

**SECOND SABAH AGRICULTURAL POLICY
1999 - 2010**

CONTENTS

- I. INTRODUCTION**
- II. POLICY**
- III. OBJECTIVES**
- IV. STRATEGIES**
- V. POVERTY ERADICATION**
- VI. AGRICULTURE LAND DEVELOPMENT**
- VII. FOOD PRODUCTION**
- VIII. ROLE OF THE PRIVATE SECTOR**
- IX. AGRICULTURAL CROPS DEVELOPMENT**
- X. LIVESTOCK DEVELOPMENT**
- XI. FISHERIES DEVELOPMENT**
- XII. ECONOMIC FOUNDATION**
- XIII. CONCLUSION**

I. INTRODUCTION

1. This document outlines the Second Sabah Agricultural Policy (1999-2010), or SAP2, which sets the strategic directions for agricultural, livestock and fisheries development in the state of Sabah to the year 2010.
2. SAP2 has been formulated to ensure that the state's agricultural development policy is in line with the new Third National Agricultural Policy (1998-2010) or NAP3.
3. The recent financial crisis which the country and the region faces, has highlighted the need for the state to increase domestic food production and to be less dependent on imports, to offset the state's increasing food import bills. SAP2 will therefore give increased emphasis to enhance domestic production of food, in particular paddy as a strategic crop and for food security. SAP2 will also undertake actions to identify suitable areas for commercial food production to be reserved and zone for such purposes.
4. The current dwindling state land resources which are still available for alienation for agricultural development also underline the urgent necessity to utilize these resources wisely and in the most optimum and sustainable basis, so as to maximize their productivity and income generating potential, for the economic benefits of the state. SAP2 will therefore emphasize on sustainable management and utilization of resources as the guiding principle in pursuing agricultural development.
5. Although SAP2 will continue to emphasize on the commodity-based strategies of the First Sabah Agricultural Policy (1992-2010) or SAPI, the new Policy will incorporate the product-based approach as formulated in the new NAP3. As such, in addition to strategies directed at increasing productivity and efficiency in the sector, SAP2 will also focus attention on the need to enhance and promote competitiveness in the sector, strengthening research and development efforts, intensifying new product development and enhancing information technology and technological capabilities as well as upgrading the quality of human resources: Efforts to develop efficient marketing systems and strategies to ensure competitiveness in both local and foreign markets will also be given greater attention. SAP2 also recognizes the important role of the private sector, in particular in the arenas of commercial food production and in the development of local based agro-and-resource-based downstream and manufacturing industries.

II POLICY

- 6 The Policy formulated under SAPI aimed at the transformation of the agricultural sector into a modernized, commercialized, dynamic and competitive sector, and which anticipates the creation of a market-led and efficient agribusiness, farms and enterprises producing innovative products and processes will continue to be pursued under SAP2.
- 7 The Policy will also continue to strive and to complement the overall state strategies to reduce the incidence of poverty in the state, particularly among the farming, livestock and fishing communities.

III OBJECTIVES

8 The overriding objective of SAP2 is the maximization of income through the optimal utilization of the resources in the sector so as to sustain and enhance their

9 The specific objectives of SAP2 are:-

- transforming the smallholders into a more commercial and dynamic sector;
- increasing efficiency and productivity of the agriculture sector;
- increasing the level of domestic food production;
- accelerating the development and growth of local agro-based downstream processing and manufacturing industries;
- promoting globally competitive agriculture;
- strengthening essential economic foundation and basic support services; and
- adopting sustainable development.

IV STRATEGIES

10 The realization of the policy objectives of the Second Sabah Agricultural Policy will be achieved through five basic strategies. These are:-

- optimal utilization of agricultural resources;
- acceleration of agro-based industries development;
- intensified research and development;
- human resource development; and
- development of efficient marketing systems and strategies.

Optimal Utilization of Agricultural Resources

11 Agricultural resources will be utilized in the most optimal manner so as to maximize their productivity and realize to the fullest the income generating potentials at the least possible cost. Sustainable management and utilization of such resources will be the guiding principle in pursuing agricultural development. Conservation and protection of indigenous bio-diversity and promoting environmentally friendly practices to minimize the negative impact of agricultural development on the environment will be given emphasis.

12 More effective and systematic utilization of idle or abandoned lands, both paddy and non-paddy, will be undertaken. A registry of such lands will be compiled and an action plan will be prepared for their orderly development. Priority will be given for these areas to be planted with improved planting materials, developed with food, feed and/or other higher value crops, both short term and perennials, livestock production, aquaculture and the production of raw materials for industries. The introduction of agriculture-related recreational activities such as agro-tourism would also be promoted. Programs for the rehabilitation and development of such lands will be improved and strengthened, where emphasis will be given to increase participation from farmers in such programs, based on sustainability as well as the involvement and participation of the private sectors. Areas with potential for rural-based agro-industries will also be assessed.

13 Existing marine, brackish and freshwater fisheries and those with high potential will be exploited on a commercial and integrated basis through rational and sustainable development. Deep-sea fisheries resources, which are as yet fully exploited, will

betargeted for enhanced development by increasing the size of present deep sea fishing fleet in the state.

- 14 Water is crucial for agriculture, livestock and aquaculture activities. Efforts, therefore, will be continued to identify water sources that can be developed and preserved. Indiscriminate development, which adversely affects water catchments, pollutes riverine systems and degrades estuarine and reef networks will be prevented. Sustainable development of water resources through appropriate engineering infrastructure for irrigation, drainage and farm access will be undertaken on an environmentally friendly basis.

Acceleration of Agro-based Industries Development

- 15 The development of agro-based industries, in particular the expansion into further downstream and higher value-added activities, will be actively promoted to support and sustain the orderly growth and development of the agricultural sector, and to integrate the sector with the manufacturing sector. The integration and linkages between the agriculture and the manufacturing sector will allow the two sectors to maximize their growth and development, thus creating opportunities for the state to broaden its industrial production base.
- 16 As the ability of the agricultural sector in particular, and the state in general, to go further downstream is very much dependent upon the accessibility to technology, entrepreneurial and capital resources and markets, the role of the private sector, in particular foreign investors, will play a vital role in such areas due to their accessibility to new and improved technology, both high-tech and in specialized areas, including in the production and processing technologies, entrepreneurial and capital resources, and their established marketing and distribution networks. Greater efforts will therefore be made to actively encourage and facilitate potential investors, both local and foreign, to venture into Sabah-based agro-industries.
- 17 Local collateral support industries such as manufacturing of agricultural machinery and equipment, fertilizers, agricultural chemicals; and canning, bottling and packaging materials will also be encouraged so that synergy of operations in agriculture, livestock and fisheries can be established.

Intensified Research and Development

- 18 Research and development will continue to be intensified towards identifying and developing state-of-the-art technologies to increase productivity and efficiency to reduce unit cost, reduce losses and increase net yield. This will include the identification and development of vigorous crop varieties, livestock breeds and aquatic species, which are high yielding with excellent performance and superior quality; the development of appropriate mechanization and automation systems for greater substitution of labor for capital especially in labor intensive production operations; and in the development of technology to increase production and product
- 19 To enhance marketability, research and development will be geared towards product development to match consumer taste and preference as well as on the development of technologies for the production of high value and value-added products for the niche and specialty markets.

- 20 Collaborative research and development programs between public and private sectors will continue to be intensified for the benefit of the industry .Adequate scientific human resource particularly in the fields of biotechnology, material sciences and information technology will be strengthened.

Human Resource Development

- 21 The commercialization of agriculture, operated as agribusiness and the integration and linkages of the sector with the manufacturing sector, will result in the need for highly skilled manpower and related expertise. Human resource development will therefore be oriented towards a total development approach, which includes training in leadership and integrity, technical know-how, management, organizational, marketing, and entrepreneurial skills.
- 22 The agriculture sector will also require a highly trained and skilled workforce because of the advent of new innovations, new technological processes and methods and the usage of high tech equipment. As such, the sector's work force will be given appropriate training, which will update and widen their knowledge, composure and skills.
- 23 Teaching methodology will also be improved from time to time to ensure that the appropriate technologies and information are imparted. Training facilities will be

Development of Efficient Marketing Systems and Strategies.

- 24 The development of efficient marketing systems and strategies will be actively pursued to improve both domestic and export market networks. This will include the development, improvement and expansion of marketing channels, storage and processing facilities, infrastructure and transportation systems. Proper marketing practices related to wholesale activities, health and sanitary requirements would also be emphasized.
- 25 Domestic market strategies will focus on aggressive promotion of locally produced high quality and competitively-priced produce and products to compete with imported produce and products.
- 26 Global marketing strategies will be focussed on maximizing existing markets while creating new markets. The marketing efforts will have to ensure that the state's products are competitive, specifically oriented to changing and consumer preferences and responsive to market needs and opportunities.
- 27 The development of a reliable market information system, including market research and analysis, information dissemination and market intelligence networking for existing and of potential markets will be developed to collate and analyze domestic and global market information.

V POVERTY ERADICATION

- 28 The incidence of poverty in the state is still high especially in the agricultural and rural sectors. As such, greater attention will be given to meet the specific needs of the poor, particularly the hard-core poor. To complement other efforts on poverty eradication, in-situ developments will be given more emphasis in order to benefit more target groups. These will include programs for the rehabilitation of idle

- lands as well as the implementation of agriculture, livestock and fisheries projects on an integrated basis.
- 29 The existing production-oriented incentive programs will be continued, but its implementation mechanism and approach will be improved and streamlined to maximize efficiency and effectiveness.
- 30 Emphasis will be on increasing land and labor productivity, optimization of land use and fisheries resources, and the introduction of appropriate technologies and revenue generating activities.
- 31 Delivery system for ready access to credit facilities by the rural poor will be upgraded, expanded and strengthened to reach more of the target groups and to increase the value of credit package per user.
- 32 Efforts will be made to organize and to integrate the rural poor into processing and marketing networks with a view to creating a commercially-oriented self-reliant communities among the rural poor.

VI **AGRICULTURE LAND DEVELOPMENT**

- 33 Agriculture land resources will be utilized in the most optimum manner so as to maximize their productivity and realize to the fullest their income generating potential. for agro-industrial application. The emphasis of land development, both new and existing, will be on the cultivation of industrial and food crops without the risk of dependency on a few crops to realize the maximum potential for export, import substitutions and/or downstream processing.
- 34 Food and feed crops production will be given more significant emphasis in view of their strategic importance. Land for agricultural development, in particular those found suitable for commercial food and/or feed crops production, will be identified, reserved and utilized for such specific purposes only.
- 35 To further optimize land use and maximize returns, integration of commercially important forestry species into existing agriculture activities especially in areas where soils are marginal for agriculture will be encouraged.
- 36 Environmentally-friendly methods of cultivation, production and processing will be promoted to minimize the negative impact of these activities on the environment. Recognizing the importance of soil as a resource vital for agriculture, efforts will also be undertaken to maintain the soil eco-system of the state to ensure its proper utilization and conservation. As such, steep terrain of between 20 and 25 degrees slope as defined in the "Soils of Sabah (1975) Study" will only be allowed' for development under environmentally-friendly methods of cultivation which include proper soil and slope management measures in particular through the use of the sloping agriculture land use technology.
- 37 The conservation and protection of indigenous bio-diversity and prevention of environmental impacts of land development for agriculture purposes will be strongly adhered to in assessing land proposed for alienation. The streamlining and enforcement of laws, rules and regulations for sustainable management and utilization of such resources for agricultural development will be emphasized.

NEW LAND DEVELOPMENT

- 38 In view of the total area of state lands that had already been alienated, coupled by the need to abide by the National Forest Cover Policy of at least 50 percent, limited new

land is now available for alienation for agricultural development. As such, all future alienation of new land for agriculture development will be strictly regulated.

39 Alienation of new land for agricultural purposes will be governed by the priority to the cultivation of crops, livestock farming and aquaculture that are of strategic importance, particularly food commodities that will fulfill the state's food requirement.

40 Areas suitable for large-scale commercial food production will be identified, reserved and to be utilized for such purpose only. Participation from both local and foreign investors with financial and technical resources for such large-scale commercial ventures will be encouraged.

IN-SITU DEVELOPMENT

41 To resolve the issues of uneconomical farm size, the planting of unremunerative crops and low farm productivity levels; and to encourage diversification of economic activities to improve the income earning capacity and the standard of living of the rural populace, in-situ developments will be intensified and emphasize on economically viable activities using locally available physical and human resources.

42 In-situ organized farming with centralized management system will be emphasized. The concept of integrated agricultural development, which also incorporates agro-based rural cottage industries and/or other economic activities including agro-tourism will be promoted.

43 Infrastructure facilities and marketing network will be provided, improved and strengthened to support such in-situ development.

IDLE LAND

44 Lands are considered to be idle if they are not developed, nor maintained to give a fair return to the owner. For paddy land, they are considered idle if they are not cultivated for three (3) consecutive years.

45 Idle land will be identified and registered. A land registry with appropriate enforcement authority will be established to collect such data and information.

46 An action plan will be prepared for orderly development of these areas. It will put emphasis on increased farmers' participation through transformation and reorganization of farms into larger-scale commercial units, or development to be undertaken by private entrepreneurs on rental or joint venture basis. Priority will be given for these areas to be developed under food, feed and other high value crops, livestock farming, aquaculture and the production of raw materials for industries. Areas with potential for rural-based agro-industries will also be assessed.

VII FOOD PRODUCTION

47 Population growth, rural-urban migration, improving education standards and changes in lifestyle towards a healthier diet, have resulted not only in the increasing demand for food but also food of a high quality that is safe and nutritious. The state is near self-sufficient in the production of a number of food items, but the paddy, feed-maize, beef and dairy sub-sectors are unable to produce sufficient quantities to meet local demands. A substantial quantities of temperate vegetables and fruits are also imported annually. This has resulted in the state's increasing food import bills.

- 48 Concerted effort will, therefore, be given to increasing domestic food production to meet local demand, act as an import substitution and to reduce the huge food import bills. This will include the production of paddy, feed-maize, fruits, vegetables, livestock and fish. Attention will also be given to ensure adequate supply and accessibility of safe, nutritious and high-quality food at affordable prices. Steps will also be taken to identify, develop, produce and promote selected food and food
- 49 Areas suitable for commercial food production, livestock farming and aquaculture will be identified and reserved. These areas, in new and existing agricultural lands, will be permanently designated as food, livestock or aquaculture production zones. Private sector participation and their involvement in such sustainable and commercial food production and processing activities will be encouraged and promoted. This will entail the provision of necessary infrastructures, amenities and supporting services. In addition, plantation owners will be encouraged to allocate at least 10 percent of their land that are suitable, for the production of food and feed commodities.
- 50 Sufficient quantities of quality seeds and planting materials, livestock breeds and fish fries and seeds will be made available to support the food production programs. Facilities for this purpose will be expanded, upgraded and strengthened. Private sector involvement in such ventures will also be promoted.
- 51 The streamlining and enforcement of laws, rules and regulations pertaining to quality standard of food production and food products covering areas such as inspections, handling and processing including the provision of abattoir facilities, storage and transportation, will be emphasized.

VIII **ROLE OF THE PRIVATE SECTOR**

- 52 The private sector will be accorded a strategic role under the SAP2 for they will be expected to be the engine of growth that will steer the development of the various industries identified in the Policy, in particular in the production of food commodities and in the further development and growth of the agro-and-resource-based downstream processing and manufacturing industries. The role of the government will be to act as a facilitator to encourage private sector investment, which will include assisting them to overcome any constraint, which may affect their involvement.

IX **AGRICULTURAL CROPS DEVELOPMENT**

- 53 Agricultural crops comprise three crop groups, namely the industrial crops group, the food crops group and the other economic crops and other activities group.

INDUSTRIAL CROPS

- 54 This group of crops comprises of oil palm, cocoa and rubber. In view of the important role they play in the economic development of the state, and in line with the industrialization strategies of the Sabah Industrial Master Plan, industrial crops production will be enhanced to sustain their continued contribution towards the economic development and growth of the state, to maintain their vital roles as raw materials suppliers to the industrial processors and manufacturers of high value-added products, and as an important source of revenue for the nation.

- 55 To maximize returns from industrial crops, their production will emphasize on improvement of productivity and efficiency. This will be realized among others, through research and development efforts, intensifying new product development, enhancing technological capabilities, human resource development, utilization of quality planting materials, better cultural practices and more efficient cost-effective management. The adoption of automation and intensified mechanization will also be encouraged as a long-term solution to the labour shortage problems.
- 56 To ensure the orderly and sustainable development of the industry, strategically located downstream processing and related activities to produce locally manufactured higher value-added products and for the diversification of end-uses will be actively promoted and pursued. The networking of vertically and horizontally integrated activities will also be encouraged. These will require the provision of necessary infrastructures and facilities, amenities and supporting services.
- 57 A global oriented marketing strategy will be aggressively pursued to improve the existing marketing networks, as well as to develop and strengthen potential and new emerging markets, to give competitive edge to exports of the industrial crops products.
- 58 Environmentally-friendly methods of cultivation, production and processing will be promoted to minimize the negative impact of these activities on the environment. Research and application of appropriate technologies and innovations for this purpose will be given emphasis. Towards this end, laws, rules and regulations will be streamlined, strengthened and strictly enforced to support this effort.

Oil Palm

- 59 Oil palm is the fastest growing agro-industry in the state. The industry is the backbone of the agriculture sector in the state, having developed from a mere producer and exporter of crude palm oil into a more diversified industry. The oil palm industry is currently also a major economic contributor to the state. As such, the oil palm industry will be consolidated to ensure its orderly development and growth. The industry's contribution to the state's economy will be sustained by maximizing returns from palm oil production. This will be achieved through improving efficiency and productivity; reducing cost of production, both in production and processing operations; and further sustaining and improving the viability and competitiveness of the palm oil industry.
- 60 Advancements in production technologies and adequate supplies of quality planting materials will be given priority. The adoption of labour-saving technology will be encouraged to reduce labour inputs utilization as a way to solve the problem of labour shortage. Milling, bulking installation, refining and port facilities will be upgraded, expanded and increased to cater for increased production.
- 61 The local manufacturing of a wider range of palm oil-based products in the food, non-food and oleo-chemicals industries as well as products from oil palm biomass, will be actively pursued. As such, the palm oil milling industry will be encouraged to upgrade and modernize their operations through the introduction of more efficient, cost-effective and up-to-date milling technology with high level of automation, while the technological capabilities of refineries will likewise be encouraged to upgrade, and increase their processing efficiency and to cater for the needs of a wider products range.

- 62 An aggressive global marketing strategy, in particular proactive promotion campaigns and publicity efforts by relevant central agencies for Malaysian palm oil products, will need to be pursued. Environmentally-friendly methods of oil palm cultivation, production and processing will be promoted to minimize the negative impact of these activities on the environment.

Cocoa

- 63 The state is the major producer of cocoa in the country, contributing about 70 percent of the nation's total production. Cocoa production will therefore continue to be given emphasis to ensure adequate supply of cocoa beans for the cocoa-based industry.
- 64 To improve efficiency and productivity, cocoa development will emphasize on the consolidation of uneconomic-sized production units to achieve economies of scale and the rehabilitation and upgrading of unproductive holdings with high yielding and disease resistant clones. Adequate supplies of such quality planting materials will therefore be emphasized. Cocoa planting will be encouraged only in areas which are agroclimatically and pedologically suited for the crop. Research and development programs in breeding, cultural practices and processing methods to achieve the flavour and quality of beans and cocoa products required by consumers will be intensified.
- 65 Downstream processing to produce locally manufactured value-added products including grinding and manufacturing of cocoa tertiary products will be encouraged to strengthen the industry. Efforts will also be undertaken to widen the industry's product base through development of new products and finding new uses of cocoa. Strategies will be implemented to improve marketing efficiency, upgrade existing traditional market networks and to develop and strengthen potential markets. A more aggressive promotional effort will be undertaken to penetrate these markets. Environmentally-friendly methods of cocoa cultivation, production and processing will be promoted.

Rubber

- 66 The rubber industry in the state is dominated by the smallholder sector, with a high proportion of the holdings under unproductive rubber. The low prices of rubber, low productivity, high cost of production and the acute shortage of labour/tappers have resulted in a high proportion of abandoned and untapped holdings. As such, emphasis will be given to the consolidation of existing rubber areas in order to bring into production the economically recoverable high yielding rubber still untapped or not fully tapped. At the same time, programs to rehabilitate and upgrade the unproductive holdings through the planting of new high yielding rubber clones with timber potential will be continued. New planting of rubber will only be recommended in areas less suitable for other crops. Block new planting and replanting to improve management efficiency through the mini-estate concept will be emphasized. Greater efforts will also be undertaken to promote the faster adoption of labour saving and other technologies.
- 67 To broaden the market-base for locally-produced rubber, downstream processing to produce value-added products including diversification of end uses of rubber and rubber products including rubber wood, to be manufactured locally will be

encouraged. Environmentally-friendly methods of rubber cultivation, production and processing will be promoted.

FOOD CROPS

- 68 This group of crops consists of paddy, fruits and vegetables. Food crops production will be increased to meet the domestic food requirements, for food import substitution and to reduce the high food import bills. Being an important crop, paddy production will be given high priority.

Paddy

- 69 Paddy production has always been given special treatment because of its strategic importance as a staple food. The state, historically, has been a net importer of rice as local production has not been able to meet domestic demand. This has resulted in high import bills for rice.
- 70 The state will give high priority and strengthen efforts to increase domestic production of paddy as a strategic crop and for food security. The objective is to meet a minimum of 60 percent of the state's requirements. Priority will be given to increase production in the traditional paddy-growing areas. Control on the conversion of paddy lands into other uses will be strictly enforced. The zoning of the various wet land paddy-growing areas which are provided with irrigation and other essential farm infrastructures and facilities will be undertaken.
- 71 Greater efforts will be undertaken to improve the efficiency and productivity of paddy production by way of increasing paddy yields through high-yielding varieties and suitable agronomic practices, and intensifying research and development especially in varietal selection, integrated pest management and cultural practices. Ensuring the availability of adequate supply of high quality planting materials will also be given high priority. Efforts to develop and introduce appropriate technologies and mechanization practices to suit local paddy conditions will also be given emphasis.
- 72 Steps will also be undertaken to ensure the efficient and maximum utilization of paddy land in particular, to bring into cultivation all idle paddy areas that have already been provided with irrigation facilities for both the main and off-season periods. The provision, improvement, and upgrading of irrigation and drainage facilities, including the provision of tertiary canals as well as essential farm infrastructure will be given priority. At the same time, the strengthening and streamlining of coordination between the various agencies, departments and authorities involved in paddy cultivation and production at state, district and farmers levels especially in the aspects of the coordination of planting schedules and water management will be undertaken.
- 73 The establishment of a paddy granary area in Sabah will also be pursued. Steps will also be undertaken to identify and reserve areas suitable for large-scale commercial paddy production. The involvement and participation of the private sector in such large-scale commercial production of paddy will be encouraged. At the same time, the private sector will also be encouraged to be involved in providing support services to the sector such as in mechanization services, input supply and the production of high quality seeds.

Fruits

- 74 Sabah has the climate and soils to grow a great variety of quality fruits. Fruit production is one mostly by smallholders, with an increasing number of private enterprises venturing into the commercial production of fruits in recent years. Fruits production is mainly for domestic consumption although a moderate but growing quantity of high quality fresh tropical fruits and fruit products are exported. The state also imports a fairly substantial quantity of temperate fruits annually.
- 75 The development of the fruit industry will be geared towards the production of sufficient and reliable supply of high quality and safe fruits to meet the increasing demand for the domestic and export markets. Twenty (20) types of fruits have been identified for development, namely banana, papaya, pineapple, watnmelon, starfruit, mango, durian, jackfruit, rambutan, citrus, duku/langsat/dukong, cempedak, guava, ciku and mangosteen. These also include markisa and salak as well as the local fruits of tarap, bambangan and sukun.
- 76 Efforts will be undertaken to increase the efficiency and productivity of fruit production through the introduction of high quality and high yielding varieties and modern and improved production methods as well as appropriate technologies for effective and efficient post-harvest handling. Improving technical know-how and managerial skills and experience in managing commercial fruit holdings will also be looked into. Research and development programs, which will pay particular attention to high yields, pests and disease tolerance, eating quality that has. aroma and taste, long shelf life as well as year-round production, will also been given priority. Identification and cultivation of fruit varieties suitable for canning and processing will also be given due attention.
- 77 Areas suitable for the commercial cultivation of different varieties of fruits will be identified, reserved and designated as integrated fruits development zones. Such areas will be provided with basic infrastructures such as access and fann roads, drainage and irrigation facilities, amenities and supporting services. These will be made available to the private sector to encourage them to go into large-scale commercial and integrated production. The participation and involvement of the private sector in the further downstream processing of fruits including in the production of fruit products for the niche and specialty markets, will also be encouraged.
- 78 Efforts to improve the marketing system and strengthening marketing capabilities will also be given attention. This will include marketing infrastructure such as farm collection centres, packing house and cold room's facilities; transportati.m services as well as wholesales markets, with the involvement of the private sector.

Vegetables

- 79 The state's conditions and range of altitude allows for the production of both tropical and temperate vegetables. Vegetable farming is a smallholder activity, where smallholders concentrating around the urban centres grow the majority of tropical vegetables produced in the lowlands. Temperate vegetables are produced in the highlands of Kundasang. Vegetable production is mainly for domestic consumption, although a small quantity is exported. The state also imports a fairly large quantity of temperate vegetables annually.
- 80 Vegetable production will be expanded to ensure adequate and reliable supply of high-quality and safe vegetables to meet the increasing demand of local and regional markets. Demand potentials of specialized markets for high-value and high-quality

vegetables will also be exploited. Areas suitable for commercial vegetable cultivation in both the highlands and lowlands will be identified, reserved and designated as vegetable development zones. Such areas will be provided with basic infrastructures including access and farm roads, irrigation and drainage facilities, amenities and supporting services. These will also be made available to the private sector for commercial vegetable production on a long-term basis.

81 Research and development efforts will be directed towards increasing productivity and efficiency of the vegetable industry through the development of high-yielding and high-value vegetables, improving cultural practices, reducing production cost and better and more efficient post-harvest technology. The use of controlled environment technology such as rain shelter, insect-proof structures and hydroponics will also be promoted and encouraged. The production of sufficient quality seeds for the industry will also be given attention.

82 Efforts will also be undertaken to improve the marketing system and strengthening marketing capabilities. This will include the setting up of necessary and proper marketing infrastructures and facilities such as farm collection centres, packaging, cold rooms and storage facilities for vegetables, transportation services as well as

83 Environment friendly methods of vegetable cultivation, which include soil and slope management measures, particularly for highland vegetables and also crop rotation and integrated pest management, will be promoted. Downstream processing of selected vegetables will be encouraged.

OTHER ECONOMIC CROPS GROUP AND ACTIVITIES

84 This group includes a variety of crops, ranging from perennial tree crops to short-term field crops and other economic activities, with many diverse uses. These include coconut, coffee, maize, floriculture, sugar cane, sago palm, apiculture, mushroom and specialty natural products. Although minor, this group of economic crops and activities plays an important socio-economic role in the welfare of the rural community. Production of these commodities will be encouraged, where relevant, to tap their potentials in the domestic and export markets, for import substitution and/or for supplying quality raw materials for the needs of the downstream industries.

Coconut

85 Consolidation and upgrading of existing coconut areas through the implementation of rehabilitation programs to replant moribund coconuts with high yielding varieties and improvement of cultural practices will be emphasized and given priority. Selected varieties with good drinking qualities will also be promoted for the production of fresh coconut juice. The inter-cropping of coconut holdings with other economic crops or integrating with other economic activities such as livestock fanning and bee-keeping will also be encouraged. Research and development programs in breeding and cultural practices will be intensified. Downstream activities and other diversified uses of coconut will also be encouraged.

Coffee

- 86 Coffee production will be promoted especially among the smallholders on a commercial basis. Emphasis will be given to improve productivity and quality. Research and development programmes with particular reference to varietal and clonal selections, cultural practices, integrated pest management, post-harvest technology and improvement in primary processing will be intensified. Downstream processing and coffee manufacturing in coffee growing regions will be encouraged to be established, expanded and improved to stimulate the growth of the industry. The production of high quality coffee for the niche and specialty markets will also be exploited.

Maize

- 87 Maize production will be increased to meet the demand of the animal feed industry. Its development will involve in both existing and new areas, including the utilization of idle lands. The increased use of high-yielding varieties, suitable agronomic practices, making available adequate supply of high quality planting materials, increase in the usage of technologies and mechanization practices and the provision of drying facilities to increase production of quality grains will be given priority.
- 88 The development of the maize industry will focus on improving production by smallholders. However, the involvement of the private sector in large-scale, commercial and mechanized cultivation of maize will also be actively promoted.

Floriculture

- 89 The floriculture industry, in both the highland and the lowland areas, will be further developed to meet increasing demand for cut flowers and ornamentals in the local and export markets. To develop a competitive floriculture industry, large-scale commercial investments by established floriculture entrepreneurs from within and outside the state will be encouraged. The development of small-scale commercial floriculture operators will also be encouraged.
- 90 The potential of local indigenous wild species of flowers and ornamentals will also be explored and tapped for the floriculture markets. Relevant laws pertaining to the protection and conservation of the indigenous wild species will be strictly enforced.
- 91 Suitable areas for temperate floriculture cultivation will be identified, reserved and designated as floriculture development zones. Such areas will be provided with basic infrastructures, amenities and supporting services, and made available to the private sector on a long-term basis.

Sugarcane

- 92 Sugarcane cultivation will be recommended on a small-scale basis for production of fresh cane juice and rock sugar. Research and development will be continued on the collection, selection and evaluation of varieties suitable for quality fresh cane juice production.

Sago Palm

- 93 Sago palm cultivation will be encouraged to ensure available supply of raw materials for the traditional cottage industry for sago and related products. As such, the

development of the crop will be confined to the traditional areas. These will be identified and designated. The processing methods of sago products will be upgraded. Research and development programmes including collection of germplasm and improvement of agronomic practices will be undertaken.

Apiculture

- 94 Bee keeping will be promoted as an integrated activity in existing smallholders farming systems. Research and development on bee-keeping to improve the production of honey, royal jelly and bee pollen will be intensified. Private sector investments in apiculture and downstream processing will be encouraged.

Mushroom

- 95 Commercial mushroom production will be encouraged to meet local and export markets for fresh and processed products. Emphasis will be given to making available sufficient quantities of planting materials, environmentally-friendly methods of production, quality improvement and improving the marketing system. Commercial production and processing will be encouraged.

Specialty Natural Products

- 96 The specialty natural products refer to natural products based on botanicals such as herbs, medicinal plants, spices and aromatic plants. The state has a rich variety of such natural resources which are still largely unexplored. There is a growing global interest and demand for such specialty natural products, in particular for natural ingredients in products for a broad spectrum of health and food uses. An area of great potential is on herbal production for herbal/traditional medicinal, as well as applications in such products as cosmetics and toiletries. As such, more conservation activities will be undertaken to preserve and manage biological diversity and appropriate legislation will be formulated and enacted to regulate access to genetic resources. Research and development and other necessary support including relevant facilities will be given emphasis to develop and exploit the potential of this activity.

X LIVESTOCK DEVELOPMENT

- 97 The livestock industry in the state plays a significant role in providing food protein for local consumption. The state is near self-sufficient in the supply of poultry meat, table eggs and pork due largely to active private sector participation in these sub-sectors. The ruminant sub-sector has not progressed as fast, as smallholders dominate it. The expansion of the ruminant sub-sector is also limited by a low base population and poor response to the integration of ruminant livestock production with plantation crops.
- 98 The policy thrust for the livestock sector will be to increase production to ensure adequate supply of high quality livestock produce and products for local consumption, act as import substitute and to capitalize on the export markets. Efforts will be undertaken to exploit the capacity to produce halal foods of animal origin, and livestock-based products for the expanding local and international markets. At the same time the production of selected livestock will be encouraged to ensure adequate

and consistent supply of raw materials to promote the development of a livestock processing industry. Efforts will therefore be undertaken to increase the production of poultry meat, eggs and pork to meet domestic demand, to ensure adequate supply of raw materials to further strengthen and expand downstream activities and to capitalize on the export markets. Steps will also be undertaken to increase the production of fresh beef, chevon and milk to meet local demand. Deer, which has now been more of a recreational element for agro-tourism, will be further popularized for venison production so as to become another important meat alternative.

- 99 The transformation of existing traditional and small-scale production practices for fresh beef (including buffalo), chevon and liquid milk into commercial enterprises will be given emphasis in order to improve efficiency and productivity. Large-scale commercial production of livestock employing modern farming approaches will be vigorously promoted. Vertical and horizontal integration of the industry will also be encouraged to increase efficiency, productivity and sustainability in livestock production.
- 100 Optimal land use will continue to be promoted through integration of livestock under plantation and forest crops. Plantation owners will therefore be encouraged to allocate
- 101 To ensure the availability of quality animals for the industry, the private sector will be encouraged to increase the number of quality animals through breeding and multiplication of replacement stock as well as establishment of breeder farms and hatcheries.
- 102 Research and development activities with particular reference to breeding, nutrition, health and economics of production will also be intensified. The adoption of high technology including automation in intensive livestock production, processing, product storage, transportation and handling will also be encouraged.
- 103 Marketing infrastructure facilities and support services such as handling, slaughtering, processing and storage facilities for livestock, in particular for halal products, will be expanded and upgraded. The private sector, together with appropriate government support, will be encouraged to upgrade, build, operate and manage such facilities and services. More systematic marketing channels and linkages for livestock products will be established and strengthened to improve profitability.
- 104 Emphasis on the streamlining and enforcement of laws, rules and regulation for the wholesome and hygienic production of quality livestock products and by-products, including the enforcement on the indiscriminate usage of drugs and antibiotics, will be given greater attention. This will also include the strengthening of veterinary services to maintain and enforce veterinary sanitary standards for import and export of livestock and livestock products.

Beef Cattle

- 105 Smallholders own the majority of beef cattle in the state. There are, however, a number of commercial farms in the state. Local production of beef is not sufficient to meet domestic demand. The additional requirements are met through the importation of frozen beef and live animals. The increase in the production of local fresh beef will therefore be given emphasis in order to meet domestic demand and act as import substitute.
- 106 Private sector participation in the commercial production of beef cattle will be encouraged. Smallholder beef farmers with potential will be assisted through greater

physical inputs to transform them into larger commercial scale operators to improve their efficiency. Horizontal integration will be introduced for medium scale farmers to utilize locally available fodder and/or other feeds including agro-waste for intensive rearing of cattle. Integration of cattle with plantation crops and/or forestry will also be encouraged. Plantation owners will therefore be encouraged to allocate at least 10 percent of their land for cattle integration.

- 107 Research and development activities will be expanded to include breeding, nutrition, stock structure consolidation and build up, meat technology, health and economics of production. Grazing reserves will be recommended for cultivation of ruminant feed stuffs.
- 108 Efforts to increase the number of beef cattle through the breeding of locally-born animals, limited importation of suitable breeding stock, and/or through cross-breeding programs will be intensified. Proven locally-bred animals will be used for animal multiplication to save foreign exchange through imports.
- 109 The streamlining and enforcement of laws, rules and regulations pertaining to hygienic production of wholesome quality halal meat, including abattoir facilities, meat inspection, handling, storage, marketing and transportation to ensure quality and food safety standards will also be emphasized.

Buffalo

- 110 Buffalo development will be sustained to maintain its important contributory role to supplement local beef requirement, and its significance in the socio-economic and cultural aspects in specific rural society. Priority will be given to assist existing traditional buffalo smallholders to improve efficiency and productivity. Research and development activities, with particular reference to modern husbandry, nutrition and health will be intensified. Enforcement of existing legislation on the slaughter of female buffalo will be strengthened. The use of buffalo as draught power, particularly in oil palm plantations and the buffalo as an agro-tourism attraction will be encouraged. New genetic inputs to further enhance the buffalo as a potential meat producer will be introduced.

Dairy

- 111 Dairy fanning has grown to become an important and fast growing industry. The majority of the milk produced in the state is by smallholders. There is, however, one commercial dairy farm operating in the highlands of Kundasang.
- 112 The development of the dairy sub-sector will be expanded to increase the production of fresh milk to meet domestic demand. Priority will be given to the participation and expansion of existing smallholder dairy farmers with emphasis on the use of modern technology to attain a viable and sustainable dairy industry in the state. The use of intensive feeding systems such as feedlotting and the adoption of high technology including automation will be encouraged to increase efficiency and productivity.
- 113 Research and development activities with particular reference to breed, nutrition, health and economics of production will be intensified.
- 114 The private sector will be encouraged to increase the number and quality of dairy animals in the state through the breeding of locally-born animals, including the breeding of replacement heifers by biotechnological manipulation such as artificial insemination and embryo transfer. The use of locally adapted-bred animals for herd

replacement will also be encouraged to reduce government subsidies on importation of milking cows. At the same time, the production of locally bred dairy animals for export to other states will also be exploited.

- 115 Improvement in intensive dairy management techniques will be emphasized to increase milk output for export to competitive foreign markets instead of solely dependent on local processing factories. Horizontal integration and the development of free market enterprises in fresh and processed milk will be encouraged to reduce government subsidies in milk pricing. The further development of dairy processing activities will be encouraged to strengthen the economic base of the industry. The production and processing of hygienic quality milk will also be promoted.

Poultry

- 116 The poultry industry is the largest economic contributor to the state's livestock sector. The industry is a modern and largely commercialized industry and its growth has been due largely to the active participation of the private sector. The state is near self-sufficient in the production of poultry meat and eggs.
- 117 Poultry production will be further enhanced to ensure adequate supply of poultry meat and eggs for the domestic market and to capitalize on the export market. Efforts to further increase the efficiency and productivity of poultry production will also be undertaken in order for the industry to attain a more competitive and commercial level. The development approach will incorporate modern and efficient production technology, increased usage of automation devices and vertical and horizontal integrated farming systems.
- 118 Efforts will also be undertaken to encourage the further development and expansion of value-added downstream processing activities. Vertical integration will be encouraged to increase efficiency and prevent output disruption.
- 119 To ensure a reliable supply of hatching eggs and chicks for the industry, the establishment of poultry breeder farms and hatcheries will be encouraged.
- 120 Quality and food safety standards will also be emphasized, including the production of wholesome halal and hygienic poultry products. Local production of ingredients for compounded poultry feeds will be encouraged to reduce imports and stabilize feed prices in the local markets. The potential of the 'kampung' chicken in meeting the needs of the niche and specialty markets will also be given serious attention.
- 121 Efforts will also be undertaken to increase duck meat and egg production to meet domestic demand and to exploit potential export markets. Downstream processing of duck products, in particular, the processing of salted duck egg to ensure adequate and continuous supply to meet local requirement for all season and for import substitution will be encouraged.

Pigs

- 122 Pork production represents the second most important economic contributor to the livestock sector due to the active involvement of the private sector. The state is almost self-sufficient in the production of pork.
- 123 Pork production will be promoted on a commercial basis to cater for both local and export markets. The development approach will involve consolidation and rationalization to establish Pig Farming Areas which are environmentally friendly. Relevant laws and regulations will be formulated and enacted to ensure the creation

of pollution-free pig farming system. The streamlining and enforcement of laws, rules and regulations pertaining to hygienic production of wholesome quality meat, including abattoir facilities, meat inspection, handling, storage, marketing and transportation to ensure quality and safety standards, will be emphasized. Downstream processing for value-added products will be encouraged.

Goats/sheep

- 124 Goats/sheep production will be expanded and promoted especially among smallholders on a commercial basis through integration with their existing farming activities. Research and development with particular emphasis on improving productivity, feeding, farm management, marketing and animal health will be undertaken and intensified. Action will be taken to increase the number of breeding stock through multiplication of local proven animals and/or imported stock. Large-scale commercial goat/sheep farming by the private sector will be encouraged. Sheep integration in agro-forestry plantations will be exploited to reduce mutton importation for the local elite consumers.

Deer

- 125 Deer farming will be promoted as an integrated activity together with existing livestock and/or agriculture or forestry farming systems. The potential of quality halal venison production will be given greater emphasis rather than the deer merely popularized as an element for recreation and agro-tourism purposes. Large scale commercial deer enterprises will be encouraged. Research and development with particular reference to breeding, animal health and nutrition will be undertaken and intensified. Downstream processing of products and/or by-products of deer will be exploited.

Other Livestock Species

- 126 The development of other livestock species such as ostrich, quail, geese, turkey, rabbit, pigeon, kijang and other domesticated animals will be exploited and expanded according to demand. Research and development on the potential of new product creation as alternative food items from such new species will also be undertaken to broaden markets in and outside the state. Private sector involvement will be strongly encouraged in the commercial growth and expansion of such species.

XI FISHERIES DEVELOPMENT

- 127 The fisheries industry is an important industry in the state and plays a significant role in providing fish protein to the population. The state is self-sufficient in the production of fish and is a net-exporter of fish. The state has the potential and the necessary fisheries resources to further increase production especially in deep-sea fishing in the Exclusive Economic Zone waters and brackishwater aquaculture.
- 128 The policy thrusts for the fisheries sector will be on increasing production for food security and export, enhancement in productivity and competitiveness, increasing private sector investment, the exploitation and conservation of fisheries resources on

- a sustainable basis, human resources development and the rationalization of fisheries-related institutions.
- 129 The development of the fisheries industry will be accelerated and further developed on a commercial and integrated basis through the rational and sustainable development of both capture fisheries and aquaculture for economic development, domestic food production and security and export. In addition, development in small-scale fisheries will be continued to achieve rural development and poverty alleviation objectives.
- 130 The efforts to promote and intensify the development of robust and environmentally-sound fisheries, including aquaculture, will be underpinned with the guiding principle of sustainable utilization and management of resources to ensure the quality, diversity and availability of fisheries resources in sufficient quantity for perpetuity. The effective conservation, management and development of fisheries resources will give due regard to biological, technological, economic, social, environmental and cultural aspects. Sustainable and complementary development is targeted to be achieved in marine, coastal or freshwater development zones by promoting the integration of the multiple interests and uses therein.
- 131 To support and sustain existing fishing and aquaculture industries and to develop new ones, the economic foundations of this sector will be strengthened. These include upgrading human resources development, developing research and development capability and technology, expanding infrastructure and support service, financing and incentives and enabling an effective legal, administrative and institutional framework. Human resource development will focus on the provision of more skilled workers in both fishing and aquaculture and will include master fishermen, skippers, fishing gear and aquaculture technologists. A coordinated investment in fisheries and aquaculture research and technology development with close mutually benefiting partnership with the private sector that will enhance the competitiveness of local fisheries will be implemented.
- 132 Efforts will be given to increasing the efficiency and productivity of the fisheries sector and its competitiveness. To increase efficiency and productivity, automation and mechanization will be intensified in the fisheries sector including in fishing, fish handling and aquaculture production as well as in product processing and manufacturing.
- 133 Focus will be given to the vertical integration of upstream and downstream activities including aspects of production, processing and marketing. To improve the marketing of fish and fish products, the market distribution and market information system will be improved. Efforts will be made to develop and implement seafood safety and quality assurance programs for fisheries and aquaculture, including compliance with internationally accepted product quality and safety standards such as Hazard Analysis Critical Control Point (HACCP) in all processing plants.
- 134 Private sectors investments in commercial fishing, aquaculture especially in large-scale operations, and feed and fry production to be encouraged.
- 135 The development of fishery-based value-added activities and industries including processing of food and industrial products will be further accelerated to take advantage of both local and export markets. In addition, cultivars selection in aquaculture as well as downstream fisheries-related product choice, development and processing will be guided by the product-based approach in which focus will be given to targeting specific market demand, preference and potential for particular fisheries

products. Market opportunities in export niche and specialty markets will be exploited.

- 136 To increase market appeal and acceptance for fish products, efforts will be made to develop and implement seafood safety and quality assurance programs for fisheries and aquaculture, including compliance with internationally-accepted product quality and safety standards such as HACCP. In addition, to enhance the quality of fisheries products, innovative processing technologies and new product development will be promoted.
- 137 The market distribution and market information system for fish products will be rationalized and improved. Market education for producers, processors and consumers related to characteristics and handling of aquaculture and seafood products will be implemented.

CAPTURE FISHERIES

- 138 In marine capture fisheries, the goal will be to maximize production from existing fisheries resources and stocks and shall be pursued on a rational, maximum sustainable yield basis. Emphasis will be given to increasing fish production from deep-sea fishing. For nearshore and coastal fisheries, efforts will be to maintain current production levels to ensure and sustain the long-term and continued productive exploitation of these resources. To ensure sustainable development and to maintain an efficient and competitive edge in marine capture fisheries production, the adoption of efficient and resource-friendly marine and fishing technologies will be encouraged. Joint ventures between local and foreign private sector will be promoted under regional groupings such as BIMP-EAGA to engage in deep-sea distant-water fishing.
- 139 For inland freshwater capture fisheries, exploitation of these resources will be permitted for rural and riparian communities governed by the principles of maximum sustainable yield and biodiversity conservation.
- 140 The upgrading and strengthening of regulatory and enforcement efforts to effectively enforce fisheries laws and to ensure fisheries resources are systematically and sustainably managed will be emphasized. Efforts in the management of fisheries resources will be supported and bolstered by research and data gathering on fish stocks and other aquatic resources and the environment including baseline data.
- 141 Marine recreational and sport fisheries will be promoted as part of the agro-tourism development strategy.
- 142 Steps will be taken to ensure the conservation of natural and ecosystem resources such as mangroves forests and wetlands which fisheries resources are dependent upon for long-term integrity and sustainability.
- 143 The upgrading and expansion of onshore facilities and services including adequate and modern fish landing facilities, cold storage spaces, auction centres, slipways and ship repair yards and marketing facilities will be undertaken.

AQUACULTURE

- 144 Aquaculture is targeted to contribute to the increase in production from the fisheries sector. Aquaculture production will be increased by encouraging more aquaculture ventures including marine, brackish water and freshwater fish ponds, fish cage culture, mariculture, pen culture and on-bottom and off-bottom culture, seed and fry

production centres as well as ornamental and aquarium fish culture. Large-scale aquaculture farming which operations have vertical integration of production and

- 145 To increase the efficiency and productivity level of aquaculture enterprises and to ensure the development of a sustainable aquaculture industry in Sabah, aquaculture development will be rationalized and systemized to attain a commercial level. Cost-effective, sustainable and environmentally compatible development including aquaculture production practices, technologies and systems and harvest will be promoted.
- 146 For orderly development and effective provision of necessary infrastructure and support facilities as well as to rationalize and integrate land and fisheries resources use and management, aquaculture development areas will be identified and zoned. A comprehensive database on land, which will include a portfolio of viable marine, coastal and inland areas, will be prepared to provide information on the availability of land for the private sector to venture into aquaculture production.
- 147 Candidate species for aquaculture will be those which are of high value and have popular local and export market acceptance as well as for niche markets including shrimps, seaweed and ornamental fish. Research and development programs for cultivation and husbandry, propagation, improvement of aquatic cultivars, genetic improvement, varietal selection, disease prevention and management, feed and fry production, and environmentally-friendly systems, will be implemented.
- 148 The setting up of aquaculture farms that cater for aqua-tourism will be encouraged.

XII **ECONOMIC FOUNDATION**

- 149 The realization of the objectives of the Second Sabah Agricultural Policy will, require a stronger economic foundation, the strengthening of key supporting services and the development of local collateral support industries for the agricultural sector. These are important factors needed to further increase the efficiency and productivity of the sector, enhancing its competitiveness, as well as creating a more conducive environment for its development and growth.

AGRICULTURAL SUPPORT SERVICES

- 150 The quality and availability of agricultural support services are important and essential to increase efficiency and competitiveness of the agricultural sector. Efforts will, therefore, be undertaken to further intensify and strengthen support services in the areas of agricultural research and development, training, extension services, basic infrastructure, production incentive program, credit and finance, mechanization, processing and marketing. In addition, efforts will also be undertaken to further strengthen other areas of support services such as agricultural insurance, information and logistic services.

Agricultural Research and Development

- 151 Research and development will be a major thrust to provide technological possibilities and growth opportunities to sustain and enhance agricultural development as well as strengthening its integration and linkages with the rest of the

economy. Research and development will also play an important role in assisting the sector to increase its efficiency, productivity and competitiveness.

- 152 Agriculture research and development will, therefore, be intensified and its infrastructure and facilities strengthened. It's development activities will be intensified to accelerate the development of technical innovations and options that will increase yield, productivity, efficiency and sustainability of modern agriculture, livestock and fisheries sectors. Emphasis will focus on food commodities and the creation of high- value market-driven products. To support technical research and development, socio-economic research will be rationalized and intensified. Adequate scientific human resource particularly in the area's of bio-technology, material sciences and information technology will be made available. Independent private sector research and development efforts as well as joint-venture research and development efforts between the private and public sectors will be actively encouraged and promoted.

Agricultural Training

- 153 The modernization and commercialization of the agricultural sector which necessitates the usage of new technological processes and methods, high-tech equipment and new demands, and coupled with the globalization of the sector and economy, will require improved and new knowledge. Hence, there is a need to have trained and skilled manpower in the agricultural sector.
- 154 Agricultural training will, therefore, be geared towards developing progressive farmers, livestock producers, aquaculturists and fishermen with technical as well as managerial and entrepreneurial skills to undertake commercial farming and enterprises. At the same ime, appropriate training will also be undertaken to create a pool of professional agriculture, livestock and fisheries technicians and skilled workers to meet manpower needs of the various levels of the agricultural sector. Collateral training between the government and private sectors will be encouraged.

Agricultural Extension

- 155 Extension services are important links between researchers and the target groups with regard to adoption of technologies including crop protection and the provision of feedback to researchers. This becomes increasingly important as new and improved technologies are developed and which need to be disseminated. As such, agricultural extension services will be strengthened to enhance the transfer of technology to farmers, livestock producers, aquaculturists and fishermen, and at the same time, a dynamic informational feedback system between adapters and technology generators will be developed.
- 156 Consistent with the policy to encourage commercial activities and enterprises, efforts will also be undertaken to develop and set up a state-of-the-art agricultural information and advisory network which will provide professional advisory and consultancy services which will be made accessible to individual operators, potential entrepreneurs as well as large-scale commercial producers.
- 157 Extension methodologies will be restructured, rationalized and improved to ensure its effectiveness. This will include the adoption of extension methodology being implemented successfully abroad and/or blending this methodology with the local one.

- 158 Priority will be given to extension personnel to have their knowledge and skills updated and upgraded through training and sabbatical attachments, forums and seminars. A core of facilitators-related personnel with specialist knowledge in various fields would be built up.

Basic Agricultural Infrastructure

- 159 The provision of basic agricultural infrastructure to the agricultural sector is necessary to enable it to have a stronger foundation for improving productivity, reducing production cost, allowing for a more efficient utilization of the sector's resources, allowing for increased mechanization and for improving marketing efficiency. As such, basic agricultural infrastructures, such as access and farm roads, farm bridges and drainage and irrigation facilities, will be provided in areas potential for primary production, in particular those related to the production of food commodities. Existing infrastructure will also be reviewed and upgraded.
- 160 The planning and implementation of such infrastructure will be consistent with sound environmental practices.

Agricultural Production Incentive Program

- 161 Selective agricultural production incentive program will be continued. Its implementation will be rationalized and geared to specific farming, livestock and fishing activities that will transform farmers, livestock producers, aquaculturists and fishermen into commercial level producers and entrepreneurs. Special consideration will be given to paddy, being a strategic food crop.

Agricultural Credit and Finance

- 162 Agricultural credit and financial services will need to be reviewed, improved and strengthened in order to make the said services easily available, accessible and affordable to farmers, livestock producers, aquaculturists and fishermen, especially the poor, and to transform all categories and levels of farmers, livestock producers and fishermen into progressive, competitive and successful entrepreneurs.
- 163 Financial institutions will be requested to develop and design more flexible terms and conditions for agriculture credits and financial loans which take into account not only tangible factors such as opportunity costs of capital collateral but also intangible factors such as gestation period appropriate to the economic activity and rescheduling payments.

Agricultural Mechanization

- 164 Agricultural mechanization and automation will be encouraged and promoted in agriculture, livestock and fisheries activities to increase efficiency and productivity. Particular attention will be given to activities that are labour intensive especially in the food production sector. The thrust on the provision of mechanized and automation support services will be with the private sector, and for these, a conducive environment will be provided to encourage and facilitate them to play a more prominent and active role. Research and development will focus on identifying and

developing appropriate mechanization and automation systems that are practical and affordable.

Agricultural Processing

- 165 The development of the agro-based industries will be one of the major strategies to boost and sustain the growth of the agricultural sector and to sustain its integration with the manufacturing sector. Such integration and linkages will enable both the sectors to maximize their development and growth and creating opportunities to broaden the state's industrial production base.
- 166 Downstream processing in the food production sector will be intensified and given greater emphasis in order to stimulate farm production, upgrade farm products, broaden rural processing venues for value-added products and to create link-up to domestic and export markets for the agriculture, livestock and fisheries processing sectors. Emphasis will be given to establish, expand and upgrade a network of processing and manufacturing centres that are equipped with the necessary infrastructures, facilities, amenities and other necessary services, producing food products that are market-driven and competitive.
- 167 The further processing and manufacturing of high-end value-added resource-based products such as high-tech products, health related products, cosmetic and pharmaceuticals for the industrial crops sector for the export markets will also be actively promoted.
- 168 The private sector together with appropriate government support will be encouraged to play a prominent and active role in such activities.

Agricultural Marketing

- 169 The marketing system for agriculture, livestock and fisheries produce and products will be restructured to improve its efficiency. Aggressive marketing efforts will be undertaken to enhance demand at both domestic and export markets.
- 170 For the domestic market, greater focus will be given to aggressively promote high quality and competitively-priced local produce and products to compete with imported items. The development, improvement and expansion of marketing infrastructure such as farm collection centres, packinghouse facilities, cold rooms, handling and storage facilities, processing facilities and distribution and transportation systems will be given greater emphasis. The private sector, together with appropriate government support, will be encouraged to upgrade, build, operate and manage such facilities.
- 171 At the exports level, global marketing strategies will be emphasized. Efforts will be undertaken to ensure that the state's products are competitive, specifically oriented to changing and consumer preferences and responsive to market needs and opportunities. This will involve intensifying marketing research and intelligence, development and provision of a reliable market information system, strategic networking as well as expanding and developing markets. Government supports, at both national and statelevels, in seeking better market access for the state's products will also be undertaken. This will include promotion, campaigns, publicity efforts and educational programs as well as through international forum and bilateral arrangements.

INPUT SUPPORT INDUSTRIES

- 172 The availability, quality and cost of external inputs such as fertilizers, agricultural chemicals, agricultural machinery and equipment, veterinary and aquatic pharmaceutical products and canning, bottling and packaging materials as well as animal and aquaculture feeds are essential support industries needed to further increase the efficiency and enhanced the competitiveness of the agricultural sector. Currently, the sector is largely dependent on the imports of such inputs which results in the high cost of such inputs and services. Efforts will therefore be undertaken to encourage the private sector to venture into such support industries locally.
- 173 To ensure the availability of sufficient quality seeds and planting materials, livestock breeds, fish fries and seeds for the agricultural sector, private sector involvement in such production will also be encouraged and promoted. At the same time, importation of such materials will be subjected to stringent quality control and strict quarantine procedures.

XIII CONCLUSION

- 174 The Second Sabah Agricultural Policy (1999-2010) embodies the new national and state development philosophy of an aggressive, commercially-oriented, market-led and globally-competitive agricultural sector. The focus of achievement will be the optimum utilization of the sector's resources, enhancing domestic food production, networking of vertically and horizontally integrated agribusiness's, further strengthening of linkages between the sector and the manufacturing and other sectors, greater role of the private sector, strengthening essential economic foundation and incorporating basic support services while practicing environmentally-friendly and sustainable development.

Ministry of Agriculture Development and Food Industry , Sabah,
Kota Kinabalu.
June, 1999