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## **A Policy Review of the Agricultural Sector from The Second to the Ninth Malaysia Plans**

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**Jason Loh Seong Wei**

Postgraduate & Research Centre, KDU University College

**Abstract:** *The five-year strategic planning of the Malaysian economy known as the Malaysia Plans have been fundamental to agricultural development in the country. Each of the Malaysia Plan built upon the previous (foundations) thus maintaining policy continuity set within the context of political stability. Yet there has been a need to revisit and review the successive agricultural policies in the Malaysia Plans in the form of the Second up to the Ninth in order to yield some cursory conclusions as to their general success in formulation and implementation. This paper ends with some policy proposals which on hindsight could have been implemented by the government post-Ninth Malaysia Plan.*

**Keywords:** *agricultural policy, agrarian policy, five-year plan, development strategy, policy implementation*

### **1. Introduction**

The aim of this paper is to conduct a policy review of the agricultural sector from the Second (1971-1975) to the Ninth Malaysia Plan (2006-2010). The objectives of the policy review are twofold:

- (1) Compare changes and improvements within the sector. Identify development outputs (negative and positive), advantages and disadvantages to the society during the planning period.
- (2) Derive lessons and produce recommendations so as to contribute towards better development policy formulation and implementation

Basically, agriculture in Malaysia can be divided into:

- Food Commodities – padi, vegetables, *etc.*
- Industrial Commodities – rubber, oil palm, cocoa, black pepper, coconut (copra) *etc.*
- Animal Husbandry - livestock (cattle, goats, chicken *etc.*)
- Fisheries

This essay will focus on the (crop) commodities and their impact on the agricultural sector and the economy. The model employed to *explain* the cause and effect (*i.e. causal*) relationship within the agricultural sector is the linear progression-type (major) and *cyclical* type (minor). Therefore, sectoral growth or decline will be construed according to the concept of continuity rather than deviation, *i.e.* discontinuity.

The agriculture sector in Malaysia plays an important role in the economy through its contribution to the national income, export earnings and creation of employment.<sup>1</sup> The sector is also a major supplier of food and raw materials to the resource-based industries.<sup>2</sup> Historically, the agricultural sector has provided the base for economic development and transformation. Rubber and palm oil have been the major drivers of the agricultural sector's contribution to the nation's gross domestic product

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(GDP).<sup>3</sup> As shown in Table 1, this sector accounted about 30 percent or roughly one-third of the country's GDP in 1970, but since then has been declining (see Chart A also).

Sector	1970	1980	1990	1995	2000
Agriculture, forestry and fishing	29.0	22.9	18.7	13.6	10.5
Mining and quarrying	13.7	10.1	9.7	7.4	5.7
Manufacturing	13.9	19.6	27.0	33.1	37.5
Services	39.6	42.8	42.1	44.2	45.7
Construction	3.8	4.6	3.5	4.4	4.8

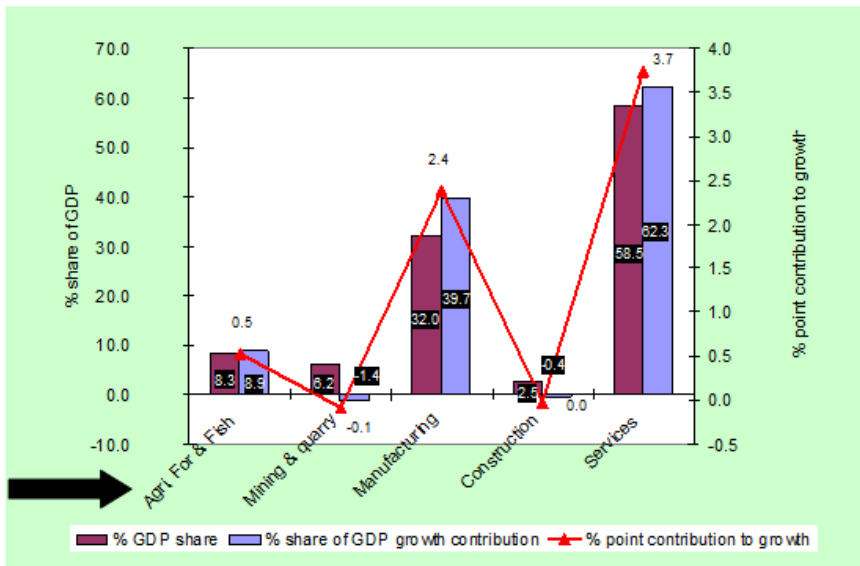
**Table 1: Composition of Malaysia's Gross Domestic Product (GDP)  
by Industry of Origin (%)<sup>4</sup>**

(Source: Second Outline Perspective Plan (1991-2000))

Its development from cash crops to exports took place under British colonial administration. The two conducive factors of (ample) land and (suitable) climate fostered the plantation of rubber and oil palm to meet growing international demand. While the British companies ventured into plantation agriculture, largely rubber and other commercial crop cultivation, the indigenous population (the Malays) remained largely in subsistence and smallholder agriculture.<sup>4</sup> Following the fall in prices of the tin and rubber markets in the 1920's, the British colonial government

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began to take steps to increase local rice production. Before this, the British colonial government, which was concerned and involved mainly in the tin and rubber industries, gave priority to importing rice rather than improving the local rice industry.<sup>5</sup>



**Chart A: Contribution of agriculture to the Malaysian economy (by share of GDP)**

The policy regarding rice was centred on production to meet the demand of a large proportion of the national requirements. Beginning from 1955 and continuing for a few years after independence, rice sufficiency through local production became the main objective of the government rice policy. Under the First (1956-1960) and Second (1961-1965) Malaya Plans, agricultural development policies were assigned to

improve the economic and social well-being of the farming communities in particular, and the rural populace in general.<sup>6</sup>

Malaysia is ranked as one of the developing countries with a market-oriented economy where agricultural *planning* is most highly institutionalised.<sup>7</sup> Malaysian agricultural planning evolved as an effective policy mechanism for directing the authoritative allocation of public resources towards declared developmental objectives. However, in terms of policy *implementation*, Malaysia adopted a *laissez faire* economic system. The private sector was assigned the role of engine of growth in contrast to the State which undertook investment in social and physical capital apart from providing support to the private sector.

Although the contribution of rubber planting to the GDP has declined from around 25 percent during the 1950s to about 10 percent in the mid-1970s, rubber exports yielded between a fifth - in 1975 which was considered a year of depressed prices and a quarter - in 1976 which was considered better year - of total export earnings.

The relatively high domestically added value to rubber production implies an even more significant export contribution to national income. Nor has rubber constituted a narrow enclave-type export sector. Malaysian rubber planting succeeded in generating a network of supply and demand linkages with other sectors of the economy. A substantial portion of rubber export earnings have consequently been retained through domestic accelerator and multiplier effect. Furthermore, rubber export duties and associated corporate taxes continue to finance a significant proportion of the government's expenditure.

## 2. Overview

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The National Agricultural Policy (NAP) is a “benchmark indicator” for the government in evaluating the implementation of the Malaysia Plans for the agricultural sector. The NAP 3 was from 1998-2010. It launched in 1998 and contained an overriding goal of income maximisation through optimal utilisation of the sector’s resources. Specifically, the NAP3 prescribed the following policy objectives:<sup>8</sup>

- i. To enhance food security;
- ii. To increase productivity and competitiveness;
- iii. To strengthen linkages with other sectors particularly the agro-based industry and the related services sector;
- iv. To explore and develop new sources of growth; and
- v. To conserve and utilise natural resources on a sustainable basis.

However, the agricultural sector has shown a marked decline since, to about 14 percent in 1995 and is expected to reduce further to about one-tenth within a decade. Nonetheless, the previous administration of Prime Minister Abdullah Badawi has vowed to turn agriculture into a “third engine of growth” to reverse the decline.<sup>9</sup> This decline had impacted upon the nation’s total balance of trade resulting in a deficit and disproportionate reliance on imports.<sup>10</sup> A Balance of Trade (BoT) Action Plan (2000-2010) was initiated to ensure that the nation’s agro-food trade deficit through increasing of home-grown crops and expansion of commodity production to meet an ever-growing local demand.

In addition, the BoT’s Action Plan aimed to achieve agro-food trade surplus as much as RM1.2 billion by the year 2010.<sup>11</sup> As such, the government was focussed on “undertaking [structural] adjustment

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measures to expedite competitiveness of the sector so as to enable it to face new challenges, both at domestic and international levels.” This includes significantly increasing production levels per hectare per tonne to ensure self sufficiency.<sup>12</sup>

Currently Malaysia only produces 70 percent of its rice requirements.<sup>13</sup> Rice cultivation ranks after rubber as the second most important sector of Malaysia's economy by share of both employment and land utilisation. However, the level of income generated by rice agriculture has fallen consistently and significantly below that of most other and significantly below that of most other occupations. Peninsular Malaysia seems not to possess any comparative advantage in the production of rice.

Yet, notwithstanding its manifest impoverishment, the cultivation of rice has long been identified as the occupational symbol of a stable, traditional rural Malay community. Under the colonial economic regime, rice agriculture was segregated from, and insulated against, the emerging market economy. A deliberately subsistence rice economy evolved as a Malay occupational cocoon, protected by administrative regulation and traditional sanctions and intended to preserve the established agrarian order along with its cultural value.<sup>14</sup>

### **3. Development & Comparison**

#### **a) Second Malaysia Plan (1971-1975)**

Beginning with the Second Malaysia Plan (1971-1975), at the stage of planning then, Malaysia remained heavily dependent on the agricultural sector. This coincided with the ‘take-off’ of Malaysia’s industrialisation project (*i.e.* at its early stages) - export-oriented

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manufacturing. Before this period, Malaysia was actively pursuing an import-substitution industrialisation (ISI) policy as a form of economic protectionism. In addition, the agriculture was an important sector in the government's policy to combat poverty and development of rural areas.<sup>15</sup>

The Second Malaysia Plan also fell within the broad policy framework of the New Economic Policy (NEP), 1971-1990.<sup>16</sup> It was on the back of both rubber and palm oil which constituted the primary sectoral outputs during this period that the total agricultural production aggregate performed impressively by contributing an approximately 50 percent of the foreign exchange earnings in the previous years.<sup>17</sup> Hence, against the projected growth in the sector, the Government allocated under this Plan an estimated RM1.9 billion. This figure represents 80 percent in excess of the targeted allocation.<sup>18</sup>

In recognition of crop productivity, the largest sub-allocation was aimed at land development with about 900 million allocated, comprising nearly 50 percent. A substantial portion of that investment was poured into vast tracts of land under the Federal Land Development Authority (FELDA) scheme such as Johor Tenggara, Pahang Tenggara and Tiga Segi Jengka (Peringkat III) in a bid to boost palm oil productivity in view of propitious commodity prices.<sup>19</sup>

During this period, there was abundant agricultural land which could be developed into land development schemes. Thus, the large and extensive land development schemes under FELDA became a catalyst for

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rapid rural development. Vast areas of undeveloped land were brought into cultivation of rubber and palm oil through new land development and settlement schemes.<sup>20</sup>

New land development programmes were extended to include the cultivation of oil palm through a policy of crop diversification and double-cropping of rice was expanded under the drive for self-sufficiency in rice production. Agricultural rehabilitation and consolidation were also emphasized under *in situ* development programmes. Emphasis was also made to upgrade agricultural research and extension and to correct the shortcomings facing land tenure, credit processing and marketing. These aimed at reducing production costs so as to ensure fair returns to producers.<sup>21</sup>

As for rice, this food commodity experienced a year of lacklustre performance, only to rebound with a record growth of 11.9 percent *per annum* in 1970. This can be credited to the launch of the Sungai Muda irrigation scheme - in the same year - under the Muda Agriculture Development Authority (MADA) in Kedah.<sup>22</sup>

The Second Malaysia Plan also incorporated a National Rural Development Plan (NRP) aimed at reorganising and mobilising institutions and efforts towards modernising and developing the rural sector.<sup>23</sup> The then Ministry of Rural Development planned and co-ordinated the activities of all agencies related to rural development. At the district or local level, the District Rural Development Committees implemented, monitored and reviewed as the rural development projects in what was known as the Rural Economic Development Plan<sup>24</sup> located at

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District Operation Rooms, which recorded the progress and attainment of rural development projects as district level. The RED projects focussed on building basic infrastructures and institutions.

The infrastructural approach was intended to provide linkages to the rural economy, provide rural employment and raise productivity and incomes of rural peasants. The social and economic infrastructures provided were rural roads, drainage and irrigation facilities, basic amenities like rural electricity, water, school, health, community and religious centres, *etc.* The rural institutions were established to facilitate production and marketing functions; and also the credit needs of the rural peasants. These infrastructures and institutions were expected to generate rural employment besides raising productivity, incomes socio-economic status of the rural population. The role of planning under the Second Malaysia Plan expanded to embrace the promotion of income redistribution as well as just growth, involving social as well as purely economic development.<sup>25</sup>

Hence, the Plan represented a breakthrough in the concerted alleviation of the incidences of poverty (particularly hard-core) which was high in the 1960s. Thus, the focus on structurally-oriented programmes that could absorb the underemployed rural population in the oversupplied rural agricultural sector proved to be a correct policy prescription.

### **b) Third Malaysia Plan (1976-1980)**

Under the Third Malaysia Plan (1976-1980), agriculture remained “the dominant sector of the economy” essential for “the attainment of the objectives of the New Economic Policy (NEP).” As such, the drive to combat poverty that was prevalent amongst the Malays who were at the time mostly concentrated in the rural areas alongside reducing income

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disparity *vis-à-vis* the ethnic communities continued to be a top priority for the government. The sector maintained its vital role as a major source of foreign exchange earnings (45.5 percent) and an essential pillar of the economy (29.8 percent of the GDP). In 1975, it was reported that 70 percent of all households in poverty came from the agricultural sector.<sup>26</sup>

The Third Malaysia Plan emphasised continuity with the goal of the previous Second Malaysia Plan, *i.e.* redressing poverty and regional disparities. Nonetheless, output in the sector only grew by 5.9 percent, overall, although exceeded the previous conservative target of 5.5 percent. But expansion has been definitely fuelled by the rural industrialisation programme of infrastructural and facilities development, augmentation of the credit network and increased use of marketing services, as an integral part of the supply chain. Palm oil growth continued to record an impressive 25 percent figure *per annum*. Several factors account for the unhindered development of the palm oil industry. Rubber replanting grants to be used for planting oil palms, charging lower export duties for palm oil than rubber, and investing in a massive programme of smallholder resettlement on schemes often devoted to oil palm cultivation were some of the policies implemented.

In addition, the high yield DxP variety of oil palm was developed in the early 1960s.<sup>27</sup> Though there has been no direct interference with the price mechanism of the palm oil industry, the government did establish the Kuala Lumpur Commodity Exchange (KLCE) in 1980 to facilitate the trade of palm oil. The KLCE benefited the industry by providing hedging facilities, expanding the market, setting prices as a basis for trade contracts, and attracting international traders and thus linking Malaysian palm oil markets to overseas markets for similar products.<sup>28</sup>

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However, rubber production in the *estate* division decreased to 588000 tonnes in 1975 from 673000 tonnes the year before due to restrictions imposed by the Government under the national price stabilisation scheme. Although sensitive to price changes, *smallholder* production continued to increase by 37.5 percent up to 805000 tonnes in 1975. The increase came mainly from the FELDA schemes which contributed the bulk of production, including higher yields in replanted areas. Sabah and Sarawak recorded growth too despite the overall decline in world rubber prices in the face of stiff competition from synthetic rubber, thus responsible for motivating tappers to switch cultivation or retire.

Other industrial commodities like pepper also exhibit encouraging growth figures such that the Third Malaysia Plan proposed to accelerate land expansion especially situated in Sarawak to capitalise on good earnings prospects. In contrast, the world food crisis of 1972-1973 dampened the prospects of a 90 percent self-sufficiency target for rice. Nonetheless, the government had vowed to increase the target to 100 percent. Domestic production of padi at the beginning of the Third Malaysia Plan accounted for 87 percent of national requirements. Double-cropping was responsible for increasing yields and acreage. This was especially true of off-season cropping which saw an increase of 61.7 percent within a five-year period on the back of the irrigation facilities in Muda, Kemubu and Besut. Under the Third Malaysia Plan, the government reaffirmed its commitment to achieve self-sufficiency through the strategy of *in situ* development. *In situ* development was supported by concerted and substantial investment to expand and improve the irrigation facilities to increase productivity per hectare per tonne.

The Malaysian Agricultural Research and Development Institute (MARDI), in line with the emphasis on rural development, sustained its

focus on rice, field crops (maize, soya-bean, tapioca, *etc.*), coconut<sup>29</sup>, coca and oil palm and sugarcane, *etc.* Agricultural product utilisation research and water management research was extended and mechanisation activities promoted in an effort to modernise the sector.<sup>30</sup>

The impact of the Plan had been positively refreshing as new source of funds generated by the petroleum sector allows for substantial increase of funding to be materialised. Hence, the total allocations for agricultural development amounted to RM4.7 billion, a staggering increase of some 96 percent over the previous Plan's allocation. At this time too, the role of the State in agricultural development – not least through the *in situ* developmental strategy - was stepped up to ensure that the income of farmers and rural inhabitants were multiplied and to consolidate the overall contribution of the sector overall to the national economy.

#### **c) Fourth Malaysia Plan (1981-1985)**

Nevertheless, the agricultural sector registered a value added growth in real terms of 4.3 percent, slightly below the target of 5.4 percent. It was within the Fourth Malaysia Plan (1981-1985) that the National Agricultural Policy (NAP) was launched (in 1984) to provide a much more “all encompassing” policy approach to agricultural development. The NAP was designed to ensure a balanced and sustained rate of growth in the agricultural sector *vis-à-vis* the other sector in the economy. The policy objectives of the NAP aimed specifically at maximising income from agriculture through effective and efficient utilisation of the country's resources and the revitalisation of the sector's contribution to the national economy. An important rationale behind the formulation of the NAP was the concern for the slower rate of growth of the agricultural sector relative to other sectors in the economy and the prevailing poor state of welfare of agriculture.<sup>31</sup> Sectoral production was severely

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affected by world recession in the mid-1970s and adverse weather conditions.

The Fourth Malaysia Plan represents a critical period for the rubber industry, as high petroleum prices was starting to “demote” its status as a premier commodity for the nation. Hence, the declining status of rubber contributed significantly to the overall decline of the agricultural sector’s traditional contribution to the economy. The sectors exports plunged from 52.1 percent to only 36 percent by the end of the Third Malaysia Plan. Nonetheless, even as the government was about to embark on a heavy industrialisation programme inspired by the “Look East” policy initiated by the then fourth Prime Minister Mahathir Mohamad,<sup>32</sup> continued efforts were made to expand employment opportunities alongside greater utilisation of agricultural labour. From between the Second and Seventh Malaysia Plan (1996-2000), the total allocation for the agricultural sector under the Third Malaysia Plan represented the “high water” mark with RM8.742 billion as subsequent allocation was to decrease in *real* terms.

In addition, there was no intention to discontinue the land rehabilitation projects under the previous Plans as these inevitably involved the adoption of modern agricultural practices. Private estates and joint ventures (JVs) between the private and public sectors (alongside intra-sectoral cooperation in the form of federal and state synergy) were also fostered to build on the existing framework. The JVs helped to revive the rural *re*-development projects (as part of the rural industrialisation agenda) wherein government expenditure could be channelled towards the heavy industrialisation process. A total of 120000 hectares were developed during the previous Plan, representing a near total of some 90 percent of the target of 134600 hectares. It is within this context that the land resettlement scheme continued, especially under the

auspices of FELDA and the Federal Land Consolidation and Rehabilitation Authority (FELCRA).

Structural rationalisation through land (re)development and expansion continued to be given top priority by the government in relation to the agricultural sector under the Fourth Malaysia Plan.<sup>33</sup>

The government had been optimistic about the employment creation prospects of the agricultural sector which grew by about an estimated 36 percent in 1985. This translates into roughly some 72000 new jobs mainly from new land development schemes. In terms of the quantum and focus of the allocation, it is dominated by the factors of capital formations and drainage and irrigation infrastructure.

Another feature of the Fourth Malaysia Plan was the successful implementation of the crop diversification programme aimed at consolidating integrated agricultural development projects to cushion the impact of solitary dependence on certain crops, supported mainly by provision of subsidies as an incentive. This had the effect of multiplying the income of farmers on a sustained and prolonged basis as they switch crops in response to seasonal fluctuations.

#### **d) Fifth Malaysia Plan (1986-1990)**

It is only with the Fifth Malaysia Plan (1986-1990) that the government finally acknowledged the “downward trend in the performance of the sector. This has been viewed with concern, especially when taken together with the expected performance of, and linkages with, the other sectors of the economy. The major factors restraining the dynamic growth of the agriculture sector are basically structural in nature. Agriculture continues to be characterised by the existence of dualism, with the presence of an efficient well-organised estate sub-sector

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engaged in export-oriented production of tree crops and a less efficient unorganised smallholder sub-sector.’<sup>34</sup>

The prime concern accruing from the dualism is the disparity and polarity in the levels of efficiency, productivity, competitiveness and income between the two sub-sectors. Hence, past policies and strategies aimed at combating incidences of poverty and uplifting the livelihood of the rural population had come to a stalemate, or reached its maximum impact. A new policy and strategy - which whilst maintained continuity in so far as the intention, basic principles and core values were concerned - had to be re-formulated to ensure a fresh and coherent approach towards providing solutions to persistent problems inherent in the agricultural sector. Therefore, a holistic approach was necessary which combined the organic and mechanic components of agricultural growth. Thus, crop productivity had to be developed in inseparable tandem with land efficiency. Joint ventures between the public and private sectors will continue to play a pivotal role in this respect.

In the effort to overcome the limits of the previous policies and strategies, integrated rural development (IRD) was to assume a bolder objective of developing a self-reliant and self-sustaining agricultural community. This required area development along with the provision of basic inputs and infrastructure for resource development and the support of a well-structured rural institution are the necessary components of an IRD. This was particularly important in situations of scarce resources and manpower. By concentrating on selected areas, intensive planning and implementation that will help identify and solve the rural problems, integration of basic components of IRD and linkages with micro-level village planning with macro target-setting and planning could be facilitated.



From a concept of area development, IRD may be regarded as an expansion of regional development strategy. This strategy normally includes natural resources or land development programme, basic economic infrastructure and social amenities, the provisions of agriculture support services like credit, marketing, research, extension, farm inputs and the development of the non-agriculture rural component like rural industries, rural public works and community development projects. A typical IRD will consist of rural development projects with an agricultural component, known as the Integrated Agricultural Development Projects (IADPs), and with a non-agricultural component. The IADP approach involved concentrated, packaged and synchronised implementation of inter-related agricultural development programmes and activities under various agencies, in line with the development objectives of identified existing agricultural areas.

Concrete improvements were clearly discernible in completed as well as on-going projects. Production of padi, groundnut, maize and vegetables increased significantly compared to pre-production levels in the Kemubu Agricultural Development Authority (KADA) area. Average annual income rose to RM3400 as recorded under the previous Plan. Nonetheless, the overall output and growth of the sector is expected to *stabilise* throughout the Fifth Malaysia Plan with a slight decline from 20 percent to 18 percent. However, agriculture continued to be a major source of employment, contributing about roughly one-third of the total aggregate of jobs.

#### **e) Sixth Malaysia Plan (1991-1995)**

By the time of the Sixth Malaysia Plan, the contribution of the agricultural sector had fallen to that of one-fourth of total exports earnings, one-fifth of the GDP and one-third of the total workforce. Rubber continued to lag behind the palm oil industry which grew by 8.1 percent and 6.1 million tonne metric. It was at this time there was an influx of Indonesian migrants to substitute for rural to urban migration especially by the youth, thus redressing the problems of acute labour

shortage. The cocoa industry too performed very well and is expected to also grow by 9 percent *per annum*.

Under the Sixth Malaysia Plan, agro-biotechnology began to take root. Historically agro- biotechnology development in Malaysia can be divided into three phases: the period of establishment (prior to 1995), development phase (1995-2000) and advancement phase (beyond 2001). Prior to 1995, initial establishment of agricultural biotechnology R&D took place in a number of research institutions such as MARDI, Palm Oil Research Institute of Malaysia (PORIM) (now Malaysian Palm Oil Board - MPOB), and Rubber Research Institute of Malaysia (now Malaysian Rubber Board - MRB) as well as at various universities. The development at the institutions includes establishment of basic infrastructures such as molecular and cellular biology labs with necessary equipment and set-up, and establishment of basic expertise to undertake biotechnology R&D.

Agro-biotechnology has been instrumental for developing end-products for mass consumer use, thereby increasing the optimal exploitation of agricultural commodities. Ironically, this has helped positioned Malaysia to be well-poised to be a global centre of herbal and natural products. That is to say, agro-biotechnology has indirectly contributed to the revitalisation of the agricultural sector on a *non-traditional* mode where State intervention has reached its limits in inducing sectoral growth with agriculture *qua* (*i.e.* properly as) agriculture.

#### **f) Seventh Malaysia Plan (1996-2000)**

Hence, the Seventh Malaysia Plan (1996-2000) was to re-focus on the competitive edge of high-value crops which have a niche in the market. The involvement of the private sector continues unabated and is expected to play a leading role in galvanising the agricultural sector towards modernisation. Hence, R&D especially in the area of agro-biotechnology

was regarded as a catalyst for market creation on behalf the nation's agricultural sector. The government continued to provide the fiscal impetus through tax exemptions, financial matching, seed grants, *etc.* Intriguingly, bio-technology including the introduction of better farming techniques such indoor organic farming and hydroponics have led to good outputs and productivity such as vegetables and the fruits sub-sectors. In addition, this has led to the integration of the entire supply chain where the process of production matches the process of transportation and distribution in terms of quality. That is to say, better agricultural practices impacts not only the production process but the entire supply chain also as quality is not limited to the production period but extends beyond that also.

Hence, private sector investment was pushed up to 44 percent to 9.5 billion during the previous Plan, as part of the broader diversification of corporate portfolios. To reflect the increasing corporatisation of the agricultural sector, Lembaga Padi Negara<sup>35</sup> (LPN), the national rice distributor, changed into PadiBeras Nasional Berhad<sup>36</sup> (BERNAS) with the objectives of modernising the processing and marketing of rice in the country. BERNAS integrated the bulk system, purchasing centres, godowns and production complexes (for polishing and packaging) into the supply chain, thus further improving the post-harvest handling of padi.

The Seventh Malaysia Plan raised exciting prospects for the agricultural sector, despite the continuing decline of the share to the GDP to barely 10 percent by the end of term. The total value-add of the sector was set to increase to RM18 billion by the same time. Agro-biotechnology and genetic engineering was intensified to sustain food commodity productivity as well as boost optimum utilisation of industrial commodities.

#### **g) Eighth Malaysia Plan (2001-2005)**

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The Eighth Malaysia Plan (2001-2005) represented the National Vision Plan (NVP) as a continuation of the guiding principles and ambition of the NEP and the National Development Plan (NDP)(1991-2000). The NVP incorporates the critical thrusts of these two policy frameworks and is also guided by the strategic goals of Vision 2020, which laid out the directions for Malaysia to become a fully developed nation by 2020. During the Plan's period, the transformation of the agriculture sector into a modern, dynamic and competitive sector, integrated with other sectors of the economy, continued to be accelerated.

The main focus was increasing food production, enhance competitiveness of industrial crops through consolidation of areas under cultivation, and develop new sources of growth. Measures were also implemented to optimise resource utilisation by intensifying R&D and adopting new skills and technologies. Institutional and support services was to be improved to further encourage organised collective farming and active private sector participation in agricultural activities. Commercialisation of agricultural products was also promoted through greater concentration in applied R&D activities and closer interaction with potential investors.

Total agricultural value added grew by 1.2 per cent per annum compared with the previous Plan's optimistic target of a minimum of 1.9 per cent. However, palm oil grew at 7.9 per cent exceeding the target set and remained as the most significant contributor to the growth in value added. Other sub-sectors that recorded an increase in value added included padi and other food crops, although their growth was lower than targeted. The contribution of the agriculture sector to the GDP decreased from 10.3 percent in 1995 to 8.7 percent in 2000. Agricultural export earnings in current value increased by 1.1 per cent per annum from RM21.6 billion to RM22.9 billion, particularly as a result of palm oil exports. Despite the increase, the proportion of agricultural exports to total exports declined from 11.7 per cent to 6.1 per cent during the period.

Employment in the agriculture sector decreased further during the period, from 1.5 million in 1995 to 1.4 million in 2000, a decline of 1.2 percent *per annum*. Productivity gains were recorded in several sub-sectors, particularly padi, vegetables, *etc.* through the application of various labour-saving technologies and better farming practices in large-scale commercial production. Value added per worker in the agriculture sector improved further by 2.4 percent *per annum*, from about RM11500 in 1995 to about RM12900 in 2000. This was slightly lower than the previous Plan's target of 3.3 percent *per annum* due to the relatively slow process of mechanisation in the palm oil industry which continues to be heavily reliant on foreign labour, alongside rubber and cocoa plantations.

Intriguingly, this was not matched by agricultural land use which increased from about 5.7 million hectares in 1995 to about 6.0 million hectares in 2000. This was mainly attributed to the opening up of new land for oil palm cultivation in Sabah and Sarawak. Increase in acreage was recorded for oil palm, pepper, vegetables and fruits. However, a substantial 430800 hectares of rubber and cocoa land was converted for oil palm and other uses to capitalise for continuing high demands on the world commodities market, especially from emerging economies like China and India, *e.g.* for refined, bleached and deodorised and (RBD) palm oil products. Also, at this time, Malaysia had embarked on an aggressive promotional campaign for the palm oil industry especially in North America with an emphasis of its health benefits as cooking oil and margarine spread.

Production in the fruit and vegetable sub-sectors continued to increase to meet local demand and for export. Production of fruits registered an increase of 6.2 percent annually from one million tonnes in 1995 to 1.4 million tonnes in 2000, while the harvested area grew by 4.0 percent *per annum*, from 244500 hectares to 297400 hectares. A total of 15 fruit types were promoted for commercial cultivation including banana, papaya, pineapple, watermelon, star-fruit, mango, durian, rambutan, guava and citrus fruits. The production of vegetables, mainly from leafy, root and fruit vegetables, also increased from 718000 tonnes in 1995 to one million tonne in 2000, recording a growth of 7.2 per cent

*per annum*. The harvested area under vegetables grew by 4.1 percent annually from 42000 hectares to 51400 hectares. The increase in production of both fruits and vegetables was made possible through expansion in planted areas, the provision of basic infrastructure and inputs as well as the promotion of organised and commercial cultivation.

### **h) Ninth Malaysia Plan (2006-2010)**

The emphasis of the Ninth Malaysia Plan (2006-2010) was to be on the “New Agriculture” to revitalise the agriculture sector to become the third engine of growth. Hence, this move represents a fresh re-consolidation of large-scale commercial farming, the wider application of agro-biotechnology, and other such policies and strategies such as have been implemented in the past.

The agricultural value added had grown at an average rate of 3.0 percent *per annum* during the previous Plan period, higher than the target of 2.0 percent. The higher growth was due to better performance of the agricultural industrial commodities sub-sector, particularly oil palm. The share of the sector to gross domestic product (GDP) decreased slightly from 8.9 per cent in 2000 to 8.2 per cent in 2005. Nevertheless, total agricultural value added increased from RM18.7 billion in 2000 to RM21.6 billion in 2005. The value added of agro-based industry grew at an average rate of 4.5 per cent per annum to reach RM16.9 billion in 2005. The combined value added of the agriculture and agro-based industry was RM38.5 billion or 14.7 per cent of GDP in 2005. Total agricultural and agro-based export earnings also increased by an average rate of 9.5 per cent per annum.

Agricultural land use increased from 5.9 million hectares in 2000 to 6.4 million hectares in 2005, largely due to the expansion in the acreage of oil palm, coconuts, vegetables and fruits. Of the total land area, 4.0 million hectares were under oil palm followed by 1.3 million hectares under rubber. During the previous Plan period, a total of 163000 hectares

of agricultural land remained idle. Efforts to optimise the utilisation of idle land were hindered by several constraints, particularly absentee landlords, ageing landowners and farmers as well as difficulties in consolidating native and customary land. This represented a fundamental shortcoming in the government's monitoring of land use, and ineffectiveness in providing solutions to what are perennial, *i.e.* conventional problems. Questions could be raised not least for example as to why such lands were not leased from the landlords under a JV scheme. Ironically, excessive *federal* intervention could be part of the problem. The respective *states* should have assumed greater role and responsibility in conjunction with the *local* government.<sup>37</sup>

Of particular significance also was the further consolidation of padi smallholdings through the group farming concept in the eight granary areas and the implementation of the "Ten Tonnes Per Hectare Project", which enabled the greater adoption of the Good Agriculture Practices (GAP) and better farm management. As a result, padi production increased at an average rate of 2.3 per cent *per annum*.

The expansion in acreage for fruit cultivation led to an increase in production at an average rate of 9.8 per cent *per annum*. Production was concentrated on 15 types of fruits with potential for commercialisation. Coconut production increased at an average annual rate of 4.8 percent, particularly due to greater utilisation of higher yielding clones, namely *kelapa matag* and *kelapa pandan* varieties, as well as expansion in cultivated areas and increase in demand. The production of vegetables grew at an average rate of 13.8 percent *per annum* attributed to the expansion in cultivated areas, intensive implementation of estate-based activities and higher productivity from good farming practices as well as improvements in post-harvest handling. The production of organic vegetables was further promoted with the introduction of the Malaysian Organic Scheme, which enabled growers to sell their produce at premium prices. At the end of the Eighth Malaysia Plan period, a total of 132 hectares of organic vegetable farms was certified under this scheme.

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As such, the agricultural sector *vis-à-vis* the Ninth Malaysia Plan embodies decades of accumulated wisdom and experience that constituted a ‘reservoir’ to be tapped – mistakes to be avoided, scenarios envisaged, successes to be replicated, *etc.* It, *i.e.* the ‘reservoir,’ also provided a “road map” for the future course of agriculture in Malaysia the process of streamlining good agricultural practices (GAP) across the sector develops in line with changing times. As such, the Ninth Malaysia Plan purportedly aimed to rationalise the next level or phase of re-consolidation of the agricultural sector’s previous policies and strategies such as *in situ* development, land re-development, preserving and protecting the inter-sectoral linkages, *etc.* Particularly, inter-sectoral linkages have been especially transformed by the creation of economic regions such as the Iskandar Malaysia (formerly the Iskandar Development Region - IDR), Northern Corridor Economic Region (NCER), Sarawak Corridor of Renewable Energy (SCORE), *etc.* Agriculture will be further integrated externally into a value-added economy whilst internally, the sector will be further “splintered” and “configured” into specialised sub-sectors as the supporting circuits in a wider network of inter-related cluster industries, including the information and communications technology (ICT) in relation to geo-portal data.<sup>38</sup>

The overall policy thrusts of the agriculture sector under the Ninth Malaysia Plan focussed on its reorientation towards greater commercialisation and the creation of high-income farmers as well as promotion of greater private sector investment including foreign investment. In this regard, the policy thrusts were as follows:

- increasing agricultural production including by venturing into new sources of growth with greater private sector participation;



- expanding agro-based processing activities and product diversification;
- strengthening marketing and global networking;
- enhancing incomes of smallholders, farmers and fishermen; and
- improving the service delivery system.

The Ninth Malaysia Plan expected that the development of the agricultural sector will be intensified to fulfil its revitalised role as the third engine of growth. It was expected that focus will continued to be given to improving the efficiency of marketing delivery services and strengthening the global network through strategic alliances. Towards this end, efforts were undertaken to strengthen traditional markets and diversify into new markets. Promotional programmes were intensified to increase consumption of foods with high nutritional value and create greater awareness among Malaysians on the safety of food products. To further strengthen the marketing of food and food-based products, efforts were supposed to have been undertaken to ensure compliance with international requirements such as rolling out the adoption of farm accreditation schemes and product standardisation. In this regard, a one-stop centre had been established to facilitate accreditation of farms and certification of standards for food products.

Implementation that were then underway included improved collection, grading and marketing of local agricultural produce and food-based industrial products through the establishment of National Food Terminals (TEMAN) as well as new collection centres and distribution centres in selected locations, including in Sabah and Sarawak. In addition, the Federal Agricultural Marketing Authority (FAMA) intended to increase the use of contract farming arrangements, particularly with wholesalers, hypermarkets, supermarkets, hotels and resorts to improve the delivery system in terms of preserving the quality of the produce. The mechanism to access market information as well as to conduct trading of food products using ICT are being upgraded through the expansion of the Supply and Demand Virtual Information (SDVI) system, e-trade through FAMAXchange and Agribazaar portals. In addition, the establishment of

additional Medan InfoDesa facilities in the rural areas is expected to increase the accessibility of rural folks to the Agribazaar portal.

The marketing of agricultural industrial commodities, particularly palm oil will be focused on creating and strengthening niche markets by establishing a chain of production processes in strategic locations around specific regions and relocating manufacturing sub-processes to consuming countries, as part of the efforts in market penetration. Thus, in summation, improving the delivery system via integrating the entire supply chain represents a major concern of the agricultural sector under the Ninth Malaysia Plan. The direction for improving efficiency has been reversed so that the movement is initiated from the *mid-stream* activities as the hinge and fulcrum of the supply chain. The mid-stream level acts and functions as a “visible nodal point” for the entire supply chain because of its critical nexus between producer and consumer. Hence, the mid-stream level is crucial in providing feedback to the producer and guarantee to the consumer.<sup>39</sup>

### **3. The World Food Crisis (2007-2008)**

The world food crisis (2007-2008) spurred the government into immediate response to counter possible lapse in food security, thus triggering a nation-wide crisis. The then Agriculture and Agro-based Industries Minister Mustapa Mohamed sought around RM6 billion as an additional allocation to fund an increase in rice production to overcome the dwindling exports from top rice-producing nations. The allocation is needed to upgrade the irrigation system, improve the farming infrastructure and to cultivate new padi fields in Pahang, Sabah and



### **Figure 1: SCM Model<sup>41</sup>**

According to a *Bernama* report,<sup>i</sup> the government remains committed to ensuring that the country's rice bowl across the geographical landscape will be able to produce 10 tonnes of padi per hectare on the back of an improved infrastructure. Citing padi fields in Sekinchan, Selangor, as an example, Malaysian Agricultural Research and Development Institute (Mardi) Director Datuk Dr Abd Shukor Abd Rahman said the area had been producing top yields of 13 tonnes per hectare because of good irrigation system and the use of high quality fertiliser. At the moment, Malaysia produces 75 percent of its rice demand, with over 600000 tonnes more has to be imported annually to meet domestic consumption.

Recently, Kemubu Agricultural Development Authority (Kada) Chairman Datuk Seri Annuar Musa suggested that padi farmers change their farming methods from conventional ways to modern farming system to increase the country's rice production. He also said that many farmers were dependent on subsidised fertiliser and pesticide and were still using old irrigation system that was built 40 years ago, resulting in lower yields of four to six tonnes per hectare.<sup>42</sup> In addition to improved irrigation and drainage infrastructure, the nation's padi farming areas will also be increased by 100,000 hectare within the next two years.<sup>43</sup>

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Outside the traditional rice bowl zones like Muda in Kedah, Kemubu in Kelantan, Besut in Terengganu, Kerian in Perak and Sekinchan in Selangor, Sarawak is reportedly keen to contribute to the national rice production policy by developing large-scale padi planting areas and mini-estates to achieve 100 percent self-sufficiency in rice by 2015.<sup>44</sup> Deputy Chief Minister Tan Sri Dr George Chan said the state government had identified eight areas totalling 43821 hectare as suitable for large-scale padi production, with Sungai Seblak in Roban the first to be developed under the Ninth Malaysia Plan. In addition, the state government had implemented two mini-estates at Bundong-Sian and Tulai-Tekap, covering 1,000ha, with both showing encouraging results. Other measures to boost rice production in the state included encouraging commercial planting by the private sector and improving the productivity of existing cultivated areas.

#### **4. Assessment**

In 2006, agriculture's contribution to the GDP hardly grew by 0.1 percent to 8.3 percent overall. (Malaysian Economic Outlook: 2006-2007, Centre for Public Policy Studies – CPPS). Hence, since the 2nd Malaysia Plan, the sector has experienced a steep decline. The Government ought to be staving off anymore erosion. Notwithstanding, agriculture - owing to state-interventionist policies - has been instrumental in reducing incidences of poverty and increasing living standards. However, the nation's strong dependence on the palm oil and timber logging industries lately is hampering efforts to increase agricultural productivity. Most of the estimated 50 percent of forested areas is being utilised for non-agricultural purposes.

#### **5. Some Policy Proposals in Retrospect**

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- a) The government should be considering *extensive* land rehabilitation projects for engagement in agricultural activities to *e.g.* increase padi yield. JVs should reflect a triple alliance between the federal (*i.e.* the Agricultural and Agro-based Industries Ministry), state development corporations and the private sector in engaging such projects. A fund should be set up specifically targeted at providing “seed grants” to these projects, where top-ups can be had from the private sector *e.g.* tax exemption for turning prospective real estate management such as property development into farming, *i.e.* agricultural purposes. The government should match the top-up from the private ringgit for ringgit by reinvesting the proceeds of the *sale* of idle lands - which was bought from previous owners - to the private sector.
- b) Also, the Securities Commission (SC) should liberalise the regulation to enable Bursa Malaysia to trade rice as a derivatives (futures and options) commodity, which currently is limited to products such as crude palm oil (CPO). This move should be initiated in tandem with the removal of BERNAS’ monopoly rights to promote supply and demand based on market forces. On the one hand, derivatives provide a “hedging” against exposure to market volatility; on the other hand, the consumer enjoys competitive prices. Hence, the rice market should have been liberalised.
- c) Incorporate the Integrated Agricultural Development Projects (IADPs) into *all* of the Regional Economic Corridors, by involving the private sector. Farmers’ cooperatives should also be given assistance by the government in developing their role and participation as *stakeholders* in the projects. There should be a re-emphasis on “collectivisation” of the agricultural lands such as padi fields where not only are these grouped into clusters of mini-estates *but* also as *self*-sufficient mini production centres with the choice and capacity to “by-pass” conventional channels such as existing vital strategic partners like BERNAS in order to link-up or *twin* with regional farmers.

- d) Re-orient the services and related sectors (banking, ICT, *etc.*) to also support “rural industrialisation”, in consonant with the sector’s status as a third pillar of the economy. This would *e.g.* definitively include agro-tourism as an integrated scheme in the agricultural sector (and agro-based industries).
- e) The key is not to separate both kinds of industrialisation, *i.e.* rural and urban but “merge” these in line with a Total Planning Concept, where agriculture is part of the economic activity and environmental sustainability of *any* development projects, and this includes the promotion of *domestic* or home agriculture.

## 6. Conclusion

A significant impact of the agricultural programmes in Malaysia from the Second to the Ninth Malaysia Plans is reflected in the reduction in the poverty incidence from almost 60 percent in the 1970s to about less than 5 percent in 2005. The lessons learnt from past experiences have provided concrete policy guidelines for the government to pursue. Hence, it is a matter of building on past achievements and moving forward with value-added activities as part of the modernisation process. The agricultural sector in Malaysia has indeed come a long way, and there is much scope for optimism that it will continue to be responsive and sensitive to externalities, despite certain structural flaws which might pose as a hindrance to an accelerated pace of progress.

## NOTES

<sup>1</sup> Source: Economic Planning Unit (EPU), Prime Minister's Department – Agricultural Sector, Development Policies. Website: [<http://www.epu.gov.my>].

<sup>2</sup> *Ibid.*

<sup>3</sup> For example, please see Foreword to Chapter IX: "Agriculture, Forestry and Fisheries," *Second Malaysia Plan* (1971-1975), p. 134. Also consult, Fatimah Mohd Arshad and Md Nasir Shamsudin. 1997. Rural Development in Malaysia. Paper presented to the President of Peru, Mr. Alberto Fujimori, Lima, Peru (13 October 1997).

<sup>4</sup> *Op. cit.* "Rural Development in Malaysia."

<sup>5</sup> *Ibid.*

<sup>6</sup> Organisational History, Muda Agricultural Development Authority (MADA). Sourced from website: [<http://www.mada.gov.my>].

<sup>7</sup> *Ibid.*

<sup>8</sup> Rudner, Martin. 1983. Changing Planning Perspectives of Agricultural Development in Malaysia. *Modern Asian Studies* 17(3). See also Lim, Chong Yah. 1967. *Economic Development of Modern Malaya*; Thoburn, John T. 1977. *Primary Commodity Exports and Economic Development*:



*Theory, Evidence and a Study of Malaysia*; Malaysia: Economic Report (1976/77) Vol. 5; Malaysia: Economic Report (1978/79) Vol. 7.

<sup>9</sup> Source: Economic Planning Unit, Prime Minister's Department.

<sup>10</sup> Speech at the official launch of the "Malaysia International Food and Beverage Trade Fair 2004" and "Malaysia International Halal Food Conference 2004".

<sup>11</sup> Source: Ministry of Agriculture and Agro-based Industries – [<http://agrolink.moa.my>].

<sup>12</sup> *Ibid.*

<sup>13</sup> Source: "Ministry to employ 'eat less rice' strategy", *The Star*, 28 April 2008.

<sup>14</sup> *Op. cit.* "Ministry to employ 'eat less rice' strategy".

<sup>15</sup> Ding Eing Tan Soo Hai. 1963. *The Rice Industry in Malaya, 1920 to 1970*. Singapore; Lim, T. G. 1963. *Peasants and their Agricultural Economy in Colonial Malaya*; and Rudner, Martin. Agricultural Policy and Peasant Social Transformation in Late Colonial Malaya. In *Issues in Malaysian Development*, eds. Jackson, James C. & Rudner, Martin. Heinemann.

<sup>16</sup> Source: *Malaysian Industrial Policy*, Jomo K Sundram (2007) and the Agricultural Sector, Fifth Malaysia Plan (1986-1990).

<sup>17</sup> The NEP was initiated with a two-prong objective: "reduce poverty irrespective of ethnicity" and "eliminate ethnic identification with economic function". It was to be a highly successful affirmative action agenda, which since has been looked to by countries like post-apartheid South Africa for emulation.

<sup>18</sup> Source: *Second Malaysia Plan (1971-1975)*.

<sup>19</sup> *Ibid.*

<sup>20</sup> The net size of the palm oil plantations increased 264000 hectares in 1965 to 665000 hectares in 1970 – a span of only five years! In parallel terms, the palm oil output, by total aggregate, increased from 148000 tonne to 424000 tonne in the same period.

<sup>21</sup> Largely for economic and political reasons, the main thrust shifted production orientation of traditional smallholder from policy subsistence activities to the production of export crops.

<sup>22</sup> *Op. cit.* "Rural Development in Malaysia".

<sup>23</sup> The initial proposal of the Muda irrigation project was suggested by the then Federal Drainage and Irrigation Department in the 1950's. Between 1960 until 1964, the consulting firm of Sir William Halcrow and Partner (United Kingdom) was given the task of carrying out a preliminary study regarding the implementation of the project. The first report of the study was handed over to the government and also to the World Bank in early 1965. Construction work began in April 1966. In early 1970, the first irrigation stage was started in an area of approximately 33600 hectares for the off-season crop. Irrigation to additional areas was implemented in eight stages and completed in 1974. Both MADA and the Kemubu irrigation scheme in Kelantan were completed at around the same time.

<sup>24</sup> *Op. cit.* "Rural Development in Malaysia". Rural industrialisation was another strategy started under SMP to increase employment, productivity and incomes of the rural population. Rural Industrial Development Authority (RIDA) was launched to improve the well-being of rural communities by setting up rural or cottage industries.

<sup>25</sup> Also known as the RED Book.

<sup>26</sup> *Op. cit.* "Changing Planning Perspectives of Agricultural Development in Malaysia".

<sup>27</sup> Source: Third Malaysia Plan (1976-1980).

<sup>28</sup> S Selvadurai. 1978. *Agriculture in Peninsular Malaysia*, Ministry of Agriculture and Rural Development

<sup>29</sup> Pletcher, James. 1990. Public Interventions in Agricultural Markets in Malaysia: Rice and Palm Oil. *Modern Asian Studies* 24(2), May.

<sup>30</sup> Copra production increased by only 1.3 percent per annum during 1971-1975 due to low prices.

<sup>31</sup>As per the Agriculture, Animal Husbandry, Fisheries and Forestry, Third Malaysia Plan.

<sup>32</sup> *Op. cit.* "Rural Development in Malaysia".

<sup>33</sup> See e.g. Sundram, Jomo K. 2007. Malaysian Industrial Policy (1986-2002). In *Malaysian Industrial Policy*, ed. Sundram, Jomo K. University of Hawaii Press.

<sup>34</sup> As per "Agriculture, Livestock, Fisheries and Forestry", *Fourth Malaysia Plan*.

<sup>35</sup> Extract of Part II, “Agriculture and Rural Development”, *Fifth Malaysia Plan* (1986-1990).

<sup>36</sup> National Padi Board.

<sup>37</sup> National PadiRice Limited.

<sup>38</sup> In Malaysia, land comes under the administrative purview and jurisdiction of the state governments within the constitutional provisions for the federation.

<sup>39</sup> See the Malaysian Centre for Geospatial Data Infrastructure (MaCGDI). Website:

[[http://www.mygeoportal.gov.my/index\\_new6.cfm](http://www.mygeoportal.gov.my/index_new6.cfm)]. MaCGDI is a land information system designed to facilitate planning and implementation of the nation’s topographical resources.

<sup>40</sup> A central tenet of supply chain management (SCM) is that in future, competition will no longer be between firms but rather be between supply chains, comprising groups of companies intricately linked through a series of partnership and alliances at the various levels of the supply chain. A cursory review of the literature indicates that SCM has been applied from the perspective of an individual firm; related to a particular product or item (such as the supply chain of rubber, or rice); and from the perspective of industry group or sector (such as grains and agro-food). As all components along the supply chain need not belong to one company or group, varying degrees of strategic alliances can be observed at the operational level: from loose structures (JV ‘at the door’) to dedicated/designated suppliers (as in the case of supermarkets), through to cross investments. At the operational level, there is significant value-adding along the entire supply chain. Furthermore, supply chains can reduce asymmetry of information at interfaces with each subsequent level, thereby reducing transaction costs as well as increasing feedback and improving response rate to changes in consumer preferences and tastes, thus enabling the capturing of premiums. Of course, this sharing of information is greatly facilitated, enhanced and even revolutionised by recent advances in ICT. See Wong, Larry C.Y. *Development of Malaysia’s Agricultural Sector: Agriculture as an Engine of Growth?* Paper presented at the Conference on the Malaysian Economy: Developments and Challenges held at the Institute of Southeast Asian

Studies (ISEAS), Singapore, 25-26 January 2007. Published by the Institute of Strategic and International Studies (ISIS).

<sup>41</sup> *Ibid.* Source: *Development of Malaysia's Agricultural Sector: Agriculture as an Engine of Growth?*

<sup>42</sup> "Agriculture Ministry seeks RM6bil to boost rice production", *The Star*, 12 April 2008.

<sup>43</sup> "Better Infrastructure Needed To Produce 10 Tonnes Of Padi Per Hectare", *Bernama*, 28 April 2008. Datuk Dr Abd Shukor was reportedly to have said, "So we need to improve the infrastructure. The padi fields should also be flattened out properly to allow for a better control of irrigation water. If we can do that, we can have more yields, even more than those produced in Sekinchan".

<sup>44</sup> *Ibid.*

<sup>45</sup> "Another 100,000ha Of Padi Farming Areas In Next Two Years", *Bernama*, 6 May 2008.

<sup>46</sup> "Going big on padi yield", *The Star*, 8 May 2008. See also "Psst, Malaysia's Got a New Rice Bowl", *Asia Sentinel*, 27 April 2008

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