the environment.	Reduction in natural resource degradation.	4.2.1 Avoid further fragmentation/alienation of agricultural holdings by instituting regulations on land and land use.	P0	Law Administration		
		4.2.2 Promote compatible agriculture activities on contiguous land holdings, e.g. orchards of citrus, fields of sugarcane, coconut groves.	Ongoing	MALMR	Ministry of Education. Science and Technology. EMA.	

Objective	Measures &/Or Indicators	Actions	Time	Owner	Linkages	Linkages To Phase 1 Plan
		4.2.3 Promote and train farmers in the use of IPM and biological control of pests and diseases.	Ongoing	MALMR	EMA. Science and Technology	
		4.2.4 Develop and enforce regulations/practices prohibiting agricultural activities and systems of production that are environmentally degrading.	Ongoing	MALMR	EMA. Ministry of Health	
		4.2.5 Establish a protocol for the importation and safe use of agricultural chemicals.	P0	MALMR		
		4.2.6 Implement SPS measures (see 2.6.1).				

Objective	Measures &/Or Indicators	Actions	Time	Owner	Linkages	Linkages To Phase 1 Plan
		4.2.7 Design and implement a system of farm certification to encourage the adoption and best farm practices and supply of safe foods. (Tied into strategiy1.1.2.)	P0	MALMR	Macroeconomy	
		4.2.8 Provide fiscal incentives for beautification and improvement of farm aesthetics.	P1	MALMR	Governance	
		4.2.9 Implement a system of recognition/award for farm beautification.				
		4.2.10 Design and promote best practices in handling of	P1	MALMR	Macroeconomy	

Objective	Measures &/Or Indicators	Actions	Time	Owner	Linkages	Linkages To Phase 1 Plan
		agricultural waste, residues and set machinery/equipment, also to monitor and enforce regulations.				
		4.2.11 Develop protocols for the use and disposal of agro-chemicals.	P0	MALMR	Agricultural Society	
			P0	MALMR	Governance	
4.3 To contribute to the protection of the diverse indigenous plant and animal species of Trinidad & Tobago in a sustainable manner.	No further loss of plant and animal species after 3 years, following the establishment of the National Biodiversity Centre.	4.3.1 Establish and operationalise the proposed National Biodiversity Centre at UWI to preserve the gene pool of indigenous plant and animal species.	P2	UWI	MALMR	

Objective	Measures &/Or Indicators	Actions	Time	Owner	Linkages	Linkages To Phase 1 Plan
		4.3.2 Develop and implement programmes to preserve indigenous species	P1			
		4.3.3 Develop and enforce appropriate legislation to protect and preserve indigenous plant and animal lands.	P1			
4.4 To promote the restoration of degraded lands and to prevent further degradation.	Sustainable economic activities identified for all rural communities by 2010.	4.4.1 Identify degraded lands.	P0	MALMR	EMA,	
		4.4.2 Develop appropriate programmes to restore	P1			

Objective	Measures &/Or Indicators	Actions	Time	Owner	Linkages	Linkages To Phase 1 Plan
		degraded lands with incentives.				
		4.4.3 Determine and promote alternative uses for restored lands.	Ongoing			
		4.4.4 Ensure that a restoration clause is included in land use tenancy contracts as well as provision for restoration deposits; also to enforce restoration clause in tenancy agreements.	Ongoing			
4.5 To promote sustainable rural community-based	Multifunctional contributions fully promoted by year 3.	4.5.1 Identify opportunities based on resource endowments of each community. (Refer to	P1	MALMR	Ministry of Local Government	

Objective	Measures &/Or Indicators	Actions	Time	Owner	Linkages	Linkages To Phase 1 Plan
economic activities that will contribute to the conservation of natural resources, including biodiversity.		2.7.2.)				
		4.5.2 Promote investment options based on feasibility studies, inclusive of market and financing.	P2	Financial Sector	Ministry of Trade and Industry	
		4.5.3 Train prospective entrepreneurs in technology know-how, business management and marketing.	Ongoing	Ministry of Trade	Ministry of Education	
		4.5.4 Provide sustained mentoring/advisory support to	Ongoing	MALMR		

Objective	Measures &/Or Indicators	Actions	Time	Owner	Linkages	Linkages To Phase 1 Plan
		investors. 4.5.5 Promote joint or collaborative investment initiatives within communities. 4.5.6 Provide recognition/awards for successful community-based entrepreneurial initiatives.	 Ongoing Ongoing			

GOAL 5: To recognise and promote the multifunctional contribution of agriculture to societal well-being.

Objective	Measures &/Or Indicators	Actions	Time	Owner	Linkages	Linkages To Phase 1 Plan
5.1 To recognise and promote the specific multifunctional contributions of agriculture, fisheries and the rural sector, which are strategically important for Trinidad and Tobago	Multifunctional contributions fully promoted by year 3.	5.1.1 Develop and apply an appropriate methodology to identify and capture the various non-economic contributions of agriculture (multifunctional) to socio-economic development, including the country's environmental assets.	P0	Ministry of Finance	Macroeconomy Regional Development	

Objective	Measures &/Or Indicators	Actions	Time	Owner	Linkages	Linkages To Phase 1 Plan
		5.1.2 Develop a collaborative mechanism to bring to the forefront the multifunctional role of agriculture in trade, environment, health, gender and other relevant policy, involving media houses, NGO's, Ministry of Education and the private sector. 5.1.3 Promote the concept of multi-functionality to media houses, NGOs, the private sector and Government Ministries and agencies.	P1 Ongoing		Macroeconomy Ministry of Tourism	

Objective	Measures &/Or Indicators	Actions	Time	Owner	Linkages	Linkages To Phase 1 Plan
5.2 To promote and showcase the multifunctional contributions of agriculture to societal development; and also to integrate this into the school curriculum.	Multifunctional contributions identified by year 1 and quantified by year 3. Material on multi-functionality integrated into the school curriculum by year 3.	5.2.1 Establish and undertake a programme of research to uncover the value of the linkages between agriculture and other sectors (e.g. manufacturing and tourism).	P1	MALMR	Ministry of Education	
		5.2.2 Develop appropriate policies and fiscal measures in support of agriculture based on its real contributions to the socio-economic development and justified using socio-economic cost/benefit	P1	Ministry of Culture		

Objective	Measures &/Or Indicators	Actions	Time	Owner	Linkages	Linkages To Phase 1 Plan
		analyses. 5.2.3 Promote traditions, customs and indigenous know-how of rural committees.	P2	Ministry of Finance		
5.3 To promote the importance of agriculture as a pillar of the economy.	Host agri-business fairs annually, showcasing various commodities.	5.3.1 Establish and operationalise an Agri-business Fairs Committee and implement an awards system for excellence in farming.	Ongoing	TIDCO, NAMDEVCO	Ministry of Trade and Industry	

GOAL 6: To promote the holistic development of rural communities.

Objective	Measures &/Or Indicators	Actions	Time	Owner	Linkages	Linkages To Phase 1 Plan
6.1 To fully develop the social, institutional and physical infrastructure/amenities in rural communities, so as to support the standard of living.	All rural committees provided with amenities by 2020.	6.1.1 Based on community base-line studies (2.7.2), prioritise social, institutional and physical infrastructure needs with full participation of the community.	P1	Ministry of Community Development	Local Government	
		6.1.2 Develop programmes for delivery based on 3.1.	Ongoing			
6.2 To facilitate growth and expansion of a diversified range of community-based	By the end of Phase II, to achieve a high level of	6.2.1 Encourage the development and use of appropriate technology (see 2.3.1 to 2.3.4).	Ongoing	MALMR	Science and Technology	

Objective	Measures &/Or Indicators	Actions	Time	Owner	Linkages	Linkages To Phase 1 Plan
economic activities, e.g. value- added food industries, handicraft, agro-tourism services.	employment – 90% and levels of remuneration comparable with other sectors and a diversified economic base.					
		6.2.2 Encourage production of value-added and community-based economic activities (see 3.2.1to 3.2.4).	Ongoing	MALMR	Trade and Industry	
		6.2.3 Implement measures to reduce praedial larceny. (See 3.3.1 to 3.3.6.)	Ongoing	Law Administration	National Security	
		6.2.4 Encourage farmers to	Ongoing	MALMR		

Objective	Measures &/Or Indicators	Actions	Time	Owner	Linkages	Linkages To Phase 1 Plan
		keep records for registration and certification.				

GOAL 7: To contribute to the socio-economic development of rural communities through the exploitation of indigenous knowledge, particularly herbal/medicinal application, knowledge, skills and positive attributes

Objective	Measures &/Or Indicators	Actions	Time	Owner	Linkages	Linkages To Phase 1 Plan
7.1 To develop bankable projects based on indigenous knowledge and showcase the indigenous knowledge and positive attributes of rural communities.	Indigenous know-how and positive community attributes showcased by 2010 for all commodities.	7.1.1 Identify and highlight indigenous know-how, skills and positive attributes in rural commodities and the talent of the people through print and electronic media.	P1-P2	Ministry of Education	Skills Development and Training	
		7.1.2 Establish a special R&D contestable fund for monetising indigenous knowledge and bio resources.	P1-P2	Ministry of Science and Technology	Ministry of Trade	

Objective	Measures &/Or Indicators	Actions	Time	Owner	Linkages	Linkages To Phase 1 Plan
		7.1.3 Provide resources for documenting and showcasing uniqueness of rural communities.	Ongoing	Ministry of Culture	Local Government	

Critical Success Factors

1. Government support for sectoral initiatives – financial, legislative etc.
2. Institutional support and effective implementation.
3. Support by farmers for innovations.

Essential Pre-Conditions

1. Government actions to foster effective development of the sector (changes to legislation, financing and creation/strengthening of developmental and institutional support initiatives).
2. Buy-in and support by Agriculture stakeholders.