

Chapter 9

DEVELOPMENT STRATEGIES AND ACTION PLANS

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This section presents recommendations to:

- Address and resolve the challenges, threats and opportunities identified
- Ensure that the development of this industry will be carried out in an orderly manner to meet the full potential of the industry and for the nation to reap economic benefits from this industry

9.1 Vision

For the industry to further develop, a vision is required to set the direction for the future. The vision needs to have the following clear statements:

- Goals to be achieved
- Timeframe for the achievement
- Means for achieving the goals

The following is the vision recommended for the Malaysian chilled and frozen food industry:

By 2010, the consumption of Chilled and Frozen food will be RM6.0 billion, with the infrastructure fully developed to support the industry and there will be sufficient range of products to satisfy the needs of customers.

The industry will be using up-to-date technology, some of which are home-grown, to produce high quality products.

All chilled and frozen food producers will implement GHP and GMP while the major ones would have HACCP certification to gain acceptance overseas.

For Malaysia to be the International halal hub in 2010, the country will produce at least 10 percent of world halal food market.

9.2 Strategic Thrusts

To achieve the vision, the Study Team recommends the following strategic thrusts for the chilled and frozen food industry in Malaysia:

a) Fully develop the cold chain

The findings from industry survey indicate that the cold chain often breaks. These breakages occur from the production stage till the food reaches the end consumers. The following are the main reasons for the break in the cold chain:

- Lack of appreciation of cold chain by all parties involved in the chain including end consumers
- Lack of stringent guidelines and regulations to manage the efficiency of the cold chain operation
- Lack of self-regulation initiative
- Lack of application of proper technology

As the cold chain is the fundamental infrastructure for the chilled and frozen food industry, the efficient operation of the cold chain is the critical success factor for the industry. The focal strategy therefore recommended is to fully develop the cold chain.

The following are the main thrust of this strategy is to ensure that all chilled and frozen food:

- Safe for consumption. It has been scientifically proven that incidents of break in cold chain will results in food spoilage, mainly due to growth of pathogens, which can endanger consumers' health
- Maintaining food quality. As breaks occur, the growth of pathogen will affect the quality of the chilled and frozen food as the food will perish faster due to heat exposure and lose some eating-quality such as crispiness and texture

Further, a fully functional cold chain can:

- Assist in reducing wastage due to spoilage
- Assist in stabilising prices as primary products can be stored in times of glut and low prices and released during shortages and high prices
- Make available seasonal food during off season

As such, a fully developed cold chain is highly desirable and it is important for the Government to intervene in organising the chain and ensuring industry players maintain the chain in order to successfully develop the chilled and frozen food industry.

b) Develop the foodservice sector

The study team believes that developing the foodservice sector will spearhead the chilled and frozen food industry to achieve the projected market potential of RM6.0 billion by 2010. This is because, as per the findings of the study, the current largest consumers of chilled and frozen food are the foodservice providers. They are the consumers of almost 70 percent for each of the chilled and frozen food segment in the Study. Hence, to develop the chilled and frozen food significantly, it would be very worthwhile to develop the foodservice sector.

Developing the foodservice sector would assist the development of the entire chilled and frozen food industry. The main thrust of the strategy is to:

- Expand components of the food service sector which will have the maximum impact on the industry eg. central kitchen operation and fast food operation
- Develop a strong supplier base for the food service sector, especially from SMIs

Based on the Japanese experience development and growth of the foodservice sector will have a substantial impact on the chilled and frozen food industry.

c) Promote the chilled and frozen food segments which have the most potential

Study findings indicate that the global consumption of chilled and frozen food is increasing due to reasons like convenience, demographic shifts and change of lifestyle. This trend is taking place in Malaysia as well and is expected to create promising business opportunities for local businesses, both in the local and foreign markets. These business opportunities can be turned into economic benefits to the nation. Though it is expected that local businesses will respond to market signals and invest in the sector independent of government action, it is worthwhile from a national economic point of view to develop selected chilled and frozen food sector which have potential economic benefit or need to be developed from a national point of view for import substitution purposes.

Recommendations for promotion of the four categories under this study are:

(I) Ready-to-serve meals and snacks

The ready meals and snacks segments appear to have potential for import substitution (against imported ready-to-serve meals) and good export opportunities given the global increase in the demand for chilled and frozen ethnic food and snacks. Further, some Malaysian snack manufacturers have had success in penetrating the global market with products such a "*roti pratha, roti canai*".

The key to meet the export market requirement is quality. While there are many small snack makers in the country, only a handful have begun to penetrate the export market. These players are relatively larger than most of the snack makers, use technology and implement stringent quality assurance systems. Accordingly, it is recommended that effort be taken to:

- (i) To implement quality assurance systems, increase production and output
- (ii) To offer more varieties to the market

The reasons for this recommendation are:

- (i) To produce high quality products acceptable to the overseas market
- (ii) To benefit from economies of scale by increasing the production
- (iii) To ensure adequate local supply to the market for import substitution purposes
- (iv) To be competitive to penetrate overseas markets
- (v) Respond to consumers who are willing to try new chilled and frozen food products
- (vi) Provide food retailers/food services more choices to offer their customers, especially in the snacks category
- (vii) Capitalise on consumers consumption behaviour such as increasing demand for home meal replacements, minimally processed food products and ethnic food

(2) Chilled and frozen food ingredients

At present, most of the food ingredients producers are small scale. There are hardly any substantial local chilled and frozen food ingredients products except for coconut milk and hardly any common local spices, such as lemon grass, "*chilli boh*", ginger and garlic. It is however anticipated that the development of the food service sector will boost the demand for chilled and frozen food ingredients. The following main reasons being that it:

- (i) Will be more convenient for large scale food operators to buy the ingredient rather than prepare it themselves
- (ii) Reduce workload of these food operators
- (iii) Longer life span than freshly-made ingredients

(3) Vegetables

From the survey, we found that chilled and frozen food manufacturer use imported vegetable for their production. The following main reasons for using imported vegetables are:

- (i) The vegetables required are of the temperate category which are not available locally
- (ii) For the manufacturer, the supply of local vegetables are inconsistent and price fluctuates substantially affecting the cost of production
- (iii) The quality (such as colour and taste) of local vegetables is generally low and not suitable

In addition, manufacturers and institutional buyers such as hotels, industrial caterers indicate that there is lack of minimally processed local vegetables, which they would like to source to ease their operations.

As it would not be feasible for Malaysia to cultivate most of the temperate vegetables and it is also not possible to completely substitute the imported vegetables, we propose that the strategy should focus on value-add activities on local vegetables, and capture the maximum market demand for local vegetable. The more appropriate strategy is develop minimally-processed local vegetables, processes which include cleaning, cutting and standardising size, colour and freshness, and packaging and labelling.

The main objective for developing the minimally processed vegetables is to increase the use of local vegetable by improving quality (in terms of presentation and hygiene) to be supplied to consumers, in particular food service providers.

The following are the key advantages of being able to achieve the above objective:

- (i) Meet the demand of local consumers, especially food service operators who are also the largest consumers
- (ii) Add-value and maximise returns from local raw materials as the value of minimally-processed vegetables would be relatively higher than unprocessed vegetables

(4) Meat, Poultry, and Seafood

Based on the findings of the study, Malaysia has to import meat and seafood for local consumption. The following are the main reasons for importing the meat and seafood:

- (i) Local production for raw meat are inadequate for domestic consumption
- (ii) Most of the locally produced fresh seafood (especially high quality shrimps) is exported to foreign countries with little value-adding

As for local supply of poultry, Malaysia, currently, is able to meet the local demand. In fact a small proportion of the supply is exported to Singapore, and sent to Sabah and Sarawak from peninsular Malaysia.

From the industry's perspective, the availability of raw materials is not an issue. It is rather, the issue is quality and the fact that the requirement is met from imports. Despite this, the study team believes that there are still opportunities for this segment to grow. The strategic thrust would be to maximise returns on the currently available raw materials, regardless of the original source of supply.

The strategic thrust here should include the following:

- (i) Increase varieties of meat-based, poultry-based and seafood-based products, especially to serve the ready-to-serve meals and snacks categories
- (ii) Continue to expand into the overseas markets especially seafood, regardless of the source of raw materials, as exports from Malaysia are an economic benefit to the country

d) Strategic Thrust for Halal Food Hub

The halal food segment is potentially a lucrative market where Malaysia appears to have some competitive advantage. Recognising this, the Malaysian Government has decided to position Malaysia as a world halal food hub.

There is presently no clear commonly accepted definition of what the Malaysian halal food hub should be. Though there are several agencies currently working towards making Malaysia a halal food hub, without a clear, common and definite vision, the efforts will remain uncoordinated.

Further, many other countries are also exploring the possibility of being a halal food producer. The chilled and frozen halal food segment is only one segment of the whole halal food industry. The direction and growth for this segment is largely dependent on the overall strategy for positioning Malaysia as a world hub for halal food. The study team recommends the following as strategic thrusts before substantial resources are invested in positioning Malaysia as a world hub for halal food.

- Appoint an agency/department to plan, coordinate, and drive the activities of the relevant agencies involved in making Malaysia a hub for halal food.
- Initiate a more comprehensive understanding of the international halal market (not only chilled and frozen food) i.e., to understand the market from the consumers' point of view, market requirements, Malaysia's competitive edge, and other countries' strategies.
- Promote Malaysia's status as a prominent Muslim nation and leverage on the reputation to market locally produced halal food products in the world market.

9.3 Strategies and Action Plans

Based on the vision and strategic thrusts outlined, the Study Team recommend the following seven key strategies for the Malaysian chilled and frozen food industry:

- Strategy 1: Fully develop the cold chain
- Strategy 2: Increase the size of players and varieties of products in the ready-to-serve meals and snacks categories
- Strategy 3: Develop the food service sector
- Strategy 4: Aggressively market locally-produced chilled and frozen food
- Strategy 5: Improve human resource development
- Strategy 6: Promote industry coordination and self regulation
- Strategy 7: Undertake a global study on the market positioning of Malaysia as halal food hub and to develop brand loyalty for Malaysia's halal food products

Strategy 1: Fully Develop the Cold Chain

We are recommending seven action plans as part of this strategy.

Action Plans	
Action Plan 1	Initiate training on proper handling of chilled and frozen food
Action Plan 2	Implement GHP, GMP or HACCP for chilled and frozen food industry
Action Plan 3	Stringently enforce current legislations: <ul style="list-style-type: none">• Food Act 1983• Food Regulations 1985• Proposed Draft Food Hygiene Regulation
Action Plan 4	Introduce and mandate the practice of temperature monitoring system
Action Plan 5	Improve the quality of locally fabricated machines
Action Plan 6	Reduce import duties on machinery
Action Plan 7	Encourage logistics companies to expand their cold truck network outside Klang Valley

The details of the action plans to address the cold chain issues are as follows:

Action Plan 1	
Initiate training on proper handling of chilled and frozen food.	

Cold Chain	Approach
<p>Coverage:</p> <p>i) importance of maintaining the cold chain</p> <p>ii) how to maintain the cold chain.</p> <p>Main Objective:</p> <p>Ensure all related parties are aware of the proper way of handling chilled and frozen food.</p> <p>Target:</p> <p>Four formal internal training per year per business</p>	<p>1. Public institutions to develop program guidelines for companies to train their employees.</p> <p>An example, the education structure and training program and proposed programs for handlers are set out below.</p> <p>2. Encourage the Proposed Chilled and Frozen Food Association to assist members to design and implement training programs to monitor the following:</p> <ul style="list-style-type: none">• syllabus of the training programs. See Model Validation scheme for Monitoring Cleaning Effectiveness as proposed as part of program• number of training conducted per year• trainers are well-equipped with the relevant knowledge• number of employees attending per training

Example of the Structure of Education and Training Program

Level of staff	Focus of education and training	Types of training	Targeted number of training per annum
Frontline workers (handlers)	Details in technical aspects of handling foods in relation to hygiene, freezing, chilling processes, etc	Can be conducted internally by employer	Four formal internal training sections per year
Mid and senior management (supervisor)	The appropriate way of managing and monitoring the cold chain, GHP, GMP and HACCP implementation	Preferable training to be given by professional	Two formal training per year

Proposed Programs Outlines for Key Operators in the Chilled and Frozen Food Industry

Level Industrial Segments	Frontline workers / Supervisors Programs Outlines ¹
Food manufacturing	1. Handling Chilled and Frozen Food <ul style="list-style-type: none"> • Temperature Abuse • Temperature Control • Transfer Points 2. Cold Store- Equipment and Maintenance <ul style="list-style-type: none"> • Selection of the appropriate cold store • Requirements to ensure a long life of cold store and safety for personnel • Maintenance
Transportation	1. Handling Chilled and Frozen Food <ul style="list-style-type: none"> • Temperature Abuse • Temperature Control • Transfer Points 2. Preservation, Quality & Safety <ul style="list-style-type: none"> • How to maintain the quality of frozen food to be as good as fresh, if not better • How to avoid heat infiltration

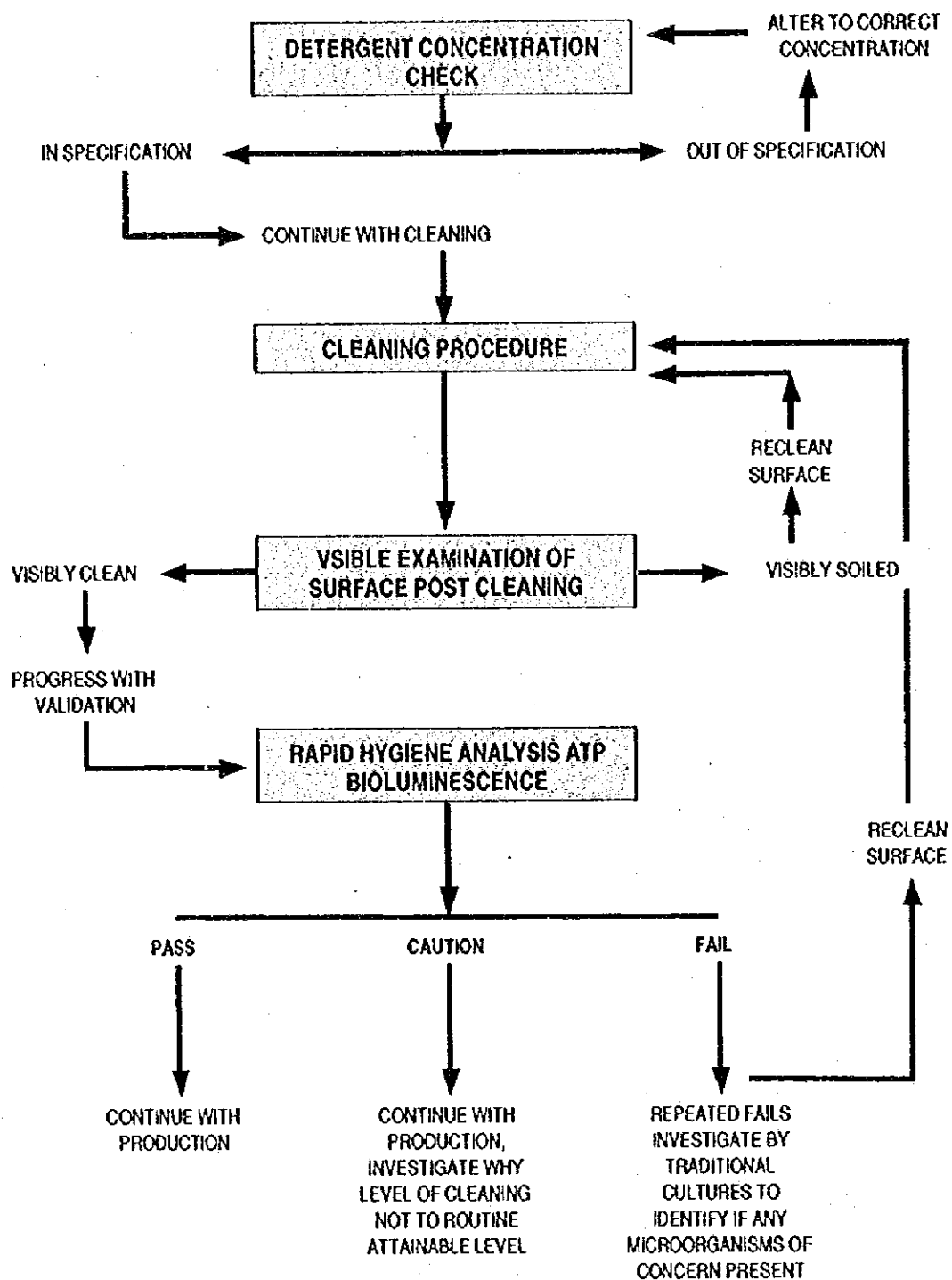
¹ Food Hygiene Review 1998, A Practical Guide to the Cold Chain From Factory to Consumer, Members of the European Union Flair Flow Programme.

**Proposed Programs Outlines for Key Operators in the Chilled and Frozen Food Industry
(continued)**

Level	Frontline workers / Supervisors
Industrial Segments	Programs Outlines ²
Retailing	<p>1. Handling Chilled and Frozen Food</p> <ul style="list-style-type: none"> • Temperature Abuse • Temperature Control • Transfer Points <p>2. Retail Display – Equipment and Maintenance</p> <ul style="list-style-type: none"> • Understand the basic types of cabinets used for display of frozen food • Know the components of a display cabinet • Understand the installation of cabinets • Aware of the allowable amount to be loaded into the cabinet • Understand the basic technical operation of the cabinet • Maintain and conduct daily checks of the cabinet • Actions required during breakdown

² Food Hygiene Review 1998, A Practical Guide to the Cold Chain From Factory to Consumer, Members of the European Union Flair Flow Programme.

Model Validation Scheme for Monitoring Cleaning Effectiveness³



³ Hygiene Review 1999; ATP Bioluminescence, the ideal monitoring system for HACCP

Action Plan 2
Implementation of GHP, GMP or HACCP for
chilled and frozen food industry

Cold Chain	Approach
<p>Coverage:</p> <ul style="list-style-type: none"> i) standards relevant to the chilled and frozen food industry players and cold chain operators ii) maintain the effectiveness of the system implemented <p>Main Objective:</p> <ul style="list-style-type: none"> i) address food safety from farm to table ii) penetrate overseas market <p>Target:</p> <p>By 2010 all chilled and frozen food producers implement GHP and GMP</p>	<ul style="list-style-type: none"> 1. Public institutions to provide various courses on general food standards like GHP, GMP, HACCP, and Guidelines on Foods, Drinks and Goods Utilised by Muslim, through a centralised education and training centre. <p>Centralised education and training centre shall comprise:</p> <ul style="list-style-type: none"> • MARDI • FAMA • SIRIM • Ministry of Health • Proposed Chilled and Frozen Food Association • Academic institutions <p>Training and education programs should be organised via seminars and workshops to:</p> <ul style="list-style-type: none"> • Increase understanding of the needs and implementation procedures of GHP and GMP as well as other food quality system such as HACCP and Guidelines on Foods, Drinks and Goods Utilised by Muslims • Create awareness on economic and social benefits of implementing GHP, GMP or HACCP • Initiate a change in attitude and organisational culture towards new moral • Stress the need for food safety and HACCP for export of food • Provide adequate training materials that conform with the national standard recommendations to management and staff to increase expertise and understanding <ul style="list-style-type: none"> 2. Encourage Government and proposed Chilled and Frozen Food Association to provide technical training on implementation and maintain food quality systems to middle management and food companies above. 3. Develop sector-specific industry guides to aid the implementation of GHP, GMP or HACCP as a useful source of guidance for operators.

Example of Contents of a Guide for Sector-Specific Industry Guides

- Scope and field of application
- Objective
- Glossary of terms
- General Principles of Food Hygiene and their practical application to the sector concerned. Advice in this section can be based on the Codex Code of General Principles of Food Hygiene. Issues to be covered in this section include:
 - (i) Design and facilities
 - (ii) Control of operation
 - (iii) Maintenance and sanitation
 - (iv) Personal hygiene
 - (v) Transportation
- Model programmes or standard operational procedures, including issues such as pest control and cleaning/sanitation
- Examples of documents and records can be useful, such as:
 - (i) Monitoring records
 - (ii) Medical questionnaires
- Training
- Practical advice on HACCP

4. Enforce mandatory schemes for implementing GHP and GMP.

In so doing, the government could practice the following steps:

- Prioritising the industry sectors for which implementation of GHP or GMP and HACCP is more important
- Establishing GHP/GMP and HACCP committees
- Organising media campaign
- Developing guidance materials and generic models
- Train regulation authorities in common food quality systems, e.g. GHP, GMP, HACCP, Guidelines on Foods, Drinks and Goods Utilised by Muslims, etc
- Provide fund initiatives to accelerate the implementation of GHP, GMP or HACCP in high-risk sectors
- Develop schemes that recognise GHP, GMP and HACCP
- Review food laws to shift from end-point testing to a safety management system approach

- 5. Ensure sufficient and efficient use of available financial resources in order to alleviate economic constraints that may reduce the capacity to implement GHP and GMP, or HACCP.**

Develop sector-specific

Suggestions on cost saving:

- Guides and generic plans covering components of GHP, GMP or HACCP implementation common to all businesses in a sector
- Bulk purchasing of equipment or services by an industry/trade association or Government to support GHP, or GMP or HACCP implementation, thereby, minimising the cost of implementation by individual businesses

- 6. Introduce quality award and rating to reward the voluntary implementation of GHP and GMP as well as other food quality system required by customers such as HACCP.**

Recommendation:

Government to develop a nationally and internationally recognised award/logo for food operators who have GHP or GMP implemented.

- 7. Provide incentive for companies to implement food quality systems such as GHP, GMP, or other food quality systems such as HACCP and ISO. Particular focus should be given to:**

- SMIs
- Companies who intend to export their food production.

(The following are the Estimated Cost of Preparing for HACCP Implementation for a SMI)

Estimated Cost: RM45,000 which is inclusive of:

- RM15,000 for 25-30 training of key staff on GMP (2 days) and HACCP (3 days)
- RM10,800 for 5-7 days on site developing HACCP for the company
- RM20,000 for HACCP certification by MOH or a 3rd party

The estimation cost excludes any reconstruction cost for the physical layout of the company

Action Plan 3
Stringently enforce current legislations:

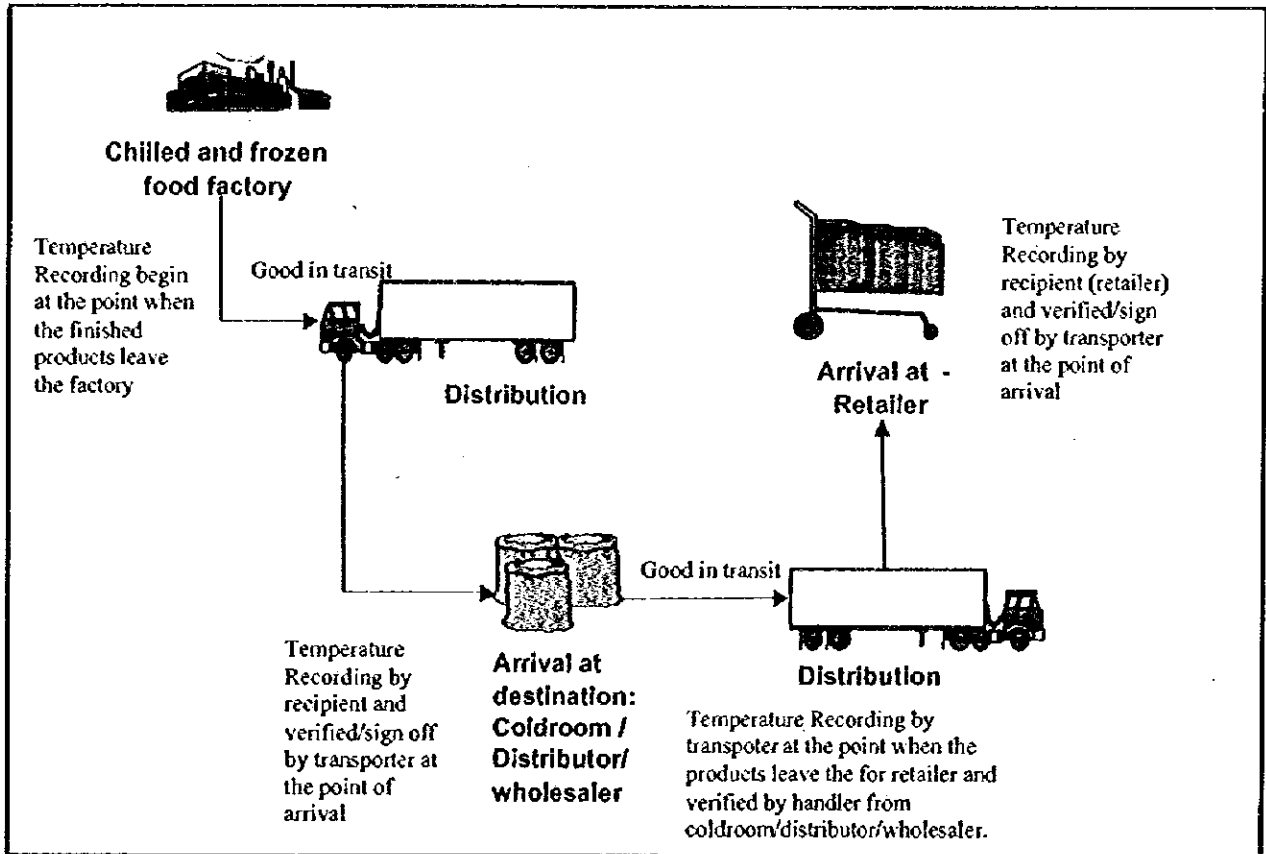
- Food Act 1983
- Food Regulations 1985
- Proposed Draft Food Hygiene Regulation

Cold Chain	Approach
<p>Main Objectives:</p> <ul style="list-style-type: none"> i) ensure that a proper cold chain is maintained ii) ensure clear responsibilities of each party in the food industry <p>Target: To have zero breakage in the cold chain by year 2010.</p>	<ol style="list-style-type: none"> 1. Government to enforce food regulation more stringently <p>Consider the followings:</p> <ul style="list-style-type: none"> • Yearly site inspections of all parties involved in the chilled and frozen food industry and cold chain operation • A proper recording system for complaints reported by public on chilled and frozen food and trace causes • Spontaneous checks on food manufacturers, supporting service providers such as cold trucks companies, cold room providers and food retailers to ensure compliance <ol style="list-style-type: none"> 2. Make training for employees in the chilled and frozen food industry players and cold chain operators mandatory 3. Related associations to be encouraged to advise members on current regulations or standards <p>Example of related Associations are:</p> <ul style="list-style-type: none"> • Proposed Chilled and Frozen Food Association • Malaysian Refrigerated Warehouse Association • Malaysian Refrigerated Equipment Manufacturer Association <ol style="list-style-type: none"> 4. Government to assist chilled and frozen meat and meat-based food producers to export their products by negotiating with countries that impose ban on these products 5. Set up a one-stop agency for obtaining importation approval such as the proposed Accreditation Centre

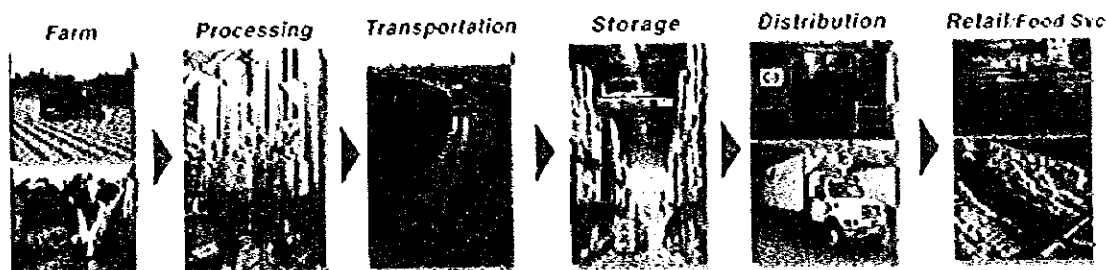
Action Plan 4
Introduce and mandate the practice of temperature monitoring system

Cold Chain	Approach
<p>Main Objective: Be mitigate the possibility of cold chain break</p> <p>Target: Zero temperature fluctuation</p>	<ol style="list-style-type: none"> Government to implement a mandatory scheme to ensure all players in the industry and cold chain operators have the appropriate temperature monitoring system. <p>The temperature monitoring system should include:</p> <ul style="list-style-type: none"> Implementing "temperature log" recording system by each parties involved in the cold chain. Temperature Time Indicator (TTI) to be used to monitor time temperature of packaged food products throughout the distribution channel. (See Model "Temperature Log System by Recipients") Encourage the use of computerised temperature monitoring system using wireless sensors. (See Model "Computerise Temperature Monitoring System")

Model "Temperature Log System by Recipients"

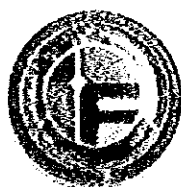


Maintenance of Food Safety "from farm to fork"



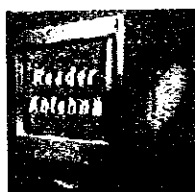
Temperature Monitoring System using several tiny sensors, about the size of three-quarters stacked together, and normally a single reader (antenna) which can operate up to 1,000 sensors.

Wireless Sensor Array



Temperature
Vibration
Humidity
Door Security
Power

PC / Internet Connection

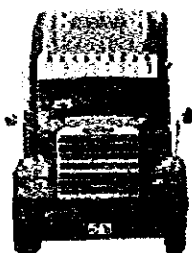


Data Acquisition

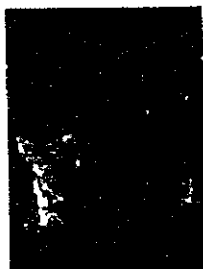
Telephone
FAX
Pager
Computer / Email

For trucks, the system is installed to allow satellite communications. Data acquisition is tailored to the application with alerts directly to the driver via in-cab device and simultaneously to the dispatchers via phone, fax or email.

Onboard Sensor Array



Satellite / Internet Connection



Data Acquisition

Telephone
Cab / Driver Unit
Automatic Database
Logging

Action Plan 5
Improve the quality of locally fabricated machines

Cold Chain	Approach
<p>Main Objective: Ensure locally fabricated machines can produce high quality chilled and frozen food.</p> <p>Target: By 2010, all locally fabricated chillers and freezers are compatible with the imported ones.</p>	<p>1. Stipulate minimum specifications for material used for building chillers, freezer, coldrooms and other refrigeration equipment.</p> <p>Recommended:</p> <ul style="list-style-type: none"> • determine a critical list of requirements to be used for constructing the above including: <ul style="list-style-type: none"> (i) type of raw materials (ii) specifications of the material required for specific equipment

Cold Chain	Approach
	<ul style="list-style-type: none"> • ensure enforcement by the relevant department, possibly DOSH or SIRIM • DOSH/SIRIM to carry out inspection on product quality. All equipment and cold rooms that have met the requirements specified shall receive a certification • encourage the Malaysian Refrigerated Equipment Manufacturer Association to provide technical training and updates to builders • introduce "Quality Assurance" certification to award to equipment and cold rooms providers which meet the stipulated requirements <p>2. Require builders of refrigeration equipment to obtain approval from a relevant Government agency such as SIRIM/DOSH to design such equipment</p> <p>It is proposed that before the construction of a refrigerated equipment, the design is sent for approval by the DOSH.</p> <ul style="list-style-type: none"> • the relevant agency to set out a standard format for the builders to disclose the construction of their new design of refrigerated equipment • the builders required to submit a plan of the equipment design that includes the following for the purpose of obtaining the the said agency's approval: <ul style="list-style-type: none"> (i) purpose of the equipment (ii) physical size (iii) raw material to be used <p>3. Make the procurement of approval/certification of the design of cold rooms from the said relevant government agency as a prerequisite before the local authority can approve the constructing the cold rooms.</p>

Cold Chain**Approach**

4. Ensure all locally fabricated machines such as chillers, freezers and other refrigerated equipment are comparable with imported machines.

We suggest that relevant authority such as DOSH or SIRIM to carry out proper procedures, in ensuring the high quality of fabricated machines. They are :

- Thorough research and development process carried out for the machines
- Sufficient field tests are done
- Fabricators have track records in their areas of expertise or achieved certain industry standards

Action Plan 6**Reduce import duties on machinery****Cold Chain****Approach**

5. lower import tax on refrigerated machinery, especially those which are not available locally, to a maximum of 10% as a short-term measure.

Recommended:

This measure should only be valid for two years in order to facilitate local food manufacturers to produce high quality chilled and frozen food. In addition, the availability of cheaper imported machines will also force local fabricators to improve their production quality.

Action Plan 7
Encourage logistics companies to expand their
cold truck network outside Klang Valley

Cold Chain	Approach
<p>Main Objectives:</p> <p>(i) Encourage development of transportation facilities by private sector.</p> <p>(ii) To reduce transportation costs of chilled and frozen food.</p> <p>Target: To have zero breakage in the cold chain by the year 2010.</p>	<ol style="list-style-type: none"> 1. Give incentives for logistics companies to extend their network into areas outside the Klang Valley <p>Proposed matters to be considered before incentive scheme is announced:</p> <ul style="list-style-type: none"> • Define the areas for logistic companies to expand their operations ("Potential Areas") • Give additional licenses, including for current popular areas as an incentive for logistics companies expand their network to areas outside the Klang Valley <ol style="list-style-type: none"> 2. Extend the time (which is currently from 8pm to 7am) allowed for heavier refrigerated trucks to use the roads in Klang Valley 3. Relax the restrictions on the issue of new licence for cold trucks 4. Give subsidies or tax deduction to the logistics operators for operating expenses such as power/electricity

Strategy 2: Increase the Size of Players and Varieties of Products in the Ready-To-Serve Meals and Snacks Categories

We are recommending five action plans as part of this strategy.

Action Plans	
Action Plan 8	Increase production capacity
Action Plan 9	Better raw materials management -- for vegetables
Action Plan 10	Increase products R&D
Action Plan 11	Increase product varieties
Action Plan 12	Develop food standards and production systems

The following are the details of the action plans proposed:

**Action Plan 8
Increase production capacity**

Increase Size of Players & Product Varieties	Approach
<p>Main Objectives:</p> <ul style="list-style-type: none"> (i) Provide the market with popular chilled and frozen products manufactured locally. (ii) Increase the size of local players so that they can expand production. (iii) Lower the production costs <p>Target: By 2010, local market for chilled and frozen food will reach RM6 billions.</p>	<ol style="list-style-type: none"> 1. Upgrade the technology and production capacity of producers by providing incentives scheme/package that covers the followings: <ul style="list-style-type: none"> • training and learning new technology • purchase of machinery <p>Proposed guidelines in approving the incentives are:</p> <ul style="list-style-type: none"> • Only trainings and workshops recognised by the Government be eligible for the incentives scheme • Producers have to meet the production (output) targets set for them • Approval has to be obtained for purchasing new machinery under the incentive scheme • Quality of chilled and frozen foods produced has to meet standard set by the industry/government • Applicants have to have at least GHP implemented 2. Lower cost of production by reducing the cost of: <ul style="list-style-type: none"> • raw materials for production, such as meat, poultry, and seafood • livestock feed ingredients or feed meal. <p>Recommended:</p> <ul style="list-style-type: none"> • Explore cheaper off shore plantation • Increase land area for cultivating popular seafood such as fresh water shrimps and fish • Subsidise on animal feed meal

Action Plan 9
Better raw materials management – for vegetables

**Increase Size of Players
 & Product Varieties**

Approach

Main Objective:

Manage local supply of vegetables demanded by the industry

Target:

By 2010, food industry has sufficient source of local vegetables required for their production

1. Increase research for developing high yield crops via mechanisation and biotechnology advancement, especially vegetables demanded by the industry.
2. Encourage farmers to adopt contract farming with institutional buyers such as central kitchen operators and food producers.
3. Introduce off-farm grading system where all off grade harvest should be used for processing.
4. Enforce good farm management system to farmers, particularly on techniques of maximising land use, for e.g., adopt multi-crops planting system.
5. Ensure efficiency and effectiveness use of agriculture inputs in tandem with the government's vision in transforming Malaysia into k-economy, in particular:
 - land - to more R&D to increase productivity and fertiliser
 - human resource – provide training in using modern technology, new harvesting methods and informing them on new R&D
 - technology – improve information flow from farm to production, upgrade communication system in farming areas and invest more in providing training and the necessary equipment for farmers
 - research and development – invest more in developing new farming techniques and liaise with agricultural research units in advance countries

Action Plan 10 Increase products R&D

Increase Size of Players & Product Varieties

Approach

Main Objective:
Satisfy consumers' demand for more varieties of chilled and frozen food.

Target:
By 2010, local market for chilled and frozen food will reach RM6 billions.

1. Encourage chilled and frozen food producers to be more innovative and undertake more product and process R&D.

Recommended:

- Relevant agency/ies to provide incentives, facilities, and expertises to SMIs who have identified potential products demanded by the market especially for the export market
- Government funds and incentives should be made more accessible to eligible applicants. Administrative requirements and other paperwork should be minimised. The proposed trade association can help in this respect in educating members on the incentives already available
- Public research centres/house to carry out R&D based on industry demand and to commercialise successful projects by selling the projects to industry players, eg. type of oil and ingredients, best suited for local chilled and frozen food
- Promote "contract R&D"¹ for chilled and frozen food products and / or process development between local private/public sector and the food research house in the countries which Malaysia intends to penetrate
- Encourage efficient information exchange with stakeholders in the food supply chain via modern communication tools or trade associations. All Government related research houses must keep the industry informed on status of R&D for chilled and frozen food

¹ "Contract R&D" refers to a joint R&D between local institution(s) with foreign food research unit in the country which Malaysia intends to penetrate.

Increase Size of Players & Product Varieties

Approach

- Work through the industry association to meet the requirements of the industry. Services should include:
 - (i) joint R&D with industry players
 - (ii) incentives for innovative R&D for products and processes
 - (iii) facilities and expertise available in order to implement new projects
 - (iv) regulars informative seminars and newsletters for producers on the current market environment
 - Recommended R&D to be carried out for the following local foods – based on the consumers' survey:
 - (i) Malay food such as nasi lemak and nasi kandar
 - (ii) Local snacks such as dim sum
 - (iii) Western snacks – pastry-based
 - (iv) Value add products using meat, poultry, seafood as base
2. Establish a sub-section within the current R&D centres focusing on ethnic chilled and frozen food

Action Plan 11 Increase product varieties

Increase Size of Players & Product Varieties

Approach

Main Objective:

Provide the market with popular chilled and frozen products manufactured locally.

Target:

By 2010, local market for chilled and frozen food will reach RM6 billions.

1. Develop more varieties of chilled and frozen food products for the 4 segments for both local and overseas markets.

The followings are the guidelines for types of products with potential promising demand inferred from the analysis of the survey findings:

(For overseas markets, see Action Plan for Product Marketing.)

Example:

Local Market	
General Local Consumption Characteristics	
<ul style="list-style-type: none"> Hot and spicy Preference food varieties in order are Malay, Western, Chinese and Indian. 	
<p>Example</p> <p>Average and higher income groups spend more on:</p> <ul style="list-style-type: none"> pizza ,<i>roti canai</i>, curry puff and spring rolls for meals and snacks chilled fruits, tofu, noodles, coconut milks for food ingredients nuggets, burgers, chicken, seafood, cold cuts, cut meats, poultry, seafood and vegetable category. 	
Segment	Areas of focus
Ready-to-serve meals	<p>Cater for food service providers</p> <p>Other recommendations :</p> <p><i>Nasi Lemak</i> (high consumption frequency)</p> <p>Other local Malay fare</p> <p>Western food such as:</p> <p>Lasagne</p> <p>Spaghetti Bolognese</p>
Snacks	<p><i>Roti Canai</i></p> <p>Pizza</p> <p>Curry puffs</p> <p><i>Pau</i></p> <p>Retailers are urging for more varieties for local market.</p> <p>Suggestions:</p> <p>Western snacks such as Quiche and chips/fries</p> <p>Other considerations:</p> <p>Desserts</p> <p>Pastry-based snacks</p> <p>Bakery</p>

Example (continued):

Local Market General Local Consumption Characteristics		
Segment	Areas of focus	
Food Ingredients	Chilled fruits Noodles Tofu Recommendations: Ready-to-use chilly, curry spices, garlic, onions, for foodservice providers	
Meat, Vegetable	Seafood,	Most marketable: Chicken burgers Chicken nuggets Chicken balls Chicken frankfurters Beef burgers Beef nuggets Fish cakes Fish balls Crabsticks Cuttlefish balls Recommendations: Western style: Meat/poultry/fish based with fillings with hot and spicy flavour Seasoned/marinated meat/poultry/seafood

Action Plan 12
Develop food standards and production systems

**Increase Size of Players
& Product Varieties**

Approach

Main Objective:
Maintain the quality of chilled and frozen food to be as good as fresh.

Target:
To be able to penetrate overseas markets.

1. Appoint an agency or trade association, food research house to develop appropriate quality standards for popular local chilled and frozen dishes.

It is recommended that the standards shall reflect at least the followings:

- The proportion of ingredients required for the product
- The expected eating quality (taste, crispiness, texture)
- Nutrition value of the product
- GHP/GMP/HACCP or other food quality systems required by customers is implemented

2. Appointed agency to provide services and issue certificates to entrepreneurs who volunteer to adhere to quality standards.

We proposed:

- Standard Quality Assurance logo designed for all chilled and frozen food that have meet the standards
- All chilled and frozen foods, which meets that standard, have to bear the Quality Assurance logo

3. Appointed agency to assist in developing agriculture production systems that have fully integrated quality controls, from production at the field level, to packing and packaging to consumers, by focusing on quality and standards of products that conform to International sanitary and phyto-sanitary standards.

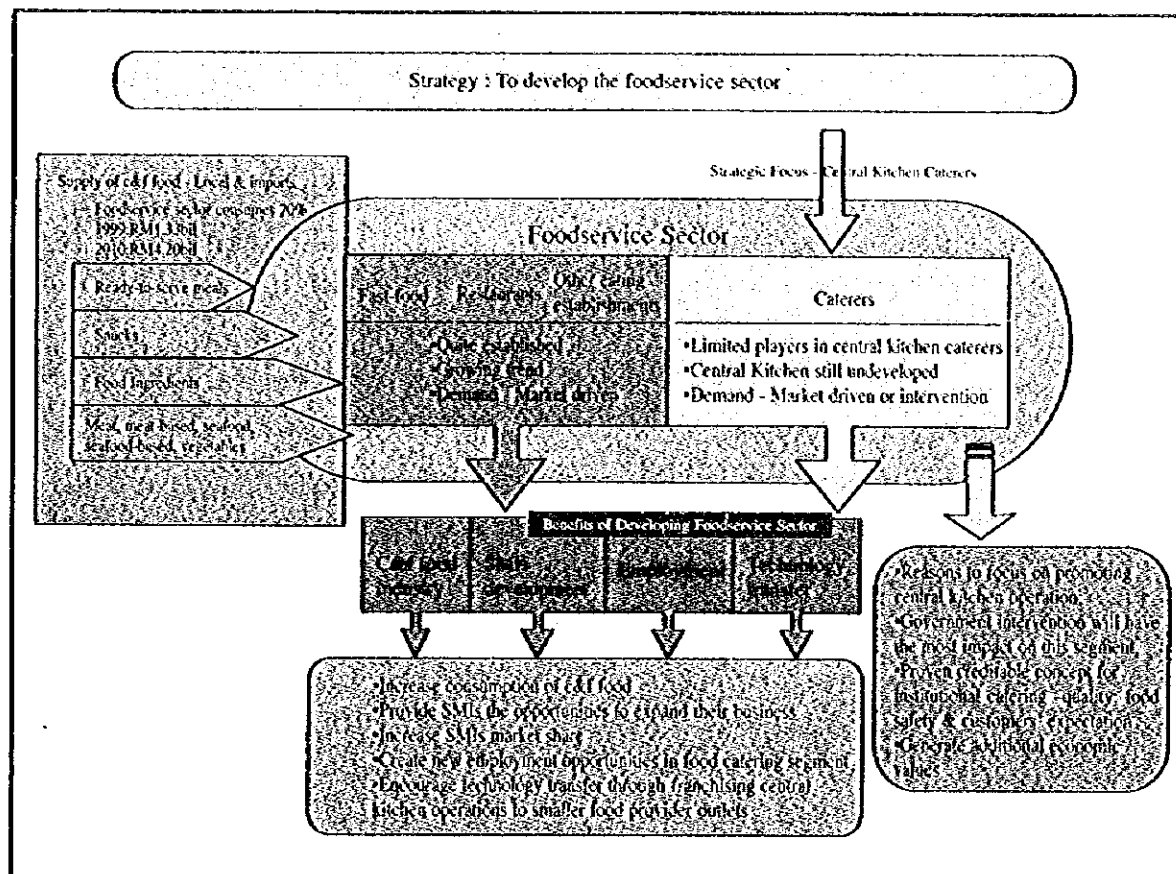
4. Encourage proposed Chilled and Frozen Food Association to participate in inspecting and guaranteeing product quality, through Government promotion of infrastructure that will facilitate marketing and ensure quality of products for sale.

Strategy 3: Develop the Food Service Sector

The study has reveals that there is a need to develop the food service sector, particularly the establishment of central kitchens to spearhead the chilled and frozen food industry. See diagram below.

Diagram illustrating how a developed foodservice sector can spearhead the chilled and frozen food

Chart 9.1 Strategy to Develop the Food Service Sector



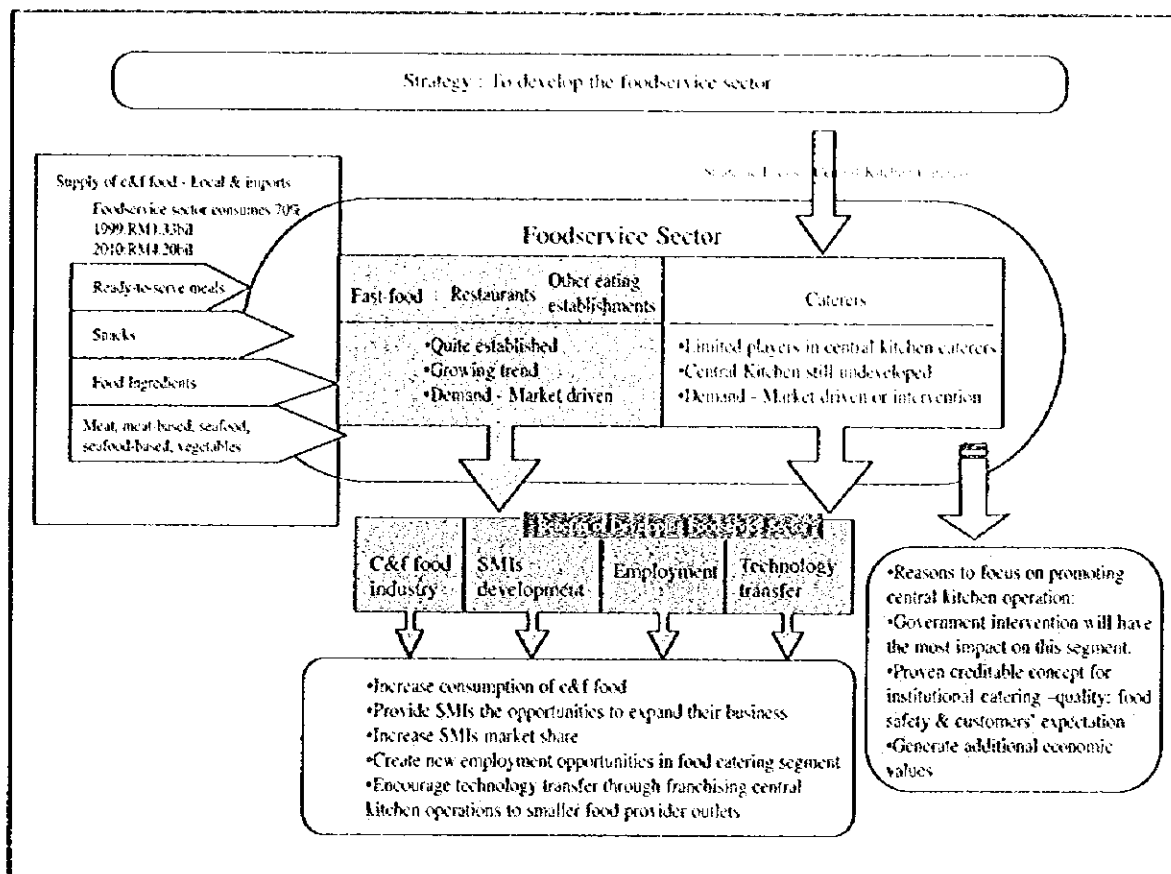
As outlined the food service sector consumes about 70% of the chilled and frozen food and by expanding this sector, it is believed that the demand will be boosted as well. This is also supported by the Japanese's experience in the development and growth of food service sector and demand for chilled and frozen food. Thus, developing the foodservice sector has inevitable benefit to the food industry.

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In order to develop the central kitchen operation foodservice sector should be capitalised. The following are the reasons:

- Central kitchen operation is a systematic and attractive business opportunity, which has been deployed by developed countries such as Japan, US and UK to enhance their catering system to institutional consumers, example, schools, universities, hospitals and hotels. In Malaysia, this has yet to be developed.
- The supply of prepared food can be carried out by a few very large-scale central kitchen operators hence, reducing the number of unmonitored individual caterer supplying to these institutions. This would improve control of food quality supplied, such as food safety and customers' expectation.
- Central kitchen operators can be more cost-efficient as they would be able to gain economies of scale due to high volume production and bulk purchase of raw materials.
- It is relatively more feasible for the government to promote the central kitchen concept as compared to other types of food service operation.
- The Government would be able to provide a ready customer-base (from public sector) for potential central kitchen operators. They can insist the public sector to source their meals from 'registered' central kitchen operators.
- The other food service segments such as fast-food operators, restaurants and cafeterias depend on "individual consumer" and government intervention as their influence are rather limited. It would be more appropriate to allow these segments to react to the forces of market demand and supply and develop by themselves.
- Lower capital investment is required as central kitchen operation can be run by existing food caterers who have already invested in some of the equipments and other fixed assets. It would be relatively easier for a caterer to expand into central kitchen operation as the marginal capital required would be lower than the capital to set-up an additional eating-outlet.

We are recommending three action plans as part of this strategy.

Action Plans	
Action Plan 13	Promote the establishment of central kitchen
Action Plan 14	Upgrade SMIs in the chilled and frozen food sector to be suppliers to central kitchen operators
Action Plan 15	Encourage investment in minimally processed vegetables

The following are the details of the action plans proposed:

In view of the central kitchen operation's feasibility and benefits, we recommended the following action plans:

Action Plan 13 Promote the establishment of central kitchen	
--	--

Foodservice Sector	Approach
<p>Main Objective: Increase demand of chilled and frozen food by expediting the growth of food service sector.</p> <p>Target: By 2010, foodservice sector should consume at least RM4.2 billion of chilled and frozen food.</p>	<ol style="list-style-type: none"> 1. Encourage investors to venture into central kitchen operation by creating demand or a customer-base for 'registered' central kitchen operators Recommended: <ul style="list-style-type: none"> • Government institutions like hospitals, defence force, schools, to be encouraged/directed to source their meals from 'registered' central kitchen operators • Private institutions like colleges, hospitals, and factories to be given incentive (double deduction of expenses incurred for 1-2 years) for using registered central kitchen operators 2. Provide incentive to encourage investors to venture into central kitchen operation <ul style="list-style-type: none"> • encourage existing food service operators like large caterers and fast food chains to undertake central kitchen operation by awarding them contracts to supply to public institutions and offices • Encourage established companies to enter to central kitchen operation by giving incentives such as Pioneer Status and Investment Tax Allowance • Promote franchising operation between central kitchen and outlets by giving incentives only to central kitchen operators who franchise their operations 3. Encourage central kitchen operators to have contract farming with local farmers in sourcing for local vegetables.

Model to Create Customer Base for Public Institutions

- (i) Identify all public institutions including schools, hospital, military and government offices
- (ii) Segment these establishments according to types of establishment, e.g., hospitals and districts – this shall be classified as “catered district”
- (iii) Qualified registered central kitchen operators who are interested in supplying to the “catered district” shall be given the contract to do so

Minimum requirements to bid for contract

- implement GMP
- capacity of serving 3,000 people
- Halal certification
- 60% of raw materials for production of food must be sourced from local food producers

- (iv) Central kitchen operators who have been awarded the contract to supply to “catered district” shall be evaluated annually based on customers’ satisfaction and compliance of contracts

Number of establishments of some of the public/ governmental institutions that can be clustered into “catered district”.

	No.	Students / Capacity	Staff
Public kindergartens	1,076	27,883	1,189
Primary Schools	7,152	2,931,190	154,834
Secondary Schools	11,641	2,000,256	108,480
National Universities	10	-	-
Hospitals	111	26,896	
Military		Unavailable	

Source: Educational Planning & Research Division – Updated 31 Jan 2000
 Dept of Public Health – Health Facilities 1995
<http://dph.gov.my/Statistics/HF1997/indexn.htm>

Others – private institutions that can be given incentives to source their meals from central kitchen operators

	No. of Establishments
Pre-Schools kindergarten (private)	2,161
Primary /secondary schools (private)	40
Private higher education	415

Source: Educational Planning & Research Division – Updated 31 Jan 2000

Estimated Set-Up Cost for a “Cook and Chill” or “Cook and Freeze” Kitchen

The following set-up cost is estimated based on number of meals prepared per day

- 10,000 meals/day RM600,000 – RM1,000,000
- 30,000 meals/day RM900,000 – RM1,400,000
- 50,000 meals/day RM1,300,000 – RM2,000,000

The above estimated costs are inclusive of the following:

- Main necessary cooking equipment
- Blast chiller / Shock freezer
- Cold rooms
- Basic stainless steel working tables and other supporting accessories

The above estimated costs do not include:

- Cold trucks and other transportation equipment
- Renovation
- Mechanical and electrical air system and other.

Source: Industry Survey

Model to Create Supply -- Encourage Venture Into Central Kitchen Operation

Government (MITI/FAMA/Ministry of Entrepreneurial Development) to promote food service sector by:

- Organising seminars & workshops on central kitchen concept and setting up central kitchen business
- Informing the public/investors as to the incentives be given and "catered district" contracts
- Organising business visits to countries like Japan, US, and UK to study the operation of central kitchen and the success factors especially on production aspect of the business
- ensuring the central kitchen operators are registered with the relevant agency
- set out the minimum requirements/criteria for central kitchen operators to be registered with the said government agency. (See Model Central Kitchen Operator)
- Ensuring those central kitchen operators who apply for contract to supply to "catered district" have the minimal requirements stated above
- Conducting workshops for good management practice, planning and distribution to help caterers be more efficient
- Organising seminars on current technology update for cook-chilled, freezing techniques, handling of food

Model Central Kitchen Operator

Central Kitchen Operators	
General Requirements ¹	General Criteria
<ul style="list-style-type: none"> • Possess Good Management Practices preferably GMP or HACCP implemented • Have necessary chilling and / or freezing equipment • Possess controlled temperature storage • Acquire good distribution planning and network • Possess knowledge and technical know-how in handling chilled and frozen food, packaging technology. 	<ul style="list-style-type: none"> • Highest Hygiene Standard • Well trained staff • Halal certification • Registered with relevant government agency • 24 hours services if possible • Attractive and extensive selections of dishes

¹ The Practicality of Using A CPF – www.chester-jensen.com/CPF

Example of an established Central Kitchen Caterer which services both private and public institutions and functions (in Singapore)

• Catering Capacity	30 – 3,000 person
• Area Business Operation	15,000 sq ft
• Built up areas (production)	10,000 sq ft
• Commercial vehicles	12 fleet
• Catering Team:	
(i) Service Managers	3
(ii) Catering Operations Executives	2
(iii) Supervisor	1
(iv) Catering Assistants	10

Service Occasion and Menu

Central Kitchen Operators Services		
Institutions	Occasions Catering	Menu
<ul style="list-style-type: none"> • Kindergartens • Schools • Universities/Colleges • Government offices • Commercial offices • Factories 	<ul style="list-style-type: none"> • Official openings • Weddings • Cocktail receptions • Buffets • Barbeque parties • Takeaway packages 	<ul style="list-style-type: none"> • Local hawker fare • Western cuisine • Oriental dishes • International dishes • Cold cuts

Examples of existing caterers who has the potential to venture into central kitchen operation – supplying regular prepared meals and/or dishes to public / private institutions – based on the companies catering activities and the distribution network/outlets

Caterer	Main activity	No. of outlets	Areas	Others
• Eden Catering	Catering, restaurants	8 restaurants/cafes	Penang (HQ) Klang Valley	Halal
• Tai Thong Group of Restaurants	Catering, restaurants	17 bakeries 20 restaurants 4 pastry outlets	Klang Valley	Halal (selected)
• Esquire Kitchen	Catering, restaurants	15		Halal (selected)
• Lee Ho Fook	Restaurants	3		
• KFC	Restaurants	277		Halal
• McDonalds'	Restaurants	140		Halal
• Pizza Hut	Restaurants	74		Halal
• A&W	Restaurants	47		Halal
• Marry Brown	Restaurants	75		Halal
• Shakey's Pizza	Restaurants	20		Halal
• Kenny Rogers	Restaurants	18		Halal
• PNC Food Caterer	Catering	1	Klang Valley	Halal
• Restoran Mat's Best	Catering, Restaurant	1		Halal

Action Plan 14
Upgrade SMIs in the chilled and frozen food sector to be suppliers to central kitchen operators

Foodservice Sector

Approach

Main Objective:
To develop SMIs in chilled and frozen food industry.

Target:
By 2010, 80% of suppliers supplying to foodservice providers are SMIs.

1. Provide incentive to SMIs to purchase or upgrade their chilling/freezing equipment.
2. Provide SMIs training in handling chilled and frozen food.
3. Update SMIs on technical and product development through seminars and newsletters.
4. Set a raw material sourcing policy for "registered" central kitchen operators, who are supplying meals to public sector, to source at least 60% of their raw materials (food products) for their food production from local food producers.
5. Encourage SMIs to venture into minimally-processed vegetables operation. (See Action Plan for Encourage Investment in Minimally-Processed Local Vegetables)

Action Plan 15
Encourage investment in minimally processed vegetables

Foodservice Sector

Approach

Main Objective:

Capture the market demand for minimally processed local vegetables and reduce substitutable imported vegetables.

Target:

By 2010, the market share for chilled and frozen local vegetables will be at least 60% of the total chilled and frozen vegetables market.

- 1. Encourage farmers or middlemen/distributors to venture into minimally processed vegetables.**

Recommended:

Give incentives to investors, including farmers, to set-up plants for value-added vegetables, e.g. cleaning, cutting, packaging and labelling.

- 2. Create demand for minimally processed vegetables to attract investments from businessmen/farmers to venture into minimally processed vegetables.**

Recommended:

Impose a policy on food service providers who receive incentives from the Government to source at least 30% of their raw materials such as vegetables, from local producers/farmers who have the "quality assurance" certification.

- 3. Conduct more R&D to focus on prolonging freshness of local vegetable using chilling and freezing technology.**

Recommended:

- Public institutions and government research unit to carry out R&D on minimally processing vegetables for industry use.
- Develop a "quality assurance" certification for minimally processed vegetables by relevant government agency (SIRIM/MARDI/FAMA).

Strategy 4: Aggressively Market Locally Produced Chilled and Frozen Food

We are recommending three action plans as part of this strategy.

Action Plans	
Action Plan 16	Educate consumers/public on food safety and values of chilled and frozen food
Action Plan 17	Identify high potential growth products
Action Plan 18	Undertake niche marketing strategy

The following are the details of the action plans proposed:

Action Plan 16 **Educate consumers/public on food safety and values of chilled and frozen food**

Product Marketing	Approach
<p>Main Objective: Ensure the public is aware of on the following of chilled and frozen food:</p> <p>i) Quality ii) importance of food safety and proper way of handling chilled and frozen food.</p> <p>Target: By 2010, all consumers of chilled and frozen food are practising the proper way of handling chilled and frozen food.</p>	<p>1. Form a Promotion Board to create consumers awareness emphasising the following through regular mass media campaigns for chilled and frozen food:</p> <ul style="list-style-type: none">• quality; and• food safety. <p>Recommended approach:</p> <p>The proposed chilled and frozen food association together with the government to promote the quality of chilled and frozen food.</p> <p>Program should include: Organise chilled and frozen food promotional activities as proposed below:</p> <ul style="list-style-type: none">• Fresh Alternative• Food Safety Week• Chilled and Frozen Food Fair

Product Marketing	Approach
	<p>2. Incorporate food safety issues as part of school education programs with the view to educate the younger generation.</p> <p>3. Ensure all chilled and frozen foods have proper labelling, handling instructions and cooking methods so that all purchasers are given good guidance.</p>

Proposed Activities	Theme of the Campaign	Recommended Medias
Fresh Alternative Campaign Chilled and Frozen Food Fair	<ul style="list-style-type: none"> • Nutrition food • Fresh Alternative • Hygienic Food • High Eating Quality • Easy Use 	To include <ul style="list-style-type: none"> • TV cooking programs • Sample tasting session in supermarkets, hypermarkets. • Invite prominent celebrities to give opinion on chilled and frozen food products
Food Safety Week	Proper Food Handling	TV and radios advertisements Newspapers advertisements or articles by reputable food nutritionists/professionals Local Magazines -- articles in health column eg. <ul style="list-style-type: none"> • Malaysian Heath, and Her World, Female. Posters / pamphlets to be displayed / distributed in: <ul style="list-style-type: none"> • Food retail outlets • Hospitals, medical centres

Example of Advertisement Cost

MEDIA EXPLORE FOR PLANTA

T.A.: Mom With Children 4-14, MHI RM1,000+

<u>Titles</u>	<u>Unit Cost</u>	<u>No of Insertion</u>	<u>Total Cost</u>
	<u>RM</u>		<u>RM (+5%)</u>
<u>TOTAL COST (+PRODUCTION)</u>			<u>1,660,366.26</u>
<u>TOTAL MEDIA COST</u>			<u>1,383,638.55</u>
<u>TV (30 sec)</u>			<u>892,500.00</u>
Media	850,000.00		892,500.00
<u>N/paper</u>			<u>319,403.70</u>
Star	13,656.00	3	43,016.40
Sun	5,852.00	3	18,433.80
Berita Harian	23,360.00	3	73,584.00
Utusan Malaysia	24,440.00	3	76,986.00
Nanyang	14,690.00	3	46,273.50
Sin Chew	19,400.00	3	61,110.00
<u>Magazine</u>			<u>58,306.50</u>
Long Life	2,800.00	3	8,820.00
Health & Beauty	5,655.00	3	17,813.25
Wanita	6,300.00	3	19,845.00
M'sian Women Weekly	3,755.00	3	11,828.25
<u>RADIO : 30 SECONDS</u>			<u>113,428.35</u>
Mix	150.00	105	16,537.50
Era	125.00	105	13,781.25
My - FM	140.00	105	15,435.00
RfM	6,174.00	3	19,448.10
Redi-FM	4,900.00	3	15,435.00
Radio 6	2,610.00	4	10,962.00
THR	198.00	105	21,829.50
<u>Total Annual Recurring Cost</u>			<u>23,983,068.20</u>

Note:

The total media cost is for a period of 3 weeks.

TV airing costs are estimated based on:

- 130 slots for all channels; and
- prime time from 8pm-10pm belt.

Newspapers & magazines costs include:

- Full page;
- 3 times per week
- Full colour for magazines

Radio (Mix, Era, My-FM & THR) airing costs are estimated based on:

- 105 slots;
- prime time from 8pm-10pm belt

Radio (RfM, Redi-FM & Radio 6) airing cost are estimated based on:

- a period of 3 and 4 weeks as indicated; and
- prime time from 8pm-10pm

Example of Proper Food Handling for Chilled and Frozen Food

Proper Food Handling for Chilled and Frozen Food

The contents¹ of the campaign shall include:

Contents	Items to be Highlighted to Public
<i>Including taking the food home, storing it in a freezer and thawing it.</i>	<ul style="list-style-type: none"> • Secret to maintain the quality is to buy the food frozen and keep it frozen until it is needed.
<i>Taking frozen food home</i>	<ul style="list-style-type: none"> • Make sure the frozen food is bought at the last shop visited and the last items collected before going to the check out. • Wrap the food in an insulated bag or box, take the food straight home and unpack into the freezer.
<i>Taking frozen food in the home freezer or fridge.</i>	<ul style="list-style-type: none"> • Food should be stored at a temperature as per instruction. • Make sure freezer will work in the position desired, possibly in a hot kitchen, in a built-in unit or under a work surface.
<i>Freezer use</i>	<ul style="list-style-type: none"> • Keep the door or lid closed, only open when required. • Do not place unfrozen food adjacent frozen food in the freezer. • Check freezer temperature – it should be colder than –1°Celsius.
<i>Thawing frozen food</i>	<ul style="list-style-type: none"> • Large items of frozen food, particularly meat, need to be fully thawed before cooking. • Thawing frozen food by exposing it at ambient temperature can be dangerous, as the “warmed up” bacteria on the surface of the food will grow very quickly, thus leads to contamination of the surrounding areas or utensils. May then results food poisoning if contaminated items not properly cleaned. • Food should never be refrozen after thawing.

¹ Food Hygiene 1998, Guidance for the Home User, A.Gigiel Food Refrigeration and Process Engineering Centre, University of Bristol.

A Consumers Guide to Safe Handling and Preparation of Ground Meat and Ground Poultry



Cool It!

Ground meat and ground poultry are more perishable than most foods. In the danger zone between 40° and 140° F, bacteria can multiply rapidly. Since you can't see, smell or taste bacteria, keep the product cold to keep them safe.

Safe Handling

- Choose ground meat packages that are cold and tightly wrapped. The meat surface exposed to air will be red; interior of fresh meat will be dark.
- Put refrigerated and frozen foods in your grocery cart LAST and make the grocery store you LAST stop before home.
- Pack perishables in an ice chest if it will take you more than an hour to get home.
- Place ground meat and ground poultry in the refrigerator or freezer immediately.
- Defrost frozen ground meats in the refrigerator — never at room temperature. If microwave defrosting, cook immediately.

Safe Storage

- Set your refrigerator at 40° F or colder and your freezer at 0° F or colder.
- Keep uncooked ground meat and ground poultry in the refrigerator; cook or freeze within 1 to 2 days.
- Use or freeze cooked meat and poultry stored in the refrigerator within 3 to 4 days.
- For best quality, store frozen raw ground meats no longer than 3 to 4 months; cooked meats, 2 to 3 months.

STOP! ALWAYS USE A
CLEAN PLATE BEFORE
YOU TAKE THE MEAT OUT OF
THE PAN



Clean It!

Keep **EVERYTHING** clean — hands, utensils, counters, cutting boards and sinks. That way, your food will stay as safe as possible.

- Always wash hands thoroughly in hot soapy water before preparing foods and after handling raw meats.
- Don't let raw meat or poultry juices touch ready-to-eat foods either in the refrigerator or during the preparation.
- Wash utensils that have touched raw meat with hot, soapy water before using them for cooked meats.
- Wash counters, cutting boards and other surfaces raw meats have touched. And don't forget to keep the inside of the refrigerator clean.

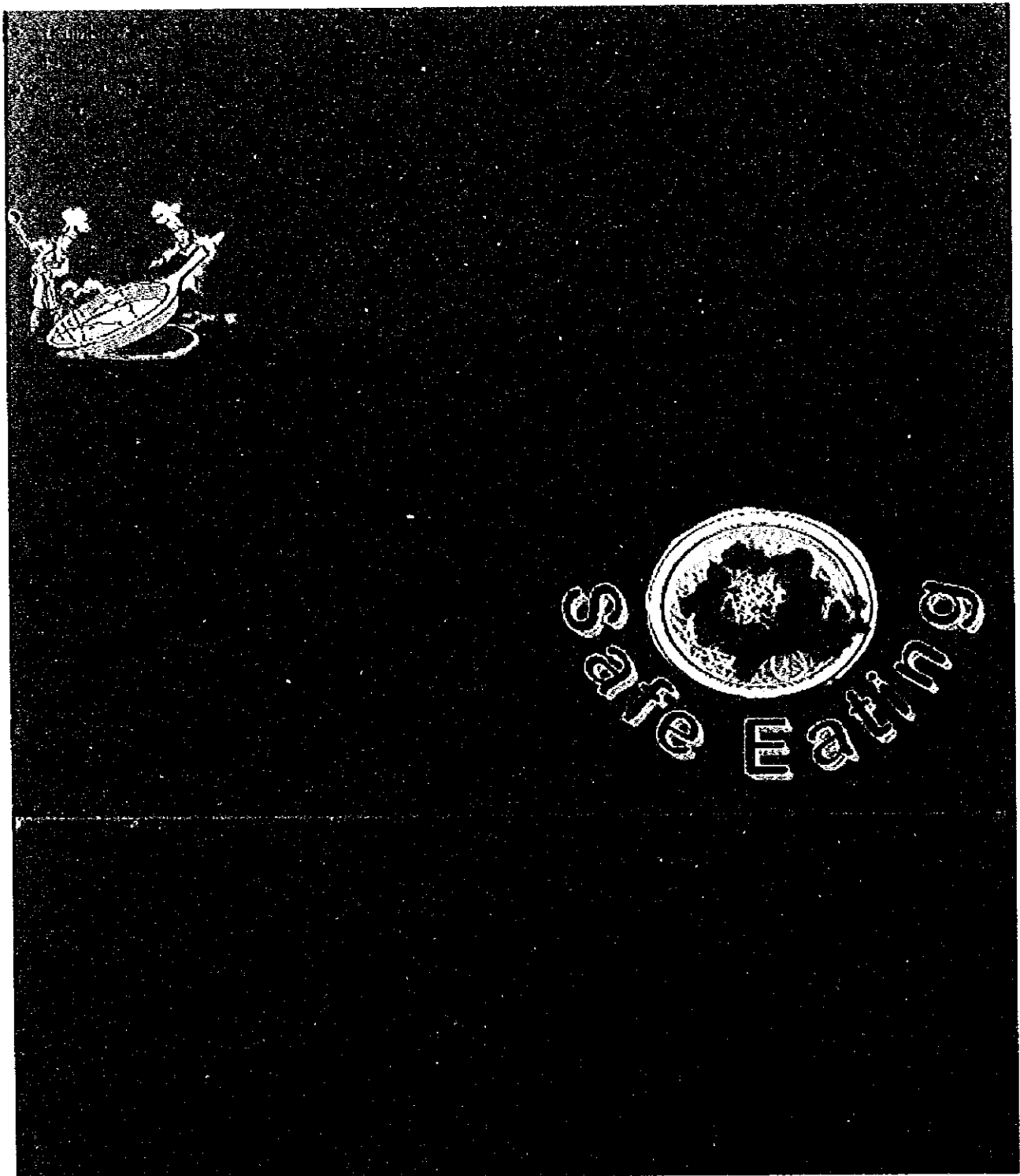
Cook It!

Cooking kills harmful bacteria. Be sure ground meat and ground poultry are cooked thoroughly.

Cook It Safely

- The center of patties and meat loaf should not be pink and the juices should run clear.

Example of a Brochure Guide for Food Safety Handling



- Crumbled ground meat should be cooked until no pink remains.
- Ground meat patties and loaves are safe when they reach 160° F in the center; ground poultry patties and loaves, 165° F.



Cook It Evenly

- During broiling, grilling, or cooking on the stove, turn meats over at least once.
- When baking, set oven no lower than 325° F.
- If "microwaving," cover meats. Midway through cooking, turn patties over and rotate the dish; rotate a meat loaf; and stir ground meats once or twice. Let microwave meats stand to complete cooking process.

After cooking, refrigerate leftovers immediately. Separate into small portions for fast cooling.

To reheat all leftovers, cover and heat to 165° F or until hot and steaming throughout.

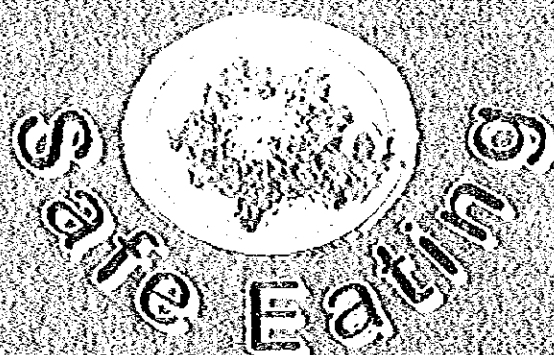
Internal Temperatures for Safe Cooking

Product Temperature

Uncooked ground meat 160° F

Uncooked ground poultry 165° F

All cooked leftovers, reheated 165° F



Consumer Guidelines

Cold Storage Times For Ground Meat & Ground Poultry

Refrigerator (40° F or below)

Product Days

Uncooked ground meat and ground poultry (bulk or patties) 1 to 2

Cooked ground meat and ground poultry (hamburgers, meat loaf, and dishes containing ground meats) 1 to 4

Freezer (0° F or below)

Product Months

Uncooked ground meat and ground poultry (bulk or patties) 3 to 4

Cooked ground meat and ground poultry (hamburgers, meat loaf, and dishes containing ground meats) 2 to 3

Action Plan 17 Identify high potential growth products

Product Marketing	Approach
<p>Main Objective: Promote locally produced chilled and frozen food products.</p> <p>Target: By 2010, increase local market shares and local products to penetrate into overseas markets.</p>	<p>I. Market Development and Penetration:</p> <p>Develop a deeper market understanding for:</p> <ul style="list-style-type: none"> • Local market <ul style="list-style-type: none"> (i) popular local food (ii) popular imported chilled and frozen food • Major overseas countries <ul style="list-style-type: none"> (i) preferred ethnic food (ii) popular chilled and frozen food <p>(See guidelines for Local Market Penetration and Overseas Market Penetration)</p> <p>Recommended:</p> <p>The aim of the proposed trade association and related government agencies is to achieve the following:</p> <ul style="list-style-type: none"> • Lead in keeping up to date information on the food consumption trend in both local and overseas markets. • Organise more intensive domestic and overseas food exhibitions on locally produced chilled and frozen food, and halal food produced in Malaysia.

Product Marketing	Approach
	<p>Suggestions for promotional activities</p> <ul style="list-style-type: none"> (i) "Malaysia -- the Oriental Frozen Food Producer" (ii) "Malaysia- Frozen Ethnic Meals & Snacks" (iii) "Malaysia -- Halal Food Producer" (iv) "Partnership with Malaysian Chilled and Frozen Food" <ul style="list-style-type: none"> • Organise and participate in activities such as food conferences, seminars, exhibitions, business visits and to launch worldwide campaigns like "Invest in Malaysia Year" and "Malaysia-Halal Food Producer".

- **Promote umbrella branding for SMEs' products in order to reduce marketing costs with higher market impacts.**

Main target for SMEs' to market their chilled and frozen products:

- (i) **Central kitchen operators (see Popularise Central Kitchen Operation)**
- (ii) **Other food service providers – to give local foodservice providers incentive (such as double deduction) if they source more than 40% of their chilled and frozen raw materials needs from local food producers**
- **Encourage industry players to be more innovative and creative in packaging. FAMA and Packaging Association can assist producers by distributing and updating them on the latest packaging models, equipment used, and labelling.**
- **Promote Quality Assurance certification to local and overseas countries by ensuring:**
 - (i) **all products meet standards bearing the Quality Assurance logo**
 - (ii) **all campaign and advertisement materials should incorporate the Quality Assurance logo**
- **Marketing local chilled and frozen food:**
 - (i) **subsidise local SMEs in promoting their chilled and frozen products in local or overseas trade exhibitions**
 - (ii) **give incentives to retail outlets like supermarkets and hypermarkets to allocate more shelf space for local chilled and products which carry Quality Assurance logo**
- **Provide incentives to the proposed Chilled and Frozen Food Association to help food producers advertise their products.**

Recommended:

Advertisement costs should include printing posters, brochures, pamphlets, setting up advertisement websites, and products samples to potential customers, "display fees," charged by retailers such as supermarkets or hypermarkets.

- **Develop and maintain a virtually interactive Chilled and Frozen Food website for the purpose of marketing all locally produced halal and non-halal chilled and frozen food products.**

Action Plan 18
Undertake niche marketing strategy

Product Marketing	Approach
<p>Main Objectives:</p> <ul style="list-style-type: none"> i) Differentiate local production with competitors ii) Combat high production costs <p>Targets:</p> <p>By 2010, Malaysia will</p> <ul style="list-style-type: none"> • Gain at least 10% market share for locally produced halal food • Be one of the top 3 world chilled and frozen ethnic food producer. 	<p>1. Producers should be encouraged to add value to their production.</p> <p>Recommended marketing focus:</p> <ul style="list-style-type: none"> • Products - Value added products, e.g.: <ul style="list-style-type: none"> (i) halal certification for non-haram food (ii) obtain recognised quality assurance certification (iii) to focus on processed chilled and frozen food – especially for meat, poultry and seafood (iv) quality - nutrition and healthy • Price – Value for money product ethnic group, enthusiasts and experimenters • Promotion – heavy marketing for high growth segments, such as Chinese and Thai cuisines • Place – marketing channel through food service sector and retail outlets (ethnic groceries supermarkets) • Target markets – ethnic groups, enthusiasts and experimenters

Guidelines for Local Market Penetration

Products Marketing Strategy for Malaysia Chilled and Frozen Food Market (based on results derived from consumers survey)

Local chilled and frozen food market

Potential growth based on the consumer survey for commonly available chilled and frozen food products

Meals and snacks segments:

Meals and snacks	Consumption %
<i>Roti canai</i>	37
<i>Pizzas</i>	32
<i>Curry puffs</i>	30
<i>Pau</i>	30
<i>Spring rolls</i>	20
<i>Mantau</i>	
<i>Roti Pratha</i>	5-15
<i>Din Sum</i>	
<i>Murtabak</i>	
<i>Pies</i>	
<i>Samosa</i>	

Local Consumers' Priorities

- Quality
- Hygiene
- Nutrition/Health
- Price
- Taste
- Halal Status
- Convenience
- Brand
- Outlet
- Packaging

Food ingredients

Food Ingredients	Consumption %
Chilled fruits	68
Noodles	30
Tofu	30
Coconuts milk/grate	20
Cendol	20
Spice pastes	15

Meat, seafood, and vegetables

Meat, seafood, and vegetables	Consumption %
Nuggets	70
Burgers	50-60
Chicken	
Sausages	
Meat cuts	24
Cold cuts	17
Marinated meat	<10
Satay/kebab	

Guidelines for Overseas Market Penetration (continued)

Product Marketing Strategy for Major Overseas Chilled and Frozen Food Market General Consumption Trend (based on results derived from survey)

Potential overseas markets

- (1) Suggested study on chilled and frozen food consumption to be done in the following major overseas markets based on their high consumption level and demand for ethnic foods:
 - United States
 - United Kingdom and European Countries
- (2) Potential huge market for Malaysia due to high per capita income and Malaysia as a prominent Muslim country
 - United Arab Emirates (UAE)

Below are highlights of the potential overseas markets for local chilled and frozen food producers.

(See next page).

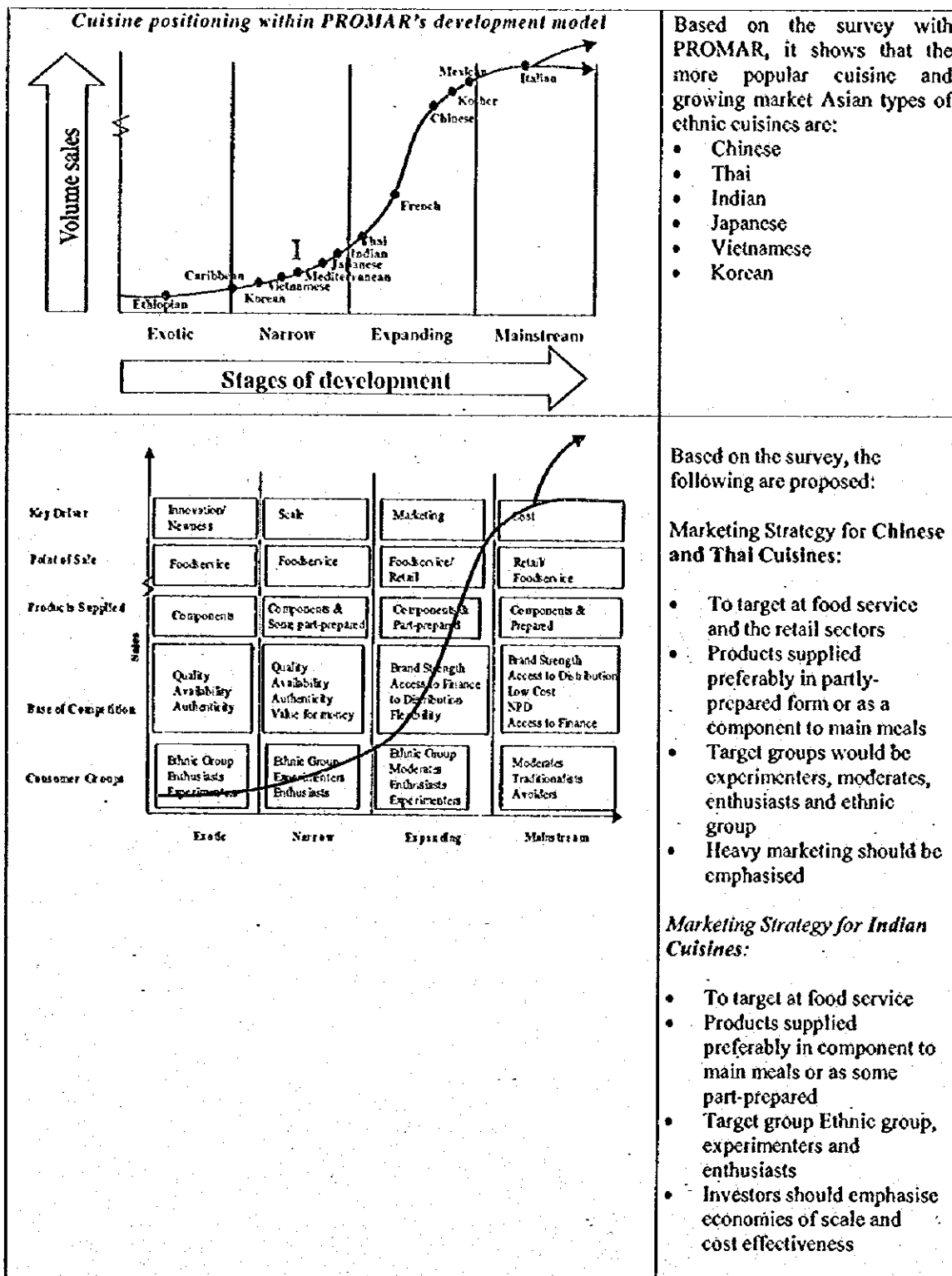
As the US is the biggest consumer of chilled and frozen food, the following are highlights of a marketing strategy:

Markets	Popular Product Range	Ethnic Product Segments	Consumers' Taste & Trend
United States	<p>Ready meals Home meal replacement</p> <p>Products types: Type of frozen food Meat & poultry Seafood, preferred fish, salmon, catfish, trout, crawfish</p> <p>Existing popular frozen food:</p> <ul style="list-style-type: none"> • Pizza • Dinner & entrée • Meat and poultry • Pocket sandwiches • Burritos • Hamburgers • Corn dogs • Snack rolls • Pasta • Salad • Deserts <p>Appetizers – onion rings, chicken wings, mozzarella sticks, breaded calamari, breaded vegetable</p>	<ul style="list-style-type: none"> • Hot and spicy • Asian flavour such as soy sauces, teriyaki, ginger, sesame, red bean, rice, Cajun spice, garam masala. • Herbs & spices such as basil, dill, parsley, coriander, rosemary. • Shiitake, reishi and other mushroom. <p>Possible products development:</p> <p>Meals / Entrée:¹</p> <p>Fragrant rice such as basmati, jasmine, and glutinous rice served with the following flavour:</p> <ul style="list-style-type: none"> • Thai style chicken & curry • salmon with shitake mushroom and sake-soy, lemongrass & sesame oil • Vietnamese style with chicken, sweet sausage, straw mushrooms & ginger • Chicken teriyaki 	<ul style="list-style-type: none"> • Organic • Reduced fat • Fat free • High quality, better taste • Nutrition conscious • Appealing ingredients • Brandname • Appealing packaging <p>Snack flavour:²</p> <ul style="list-style-type: none"> • Latin spices • Pepper • Spices from Asia and Indian flavour • Curry flavour • Cloves and cinnamon • Thai flavour • Other new flavours: barbeque, cheddar, zesty sour cream & onion varieties

¹ The Rice is Right; Prepared Food; Nov 1998

² http://www.foodprocessing.com/Web_First/FP.nsf/Contents/862568BE006F8B5B8625; Food of tomorrow – Snacks get hotter- July 2000; by G.Jeffrey Hoch

Highlights of Marketing Strategy for the US Market



Markets	Popular Product Range	Ethnics Product Segments	Consumers' Taste & Trend
United Kingdom & European Countries	Ready meals Cooking sauces Coated fish	Indian Food ³ Chinese Foods Mexican Thai Caribbean Indonesia / Malaysian	Highly critical on genetically modified foods In favour of organic foods Low-calorie, low-salt, nutritionally balanced ready to serve meals ⁴

Markets	Popular Product Range	Ethnics Product Segments	Consumers' Taste & Trend
UAE	Confectionery Snack food Ice cream Poultry Dairy Vegetables Fresh fruits	<i>Samosa</i> ⁵ <i>Roti pratha</i> Curry puffs	Healthy food Cholesterol-free Low-salt Halal

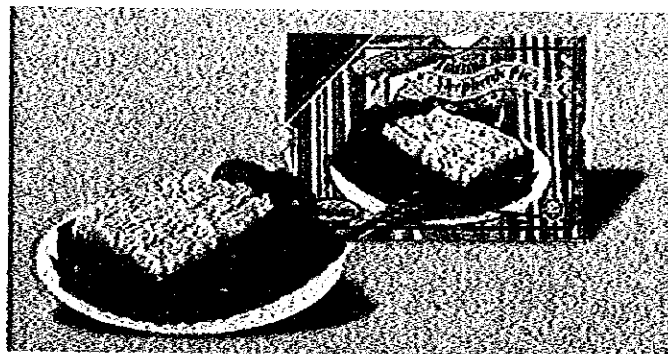
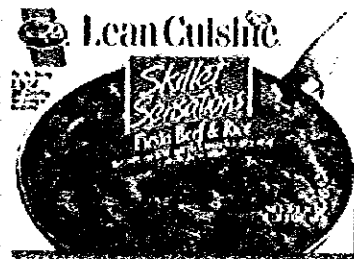
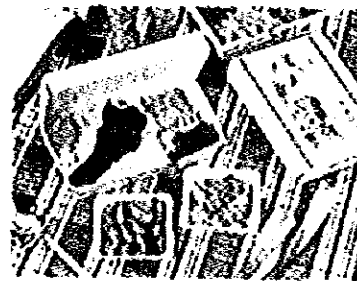
³ http://just-food.com/store/reports_detail.asp?art=53; Ethnics Foods; May 31, 2000.

⁴ <http://www.foodnavigator.com/trends5.asp?id=132>; Ready Meals: The International Market; June 2000

⁵ Based on Industry survey

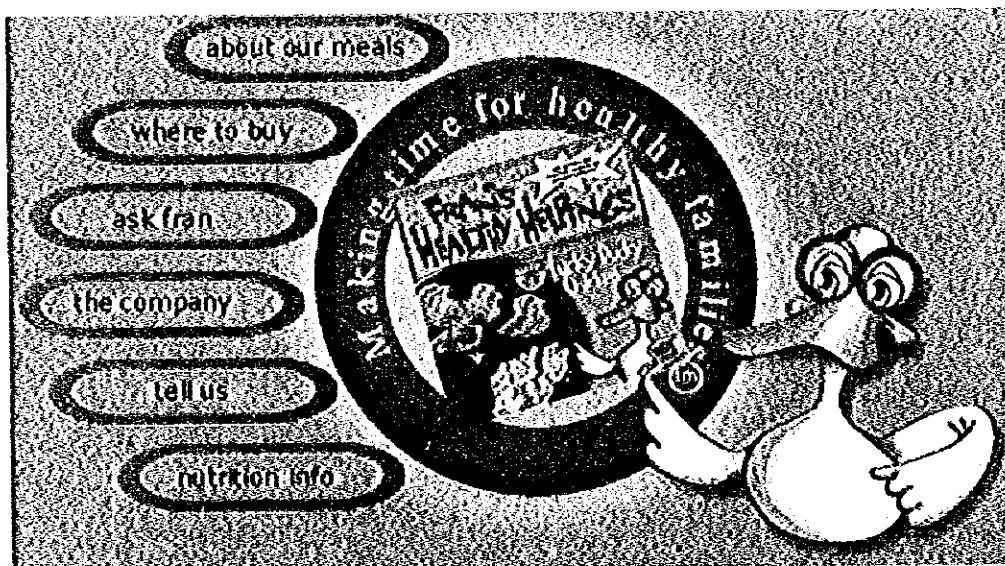
Examples of Current Packaging Trends

Meals



Examples of Current Packaging

Meals Products



Example of Layout of Packaging Box

Types of packaging and materials used in US

Lunchmeat cases: Resealable zipper E.g., Louis Rich's Carving Board Chicken Strips

Materials used such as:

Compartment trays

Dishes, cup

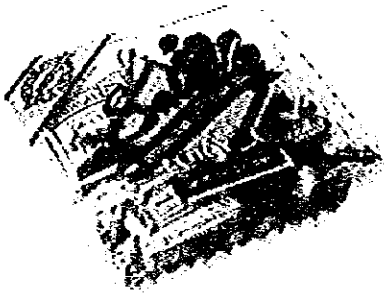
Boil-in-bags

Trays - compartment, paper, aluminium, plastics

Plates, Cups, Boxes



The new line uses novel packaging from Robbie Manufacturing, Lenexa, Kansas and the company says, "This system allows us to combine traditional deli packaging with quality six-color graphics, which can easily be applied to all our black deli trays".



Salad For You from Noreast Fresh Inc., Chelsea, Massachusetts, is packed in single-serving trays, perfect for on-the-go consumption.

The key to the product's 10- to 14-day refrigerated shelf life is a patent-pending package consisting of a two-compartment, clear polyethylene tray and breathable, peelable lidstock. A rounded compartment holds six to eight grape or cherry tomatoes, while the larger section is filled with a pouch of seasoned croutons from Chatham Village Foods, and a 1.5-ounce pouch of Ken's Premium Steakhouse dressing from Ken's Foods, as well as the other salad ingredients--iceberg lettuce, romaine lettuce, shredded carrots and raddichio.

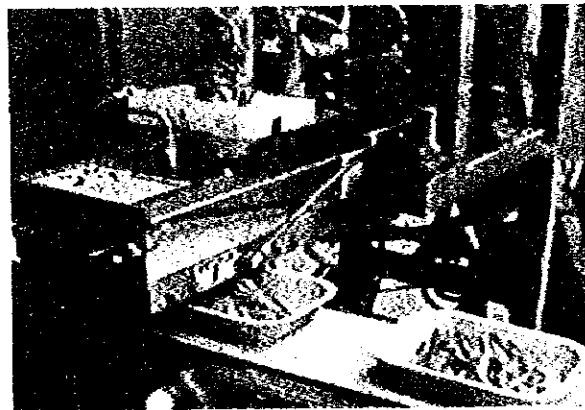
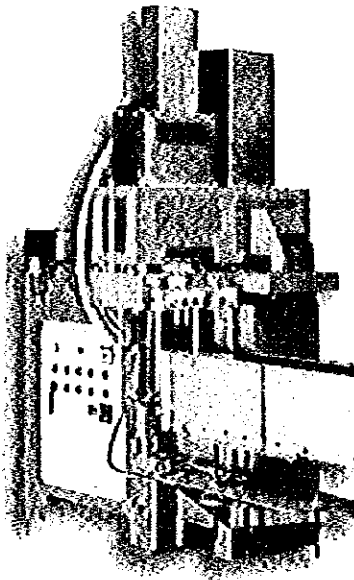
Example of Layout of Packaging Box



Resealable bags helps drive product development for potatoes

Ore-Ida just launched a new repackaging initiative: standup resealable packaging. "We did a lot of research to see what we can do to improve the consumer experience with our product. The No. 1 complaint with potatoes is that you can't reseal the bags," he explains. "The new Zip Crisp bag with a plastic zippered closure stands up in the freezer case; the consumer can clearly see the brand name and photo of what's inside."

Example of Current Packaging Technology



Strategy 5 : Improve Human Resource Development

We are recommending three action plans as part of this strategy.

Action Plans	
Action Plan 19	Recruit foreign workers
Action Plan 20	Invest in mechanisation of processes
Action Plan 21	Educate and train on Good Management Practice

The following are the details of the action plans proposed:

Action Plan 19 Recruit foreign workers	
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Human Resource	Approach
Main Objective: Replace inadequacy of labour.	1. Government to allow the recruitment of foreign workers in the chilled and frozen food production line.
Target: Immediately resolve the shortage of frontline workers.	

Action Plan 20 Invest in mechanisation of processes	
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Human Resource	Approach
Main Objectives: (i) Replace the inadequacy of labour. (ii) Overcome the shortage of frontline workers.	1. Replace manual processes, where mechanisation is possible. Recommended: Incentive to be given for capital investment. (See Action plan on Increasing Production)

Action Plan 21
Educate and train on Good Management Practice

Human Resource

Approach

Main Objective:

Equip the SMIs with up-to-date management skills and to be more business oriented.

Target:

All SMIs in the chilled and frozen food industry will be able to dominate the local chilled and frozen food market and be able to identify export opportunities.

- 1. Organise seminars and workshops for high level management personnel / owners whose business are in or related to chilled and frozen food industry.**

It is proposed that the sessions to be organised solely by the relevant government agencies or jointly with the trade association such as proposed Chilled and Frozen Food Association.

Programs of the sessions shall include:

- HRM
- Strategic / Business planning
- Financial Planning
- Current industry standards
- Social Responsibilities / Ethics

Strategy 6: Promote Industry Coordination and Self Regulation

We are recommending one action plans as part of this strategy.

Action Plans

Action Plan 22

Setting-up Chilled and Frozen Food Association

The following are the details of the action plans proposed:

Action Plan 22 Setting up Chilled and Frozen Food Association

Chilled and Frozen Food Association

Approach

Main Objective:

To develop a proper communication structure for the chilled and frozen food industry.

Target:

To develop a efficient and effective chilled and frozen food industry in Malaysia.

1. Form a committee for Chilled and Frozen Food Association.

Recommended:

- Committee members should include both private and relevant government agencies.
- Government to subsidise in forming the Chilled and Frozen Food Association and activities to be conducted by that association.

2. Define the roles of the Chilled and Frozen Food Association.

We suggest that the roles of the Chilled and Frozen Food Association include the following:

- Assist the Government to educate both the public, and players in the industry.

-
- Organise and coordinate the development of the entire cold chain by helping set-up other related trade associations such as:
 - (i) Malaysian Refrigerated Warehouse Association
 - (ii) Malaysian Refrigerated Equipment Manufacturers Association
 - (iii) Malaysian Cold Trucks Association
 - Encourage players to implement GHP, GMP, HACCP or ISO.
 - Set-up database of information on local food distribution, production, storage and marketing.
 - Facilitate R&D activities by being an intermediary for communicating information about consumers to industry players and government.
 - Assist eligible players in applying for available incentives.
- 3. Transform the proposed Chilled and Frozen Food Association into:**
- **non-governmental regulatory body**
 - (i) Cooperate with relevant Government agencies in enforcing and maintaining food quality inspection system. Example:
 - Participate in inspecting, and guarantee the product quality
 - Ensure all chilled and frozen food producers have GHP or GMP in place
 - Ensure all exporters have HACCP
 - (ii) develop or assist in designing quality assurance standard for locally produced chilled and frozen local dishes.
 - **non-governmental marketing arm**
 - (i) market locally produced chilled and frozen food in:
 - (ii) domestic market, e.g. by sponsoring mass media advertisements, and organising food-fairs
 - (iii) foreign countries, e.g. by liaising with trade associations and players in the food industry in foreign countries and
 - (iv) helping local players to fulfil the necessary protocol to penetrate into other countries
 - (v) assist in establishing processing, packaging and industrial standards.

Strategy 7: Undertake A Global Study On The Market Positioning Of Malaysia As The Halal Food Hub And To Develop Brand Loyalty For Malaysia's Halal Food Products

We are recommending five action plans as part of this strategy.

Action Plans	
Action Plan 23	Conduct a comprehensive study on the international halal food market
Action Plan 24	Appoint an agency/department to spearhead the halal food strategies
Action Plan 25	Promote Malaysia as a prominent Muslim country and prominent centre for halal food production
Action Plan 26	Increase locally produced halal food in the world market
Action Plan 27	Develop strategies for making Malaysia as the hub for world halal food

The following are the details of the action plans proposed:

Action Plan 23
Conduct a comprehensive study on the international halal food market behaviour

Halal Food Hub	Approach
<p>Main Objective: Identify the most strategic positioning for Malaysia in becoming a world halal food hub.</p>	<p>1. Form a team as soon as possible to conduct a more detailed investigation of all halal consumers countries on making Malaysia a world halal food hub.</p> <p>Investigation should address the following question:</p> <ul style="list-style-type: none"> • What are the Muslims' perception of the origin of Halal certification? • How feasible is it for Malaysia to become a world hub for halal food market? • What is Malaysia's core competence? • What is the value of Malaysia's Jakim's certification from the perspective of other countries? • Should Malaysia intend to become a world hub, which are the area(s) should we focus in?

Suggested countries given the priority:

Muslim Countries	Characteristics of Potential Markets
Indonesia India Turkey China	Large number of Muslims population
Saudi Arabia United States United Kingdom	Higher in per capita income

2. Formulate a clear market positioning strategy in order for Malaysia to materialise the vision of becoming a world hub for halal food.

Action Plan 24

Appoint an agency/department to
Spearhead the halal food strategies

Main Objective:
Have an identified
champion to materialise the
vision.

1. Identify a government agency to spearhead the halal food hub development

We suggest that the role of the said agency/department should include:

- Coordinating all activities of other Government departments/agencies involved in making Malaysia a world "hub" for halal food
- Coordinating the planning and organising promotional activities for halal food
- Encourage halal certification among food producers
- Oversee the overall programs and development of world halal food market

2. The said agency/department to advise in setting up policies and strategies.

We suggest that some of the policies/strategies to be looked into are:

- Granting investment incentives for halal food processors
- Developing food producers, especially SMIs, to become a halal food producer by:
 - (i) giving support through mentoring program
 - (ii) providing technology advice through technology acquisition programs
 - (iii) setting up funds such as low interest loan scheme
 - (iv) conducting counselling for business start-ups

3. The said agency/department to develop an internationally recognised Malaysia's halal trademark.

Recommended:

- A logo/trademark for halal food from Malaysia to be developed
- Promote the said trademark, locally and internationally, leveraging on Malaysia as a reputable and advanced Muslim country

Action Plan 25

**Promote Malaysia as a prominent Muslim country and
Prominent centre for halal food production**

Main Objective:
Create worldwide awareness of Malaysia as a prominent halal food producer

The said appointed agency/department should:

1. Organise yearly International Halal Food Fairs
2. Participate fully in all international or local food exhibitions, conference and trade fairs
3. Encourage food MNC to set up their halal food production in Malaysia by giving attractive incentives

It is recommended that Malaysia should publicise the production reallocation strategy taken by Nestle in turning Malaysia to a centre of halal food production.

4. To motivate other neighbouring countries to use Malaysia as a transit point for halal food

It is suggested that various incentives to be given to foreigners using Malaysia as a transit point for their halal food production or certification.