

PENGGUNAAN PEMPROGRAMAN LINEAR DI DALAM PENGURUSAN LADANG TERNAKAN

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SINOPSIS

Kertas ini membincangkan penggunaan teknik Pemrograman Linear untuk merancang penanaman dan penggunaan empat jenis rumput dalam satu ladang tenusu contoh di Malaysia. Tujuannya ialah untuk memaksimumkan pendapatan ladang apabila tertakluk kepada batasan-batasan sumber seperti belanjawan operasi, tenaga buruh dan keluasan tanah. Kertas ini juga menunjukkan bagaimana masalah pengurusan ladang dibentuk secara masalah Pemrograman Linear dan bagaimana nilai-nilai koefisyen untuk fungsi objektif dan batasan-batasan didapati.

SYNOPSIS

This paper discusses the application of Linear Programming technique in planting and consumption of four types of grass in a typical milk farm in Malaysia. The purpose is to maximize farm income while subjected to various resource constraints such as operating budget, work force and land area. The paper shows how the farm management problem is formulated as a Linear Programming problem and how coefficient values for the objective function and constraints are obtained.

PENDAHULUAN

Satu daripada aspek-aspek pengurusan ladang ternakan yang terpenting ialah pengurusan tanaman rumput dan pastura. Rumput dan pastura merupakan sumber utama makanan ternakan lembu bagi industri ternakan yang berasaskan kepada padang ragutan. Juga kos penyelenggaraan dan pengurusan padang ragutan merupakan sebahagian besar daripada kos operasi keseluruhan ladang ternakan itu sendiri.

Rumput dan pastura sama ada dari jenis tulin ataupun campuran mempunyai mutu dan tahap pengeluaran yang berbeza. Oleh itu ia mempunyai kemampuan dan keupayaan untuk memberi dan menampung keperluan makanan ternakan yang berbeza dari satu jenis dengan jenis yang lain ataupun dari satu sistem penggunaan dengan sistem penggunaan yang lain. Penjagaan dan pengurusan rumput-rumput ini juga memerlukan penggunaan sumber-sumber ladang yang terhad. Untuk mendapatkan jumlah hasil keluaran rumput yang

paling maksimum dengan kos yang minimum, satu keseimbangan perlu dibuat di antara jenis-jenis rumput yang ditanam dengan sumber-sumber ladang yang digunakan.

Keputusan untuk memilih jenis-jenis rumput dan pastura yang akan di tanam perlulah dibuat dengan betul di peringkat perancangan pembangunan ladang itu lagi oleh kerana proses penanaman rumput mengambil masa yang lama dan kos yang tinggi. Oleh yang demikian amatlah penting bagi pengurusan ladang menggunakan cara yang sistematik untuk menolongnya membuat keputusan yang menguntungkan.

Kertas ini akan cuba menyarankan satu kaedah yang sistematik untuk merancang jenis-jenis rumput yang akan ditanam di dalam satu kawasan ladang yang terhad keluasannya untuk mendatangkan pendapatan yang maksimum kepada pihak pengurusan. Teknik yang dicadangkan dipanggil Teknik Pemrograman Linear¹ Kaedah ini akan dibentangkan dengan mengambil contoh satu kes pengurusan ladang tenusu di Malaysia.

TEKNIK PEMROGRAMAN LINEAR

Umumnya, teknik pemrograman linear ialah satu kaedah untuk mengagihkan sumber-sumber terhad kepada beberapa aktiviti atau alternatif supaya keuntungan yang maksimum atau kos yang minimum dapat dihasilkan. Biasanya satu model pemrograman linear boleh dibentangkan seperti berikut (untuk memaksimumkan keuntungan):

$$\text{Maksimum } z = c_1x_1 + c_2x_2 + \dots + c_nx_n$$

Tertakluk kepada batasan-batasan

$$a_{11}x_1 + a_{12}x_2 + \dots + a_{1n}x_n \leq b_1$$

$$a_{21}x_1 + a_{22}x_2 + \dots + a_{2n}x_n \leq b_2$$

⋮

$$a_{m1}x_1 + a_{m2}x_2 + \dots + a_{mn}x_n \leq b_m$$

$$x_1, x_2, \dots, x_n \geq 0$$

di mana z adalah jumlah keuntungan

$x_j, j = 1, 2, \dots, n$ adalah alternatif-alternatif dalam kajian.

$c_j, j = 1, 2, \dots, n$ adalah nilai-nilai koefisien yang menunjukkan keuntungan satu unit bagi tiap-tiap alternatif.

$a_{ij}, i = 1, 2, \dots, m,$ adalah nilai-nilai koefisien yang

¹Untuk perbincangan mengenai Kaedah Pemrograman Linear lihat Hadley, "Linear Programming" Addison Wesley, 1962 atau Dantzig "Linear Programming and Extensions", Princeton University Press, 1963.

- $j = 1, 2, \dots, n$ menunjukkan keperluan sumber-sumber bagi menghasilkan satu unit bagi tiap-tiap alternatif.
- $b_i, i = 1, 2, \dots, m$ ialah sumber-sumber yang sedia ada.

SISTEM PERLADANGAN PASTURA SECARA BESAR-BESARAN

Rumput dan pastura campuran yang didapati sesuai ditanam di Malaysia adalah dari beberapa jenis dan yang paling biasa digunakan adalah rumput Guinea, sama ada ditanam secara tulin ataupun secara campuran dengan kekacang (legumes). Rumput campuran seperti ini dalam kajian ini dipanggil pastura campuran. Cara penggunaan dan pengawitan rumput-rumput dan pastura campuran sebagai makanan ternakan adalah seperti berikut:

- 1 Cara ragutan
- 2 Cara makan di kandang, iaitu rumput dikerat dengan mesin dan dibawa ke kandang.

Setelah digabungkan jenis rumput dan cara pengawitan maka terdapat empat alternatif penanaman rumput tersebut seperti berikut:

1. Rumput Guinea tulin ditanam untuk ragutan
2. Rumput Guinea tulin ditanam untuk keratan
3. Rumput Guinea dicampur dengan kekacang dan ditanam untuk ragutan
4. Rumput Napier tulin ditanam untuk keratan.

Objektif pengurusan ladang lembu tenusu ialah untuk menentukan keluasan tanah yang perlu dikhaskan kepada jenis-jenis tanaman tersebut supaya pendapatan yang paling tinggi diperolehi melalui penghasilan susu daripada kawasan tersebut.

KEPERLUAN SUMBER-SUMBER UNTUK PENGURUSAN LADANG

1. LUAS KAWASAN

Jumlah luas kawasan dalam kajian ini terhad kepada 1,300 ekar. Dari jumlah itu seluas 200 ekar (15%) tidak dapat digunakan oleh kerana paya dan sungai; 100 ekar (8%) dikhaskan untuk jalan, bangunan-bangunan rumah, setor dan kandang ternakan. Maka luas kawasan yang dapat digunakan untuk tanaman rumput hanya, 1,000 ekar sahaja.

2. TENAGA BURUH

Oleh kerana tenaga buruh di ladang-ladang ternakan lembu tenusu lebih dipentingkan bagi kerja-kerja seperti pemerahan susu, penjagaan kesihatan ternakan dan kebersihan kandang, maka tenaga buruh yang

dapat dikhaskan untuk kerja-kerja penyelenggaraan kawasan rumput dan kerja-kerja mengerat dan menghantar rumput ke kandang adalah terbatas.

Untuk kerja-kerja membaja hanya 3 jam kerja² bagi seekar, atau 3,000 jam bagi kawasan seluas 1,000 ekar dapat diperuntukkan. Keupayaan ini menunjukkan keupayaan maksimum yang dapat diperuntukkan. Luas kawasan rumput yang hendak dikerat pada tiap-tiap hari bergantung kepada beberapa ekor lembu yang dipelihara dalam kandang dalam sesuatu hari. Secara purata dua jam kerja sehari diperuntukkan untuk tujuan ini atau 730 jam setahun.

3. BELANJAWAN OPERASI

Perbelanjaan operasi bagi menyelenggarakan padang-padang rumput secara kasarnya terbahagi kepada:

- a. Pembelian baja
- b. Bayaran untuk tenaga buruh (pemandu trektor) bagi membaja dan mengerat rumput
- c. pembelian minyak pelicin dan lain-lain
- d. perbelanjaan-perbelanjaan lain termasuk susut nilai trektor.

Peruntukan purata sebanyak \$200 seekar untuk operasi ladang rumput atau \$200,000 bagi 1,000 ekar setahun dikhaskan sebagai sumber yang boleh digunakan untuk pengurusan padang rumput. Perbelanjaan penjagaan seekar setahun mengikut jenis dan penggunaan rumput adalah seperti berikut:³

Jenis Rumput	Perbelanjaan Seekar Setahun (\$)
Rumput Guinea Tulin (Ragutan)	181
Rumput Guinea Tulin (Kerat)	255
Pastura Campuran (Ragutan)	140
Rumput Napier Tulin (Kerat)	324

ANGGARAN PENDAPATAN

Pengeluaran padang rumput dapat dinilai berdasarkan kepada:

- a. Beberapa ekor lembu yang dapat ditampung di atas seekar kawasan dengan mendapat makanan yang cukup daripada rumput-rumput yang ditanam; dan

²Satu jam kerja di sini dimaksudkan satu jam perjalanan trektor kerana kerja-kerja seperti ini biasanya dilakukan oleh trektor.

³Perbelanjaan penjagaan rumput ini dikira berpandukan kepada maklumat-maklumat yang terdapat di dalam, Chandapillai, M.M. 1975 "An Economic Evaluation of Pasture Fertiliser Trials on Majuternak Farms" Communication — Agronomic, No. 8...

- b. anggaran susu yang dapat dikeluarkan daripada seekor lembu sehari yang memakan rumput-rumput tersebut.

Anggaran pendapatan daripada seekor rumput adalah seperti berikut:⁴

Jenis Rumput	Pendapatan Seekor Setahun (\$)
Rumput Guinea Tulin — Ragutan	605
Rumput Guinea Tulin — Kerat	806
Pastura Campuran — Ragutan	538
Rumput Napier Tulin — Kerat	941

**PENYELESAIAN DENGAN MENGGUNAKAN TEKNIK
PEMROGRAMAN LINEAR**

Jadual 1 menunjukkan maklumat-maklumat yang diperlukan untuk pengurusan ladang tersebut dengan menggunakan kaedah pemrograman linear.

Jadual 1. Sumber, Kadar Penggunaan dan Hasil Pendapatan dalam Pengurusan Ladang Ternakan.

Sumber \ Jenis Tanaman	Guinea Tulin Ragutan (x_1)	Guinea Tulin Kerat (x_2)	Pastura Campuran Ragutan (x_3)	Napier Tulin Kerat (x_4)	Jumlah Sumber
1. Belanjawan operasi seekor setahun (\$)	181	255	140	324	200,000
2. Tenaga Pembajaan (jam seekor)	2	4	2	6	3,000
3. Tenaga Pengkeratan (jam seekor)	0	2	0	2	730
4. Tanah (ekar)	1	1	1	1	1,000
Pendapatan ladang seekor setahun (\$)	605	806	538	941	

Maklumat-maklumat di atas dapat diperturunkan dalam bentuk masalah pemrograman linear seperti berikut:

$$\text{Maksimumkan } z = 605x_1 + 806x_2 + 538x_3 + 941x_4$$

⁴Hasil pendapatan dianggar berpandukan kepada maklumat-maklumat yang terdapat di dalam "Symposium of Self-sufficiency in Feeding Stuffs for Increasing Animal Production", Kementerian Pertanian dan Pembangunan Luar Bandar Malaysia 1974.

Tertakluk kepada

$$\begin{aligned} 181x_1 + 255x_2 + 140x_3 + 324x_4 &\leq 200,000 \\ 2x_1 + 4x_2 + 2x_3 + 6x_4 &\leq 3,000 \\ 0x_1 + 2x_2 + 0x_3 + 2x_4 &\leq 730 \\ x_1 + x_2 + x_3 + x_4 &\leq 1,000 \\ x_1, x_2, x_3, x_4 &\geq 0 \end{aligned}$$

Untuk menyelesaikan masalah ini algoritma simpleks digunakan. Kaedah simpleks menghasilkan penggunaan kawasan yang optimal seperti berikut dengan pendapatan sebanyak \$668,275.80.

Jenis Penggunaan	Luas digunakan (ekar)
Guinea Tulin — Ragutan	212.4
Guinea Tulin — Kerat	230
Guinea Campuran — Ragutan	422.6
Napier Tulin — Kerat	135

Jika kawasan ladang ini ditanam mengikut kluasan di atas, maklumat mengenai penggunaan sumber dan pendapatan bagi tiap-tiap jenis tanaman dan pengawitan boleh diberi seperti dalam Jadual 2.

Jadual 2. Penggunaan Sumber dan Pendapatan

Sumber Pengeluaran	Pembekalan Sumber	Jenis dan Penggunaan Rumput			
		Guinea Tulin Ragutan (x_1)	Guinea Tulin Kerat (x_2)	Pastura Campuran Ragutan (x_3)	Napier Tulin Kerat (x_4)
1. Belanja Operasi	199,998.40	38,444.40	58,650	59,164	43,740
2. Tenaga Pekerja-Pembajaan	3,000	424.8	920	845.2	810
3. Tenaga Pekerja-Kerat	730	0	460	0	270
4. Luas Kawasan Optimal	1,000	212.40	230	422.60	135
Pendapatan Optimal		128,502	185,380	227,358.80	127,035

PERBINCANGAN DAN KESIMPULAN

Penyelesaian yang diperolehi di atas menunjukkan bahawa Pastura Campuran diberi keutamaan untuk ditanam (42% daripada jumlah kawasan) sungguhpun pendapatan seekar daripada rumput ini adalah yang paling rendah sekali. Ini disebabkan oleh kos penyelenggaraannya yang terendah sekali. Sebaliknya rumput Napier diberi keutamaan yang paling kurang sekali sungguhpun hasil pendapatan seekar rumput itu adalah yang paling tinggi. Ini disebabkan oleh kos penyelenggaraannya yang amat tinggi. Keputusan yang diperolehi juga membayangkan apa yang sedang dipraktikkan di ladang-ladang ternakan tenusu di Malaysia tetapi kadaran penanaman berbanding dengan luas kawasan ladang keseluruhannya berbeza dengan kadaran yang diperolehi melalui pendekatan yang dikemukakan ini. Adalah dijangkakan yang ladang ini akan mendapat pendapatan maksimum sebanyak \$668,275.80 setahun apabila 212.4 ekar rumput Guinea tulin (ragutan), 230 ekar rumput Guinea tulin (kerat), 422.6 pastura campuran (ragutan) dan 135 ekar rumput Napier (kerat) ditanam di ladang tersebut. Penyelesaian optimal ini diperolehi dalam lingkungan batasan-batasan penggunaan sumber yang dibenarkan. Di samping itu sumber-sumber ladang digunakan sepenuhnya.

Dengan menggunakan kaedah Pemrograman Linear, keputusan untuk memilih jenis-jenis rumput dan luas kawasan yang patut ditanam di ladang-ladang ternakan yang tertakluk kepada batasan-batasan seperti keperluan kawasan, pembekalan tenaga pekerja dan juga peruntukan belanja operasi yang terhad, dapat dibuat dengan lebih cepat dan sistematik berbanding dengan keputusan yang dibuat tanpa berlandaskan apa-apa kaedah yang objektif seperti yang diamalkan di ladang-ladang ternakan di negara ini pada masa ini.

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ULASAN BUKU

Ohmae K., *The Mind of the Strategist*

Mc Graw-Hill, New York, 1982

A Review Article

Siti Maimun Kamso Wan Rafaei

Jabatan Pengurusan,

Universiti Kebangsaan Malaysia

INTRODUCTION

An explanation is wanted on the underlying reasons for the Japanese business success. Numerous explanations have been given from different approaches. One approach is still wanting i.e. the success from the strategy standpoint? What sort of corporate strategic thoughts and moves made the Japanese so successful? This is the prime objective of the exposition — *The Mind of the Strategist*.

The book was first published in 1982 when the world was at its height in its curiosity to fathom the Japanese corporate success. With the use of real life examples (being results of some consultancy work), vivid business lingo, and the use of big names in Japanese corporations, the book emerges as a best seller. However, is the book useful to students of strategic management studies?

This book has been written in three parts viz., the Art of Strategic Thinking, Building Successful Strategies, and Modern Strategic Realities. They made up 17 brief chapters with 5 – 7 of them in each part.

SUMMARY

Part 1

To be a strategic thinker one must begin by being analytical. Based on realities and imagination the analysis should reintegrate new pattern i.e. the strategy. The analysis begin by pinpointing the critical issues in question and devising possible solutions with the intention of forming concrete practical solutions. In devising solutions, various techniques are applied such as grouping the problems and abstracting from them the possible solution through developing the hypothetical solutions, their validations or rebuttals followed by forming of conclusions and drafts for implementation. To facilitate the identifying of critical issues, the author suggested various types of diagrams.

The Art is intended to develop powerful business strategies i.e. to be able to exploit competitive advantage at a reasonable cost. To com-

pete necessitates a different kind of thinking style. Various routes are suggested to arrive at strategic advantage of a company, but the message in each of them is to avoid doing the same activity i.e. reduction of price, cost etc. Based on Japanese experience, the routes could help achieve a competitive edge i.e. gaining a relative advantage not easily copied by others or to further enhance an advantage already enjoyed.

The author emphasizes careful market segmentation and differentiation of winner from loser companies to be the devices in identifying the key factors to a company's success i.e. key functional or operating areas. This is to be followed by the willingness of the company to take risks i.e. the strategic decision.

In identifying relative superiority, one may need to do it systematically, if necessary tearing down each of the components of an assembled product and comparing each one of them with those of the competitors'. The product may be expensive but of better quality. Detailed rational and thorough analysis of a product and its market will facilitate the identification of relative superiority.

In emerging with unconventional strategies (where it is necessary to be so), a strategist need only to ask 'why' relentlessly which challenges the prevailing assumptions. Confronting what is taken for granted may produce spectacular product/market innovations or even great inventions. He cited some cases of modern inventions resulting from this inquisitive mind approach.

In situations where there is no possibility of improving performance, in consumer goods and industrial goods industries one should go back to maximising the objective function i.e. to increase user benefit, using a variety of options or 'degrees of freedom' — e.g., to get excellent photographs at reasonable cost one may have 3 options or 3 'degrees of freedom', i.e., technological innovation in films, accessories and lens. Calculations on probable investments versus returns for each option need to be done to bring up different cost-benefit impact, incubation period and point of diminishing returns against investment required. This strategy is in contrast with head-on collision e.g. price cuts or cheap products. It produces an abundance of profitable strategy ideas yielding positive than negative consequences.

Without too much inclination on psychological analysis, the author pointed out that the secret of strategic vision lies in breaking away from limited scope of vision as a daily practice. The habit of thinking strategically need to be inculcated. Flexible thinking is necessary in order to consider and opt for alternative choices; so are right timing (even at the expense of perfectionism) minimising of details (so as to be on time) focussing and probing on key factors, challenging the constraints and avoiding strategic schizoprennias.

Part 2

In building strategies to exploit the corporations' relative advantage, 3 important components have been singled out i.e. the corporation, customer, and competitor to form the 'strategic triangle'. A Strategic Planning Unit (SPU) is advocated to be a very important part of a corporation. It should be placed at a high and commanding position above all functional divisions so as to perceive the corporations as a total entity without divisional bias (however, at times for strategic reasons some divisional strengths may be exploited). It should have a broad function (with an attachment perhaps to the R & D division for resources) as well as covering important key aspects of the business e.g. price, distribution channels and product quality.

The author upholds the supremacy of customers and the best strategy is one that is customer-orientated. Segmentation of customers is one marketing approach which is again emphasized here. This can be done based on the customers objective of usage of a product and the resource constraints of the corporation on market coverage. A resegmentation may be necessary in a fiercely competitive market. Other forces such as structural changes, changing applications of products, customer mix and trends also necessitate segmentation of the market.

Corporations have functional strengths in relation to competition which could form the so-called 'corporate-based' strategies — The success of many Japanese corporations are cited based on functional strengths such as engineering and marketing as in the case of Casio Computer Co. Ltd. Investments in strengthening a functional division or section should take care that cost is minimised in relation to sales and at times this may necessitate sharing of common resources by more than one divisions.

Differentiating functions (ranging from purchasing, design, engineering and sales) between the corporation and the competitor in achieving favourable price, volume and cost yields competitor orientated strategies. Some Japanese examples on corporate image, technology, service, variable cost are cited for illustration of this point.

It would be strategic to manage a large diversified business as one unified unit by establishing cost or quality leadership through synergies arising from shared functional resources of the diversified parts. The lesser the bureaucratic and financial restrictions among the diversified parts, the more facilitated the corporation in achieving its goal. To develop a corporatwide management will facilitate a single common value system which is precious in the unification of oneness of the corporation.

Part 3

This part diverts attention away from organisational factors to outside forces which will influence the strategies of the organisation in ten years to come. For a start, five key trends are isolated, viz., continuing low growth, market maturity, uneven distribution of resources, growing international complexities, and inflation. A good strategic judgement, takes into account the basic forceful external threats, e.g. low growth, inflation, international complexities and uneven distribution of resources (particularly materials and technology) and inflation.

In the wake of the above external forces some strategies tailored to different types of business were suggested and these were lowering the break-even point, vertical integration, restructuring the industry and accelerating the product life cycle.

There are seven major changes a strategist need to cope with i.e. (i) a shift from labour intensive to capital intensive. This is a necessary trend in order to achieve cost effectiveness and higher precision; (ii) a shift from multinational to multilocal companies. This shift emphasises concentrating resources including fixed costs of production where the market is and in most cases the market is found locally; (iii) a shift from fixed to variable costs ratio in several industries particularly in cement, textile, plastic and petrochemical industries whose raw materials and energy usage made up a high proportion of variable costs; (iv) a shift from steel to electronic — based industries. This shift is not just a trend but forms the basis of macroeconomic success of the advanced economies; (v) a shift in business unit definition through common technology usage across business units initially designed as independent. This is rampant amongst industries with innovative products e.g. electronics and engineering; (vi) a shift from international to local financial management. Due to shifts in international changes in exchange rates and financial rates, building a strong local financial base is a necessity to avoid losses purely due to financial arrangements; and (vii) from systems to human beings. i.e. from being 'Mechanistic' to 'Organismic' attitude in offering employees job security, tenure based production, internal development, and opportunities for employee participation. Strategic thinking and not theories are perhaps required today in the face of such circumstances. The application of flexible techniques such as removing bottlenecks, using new combinations and maximising degrees of freedom should help in coping with the trends.

Chapter 15 of this part, under 'Japan: Myths and Realities', is a section which has been presented plainly, without any close-ended framework. It is explained that the Japanese success in business was attributed to many factors. History made the Japanese undergo rejuvenation by rebuilding themselves through communes after the Se-

cond World War to form embryonic corporations which had communal values. The Korean war gave an opportunity for those corporations to produce goods beyond their full capacities which facilitated them to pool their savings which were finally deposited in banks. Subsequently these savings were lent to corporation which wanted to invest for growth. The village mentality of the early communal corporations therefore prevailed in the leading corporations and is preserved to date, especially among the older, established and more prestigious corporations. Besides having the above mentality, a corporation is perceived to be a place for 'members' or 'sha-in' to work, not 'employees' as in the West. These 'members' work for the organisation for life. One of the objectives of the corporation is to please those 'members' and not 'shareholders' as in the West.

More features of comparison between Japanese and Western organisations were unfolded. Despite having Western structures they have components which vary i.e., they could respond to strategic changes very quickly. Each member is employed as a generalist not a specialist. They reflect the brain not being separated from the muscles, and therefore not highly specialised. The managers are interchangeable in their posts, and are facilitated to encompass broader scope of responsibilities for the organisation. In this way the Japanese organisation avoids the widely applied Peter Principle (in western organisations) and are able to cope with strategic changes. They are democratically run companies 'of' 'by' and 'for' the people. The Japanese corporations do not use long term complicated strategic planning but depend on their members to make suggestions. Individual capacities are built by providing them with training. The career path starts with by being a beginner not an expert. The seniors and not the branny ones control the organisations — this is the famous tenure — based compensation concept of Japan. This management approach helps management to be close with the shopfloor workers and be able to understand them so as not only to gain support when needed in meeting strategic changes but to enlist their invaluable suggestions.

It seems, the Japanese Government through the education system, has acted as a coach rather than a captain in inculcating into the people the need to work for survival since Japan was poor in resources. There was a survival need after the Second World War, which necessitated the 100 million Japanese never to stop working lest they would starve. This value has been found to be unifying. Along with it was also the inculcation by the government at the kindergarten age to live harmoniously with others as against individualism of the West. Individual excellence and emergence was not encouraged but harnessed in bringing up the less bright individuals in the class. In trade, the government which is represented by the Ministry of Education (MOE) and the Ministry of International Trade and Industry (MITI) joined

together in encouraging trade, based on value-added. Through MITI the government has also encouraged investment, research and development..

Japan entered the industrial era rather late i.e. after the Second World War. The rebuilding process together with the consciousness of the lack of natural resources gave her the chance to handle technology, marketing skills and capital funds differently from the West. Initially Japan borrowed technology from the west after the war through licensing arrangements. This was considered as copying. This style of technology adoption was also due to lack of resources. Japan could not engage in all activities necessary to bring products to market. Resources were used for forward integration of that technology. This approach served Japan well in conserving resources for more strategic purpose such as technological breakthroughs in mini automobiles, VLSI technology, and robotics.

In marketing exportable products, the Japanese test marketed them in South East Asia or U.S.A. In risky places, trading companies would be used to assist. Once confidence has been achieved in the marketing of a product, attention would be diverted to solve marketing inefficiencies and establishing themselves as traders, distributors and finally as salesmen on 'own brand' marketing.

Japanese business success can also be attributed to the high financial leverage of corporations in securing funds from banks rather than shareholders. Instead of concentrating on short term profits for shareholders, the Japanese corporations were facilitated to commit to long term goals through borrowings from banks. The author cautioned, that, strategic moves prompted by lack of resources and a set of values akin to the Japanese (which nevertheless accounted for the Japanese success) if copied need not necessarily give the answer to a business success nor do they form the formula to strategic success. But Japanese strategic approaches in business could lend guidance to corporate strategists.

Another important ingredient of business success dished out by the author is foresighted decision-making based on the forces at work, constraints and assumptions. This can be done in five basic steps. First, setting a clear definition of business domain. Secondly, considering external forces at work and to extrapolating into the future to make the most succinct scenarios. Thirdly, choosing the appropriate options, followed by allocating resources. Fourthly, taking into account, resources constraints, and finally adhering to basic assumptions underlying its original strategic choice as long as those assumptions hold.

Is there a formula to strategic success? Not really, nevertheless a strategist should be wary of the 3 'R's i.e. Reality, Ripeness and Resources. The Reality refers to the customer, competition, and the

company's field of competence. Ripeness refers to the right timing of a strategy and Resources refers to resource limitations imposed on a strategist. Having taken the 3 'R's into consideration, a precondition of creativity is necessary i.e., to have insight, vision, focus or inner drive on further developments of the business. To build oneself to be a strategic thinker, it is insufficient to do it through reading, but habits of mind and modes of thinking need to be acquired through practice to help free the creative power of the subconscious to yield the desired strategies.

EVALUATION

It is felt that emergence of this book into Malaysia could not have been better timed. In late 1982 the book became known to the higher segments of Malaysian politicians and civil servants i.e. at a time when Malaysia began to 'Look East'. The book has displayed to some extent, the Japanese mind, survival need, cultural heritage and background which contribute to the 'Look East Policy' and a great deal more to knowledge in business strategies.

Has the book met its objective in explaining the Japanese corporate success? Despite minor lackings, this book can be considered to have made some contributions in giving the much needed explanation of the Japanese business success via the strategy standpoint. Thus far, the Japanese corporate strategies have been a mystery since very little has been written on them. The exposition includes not only Japanese examples on strategies but also explanations on the background, mental make-up and management style of Japanese businessmen. The entire exposition is also highly desirable to complement numerous other explanations on the Japanese success which were based on social, economic, legal and historical factors.

An added dimension to the study of business strategies this book can be said to contain, is *the mind*. Without stressing too much on cognitive processes it is emphatic on the importance of the mind which constitute an important ingredient so long lacking in strategic management studies. This element is well blended with the S.W.O.T (Strength, Weaknesses, Opportunities and Threats) approach of strategic planning and a thorough marketing analysis. The consumer supremacy is emphasized thus the importance of marketing orientation in business management — an approach akin to that of Ansoff. Although devoid of any bibliographies, there is no reason why this book should not be highly recommended reference for strategic management studies. Perhaps, if a few Japanese case studies to explain the processes of strategic moves were incorporated, the book would have been truly complete for purposes of strategic management studies.

One could not help agreeing with the President of Pepsi Co. Inc., who gave the forward of this book and on its simplicity of presentation. It is felt here, that the book introduces literary dynamics as manifested in the brevity of expressions, doing away with frills, irrelevant words, expressions or anecdotes. In addition, the clearness of expressions, simplicity and logical leads make this a highly suitable reading material for busy executives and readers who strategise on time usage.

There is obviously depth and reality in the substance put forward resulting from the use of consultancy data and information, the insight of an engineer-cum-business consultant plus the author being Japanese. Many a times, one notes that books on corporate strategy have been written by writers lacking in experience in the business world but having a tremendous flair for writing. This book has both the flair and realism. Examples are cited from every possible large Japanese corporations based on the experience of the author, to illustrate the points made. This style inculcates faith in what is being written on strategy. This also gives this book 'an edge' (in the words of the author) over others written on the same subject matter.

The approach of presentation of the book is seen to have largely been based on basic principles of corporate strategy which form the framework on which examples of Japanese experience (to illustrate the points) are fitted. Thus Japanese strategic moves are grouped according to the framework which facilitates easy clusterings for memory and comprehension.

It appears that the book has been written with an in-built suspense. One should not make judgements on the book just by reading part 1 and 2. Doing so one is led to conclude that the author has not unfolded the central theme of the Japanese corporate success. One must proceed to read part 3 particularly on 'Japan: Myths and Realities' (Chapter 15). Part 1 and 2 is supposed to explain the strategic mind and the type of strategies a Japanese would undertake. Although these parts have a touch of Japaneseness about them, yet they are not typically Japanese and are quite universal i.e., reflecting what any corporate strategist in the world would do, (despite the additional dimensions given on the 'young samurais' and 'the Japanese strategist of great natural talent'). Having read the first two parts one is made to wonder whether it is only the strategic mind and not necessarily Japanese mind that made Japan successful in business? It is thought that this must be complemented by other supporting factors particularly Japanese upbringing, cultural and motivational heritage and values to explain the characteristic of the Japanese corporate strategist and his background. These are found in part 3 of the book. The attraction of this sequential arrangement of the plot is to make this book hard to put down once one begins to read it but has the disadvantage

of reducing clarity from the start. It would be better in this respect, to put chapter 15 preceding part 1 or be contained within.

Anything new? Although the book puts Japanese examples to fit into some basic theoretical framework, one can find within them new ideas and illustrations. There are numerous original metaphors and terminologies notable among them one can single out is the "the Strategic Degrees of Freedom 'SDF'" — a terminology which bears resemblance to the Product Life Cycle and yet not quite so. Similarly, with the "Strategic Key Factors or 'SKF'" which may sound mundane to some but it actually gives the explanation of the prime earning dimension of a business from strategy standpoint. The approach of looking at business fundamentals from a strategist point of view and using real life examples each time is felt in itself a newness worth noting. One can also note the injection of Japanese thoughts into an organisation through the young "samurai" as a new approach to Japan in order to perpetuate the strategic drive within an organisation in Japan. This became necessary in the context of aging Japanese strategists or elders in large established corporations. This new strategic approach in Japan started since mid 1970s and have been found to be contributive to the strategic success of large Japanese corporations — an approach which one feels could be suitable for Malaysia. Another strategy worth noting for resource-scarce situations is the so-called "incremental improvements" Japan is well-known to have done on borrowed technology which earned them the name 'copyist'.

The book noticeably incorporates guidelines and tips in business strategic moves using Japanese examples ranging from textile, electric/electronic, steel and shipyard industries. It comprise of pointers in business strategy at the conceptualisation stage, to what to look for in building strategies and the forces at work in the environment, thus making the book highly useful not only to business executives and students of strategic management but also strategy oriented politicians, civil servants and individuals.

It can be seen that throughout this book, in dealing with numerous examples of Japanese strategic moves the author did away with frills of organisational set up and processes, and went straight into the substance of business strategies. This approach has drawbacks compared to an exposition of case studies which encompass decision making process and a priori background. Whilst case studies approach would help to explain the "how" element of strategic moves, this book has only largely enumerated answers to the "what" aspects, i.e., what did the Japanese do in situations like that? The book would do well to include one or two case studies to illustrate "the process" which would give deeper insight into the Japanese corporate strategic mind

and manouvres. This would help in meeting the suppositions implied by the title "the mind of the strategists" i.e. Japanese mind in this case.

One feels that perhaps another setback in classifying examples of Japanese strategies into close-ended framework is giving little leeway to readers some freedom of judgement in classifying the strategies the way they feel appropriate according to the case. The classification whether suitable or not has been preordained by the author in this book. The sporadic examples not only become an array of disconnected strategic moves but they resemble flashes of history here and there of Japanese corporate strategic dealings.

The approach seems to give details and strategic actions which befits contemporaneous situations therefore conferring the advantage of making this book a popular reading material. For the moment, despite being without a priori background, the Japanese strategic actions seemed to be justifiable and well comprehended. However, the approach has the danger of being out-of-date and unacceptable in the future without those a priori backgrounds (as do cases), thus jeopardising the long term utility in preference for short term. To be useful for the dual time dimensions, it would warrant a substantial continuous updating. It is also observed that this contemporaneous approach lacks the lastingness of a serious theoretical exposition since it becomes like an advertisement instead. It seems to enhance the glamour of companies/corporations with positive and successful strategies whilst negating the ones with unsuccessful strategies thus adding further stigma to them for posterity

It appears that the numerous example and the emphasis on their importance in some situations, convey rather pedantically that the strategies are the solutions to those particular problems, though the author explicitly stated his intention of avoiding "giving individual solution to particular problems". Unfortunately the style of writing of giving the numerous Japanese examples in the specific instances give this unavoidable image.

One can gauge that the thrust of the book is for strategies which are consumer oriented i.e. giving consumers' supremacy; that corporations should rightly be market-oriented in posture over all other functional areas, (despite the author himself being an engineer). Careful market segmentation has been isolated as a very important tool for strategy identification. Despite the emphatic stress, one can say that this approach is fundamentally not new. The newness is largely found only in the application to real life situations.

In conclusion it can be said that this book is brief, clear and logical. It has its contribution to the much needed explanation of the Japanese business success in terms of corporate strategies and to some extent the cognitive level, i.e., the mind.

The book gives an excellent coverage on “what” the Japanese have done in numerous strategic situations in contrast to the lesser coverage made on the “how”, or the organisational and departmental processes of strategic manouvers, so precious in unfolding the central theme of this book. This latter need could have been fulfilled by incorporating case studies and deeper exposition of the mind whilst integrating it with the quoted strategies which would furnish the needs of higher level students of stragtegitic management studies than just perhaps meeting the undergraduates level needs as it were.

The mind, however, which has always formed a feeble dimension in corporate strategic studies, is given a more resounding position in this book. This emplacement coupled with the vigorous analysis of the market and its real life applications in Japan is a major contribution in this field, notwitstanding the numerous original metaphors, ideas and illustrations.

For individuals intensely interested in knowing the numerous Japanese strategic successes, the Japanese background, heritage, the vigilance to numerous forces and last but not least the mind, particularly the business executives, this book gives useful guides and tips. They can also be imaginatively applied and pursued among others by politicians and civil servants in their respective fields.

