

CHAPTER 4

SUMMARY OF STATISTICS AND ANALYSIS OF MEASURES

The presentation of this chapter are composed of 3 parts. Firstly, the 6 types of diagnosis made up the first part of this chapter. The first section in the diagnosis provides the summary statistics and analysis of measures for the first activity i.e. self-action diagnosis. The second section presents the results for actor system diagnosis (generic and individual level). The third section describes the structure dissipativeness diagnosis results. This is followed by insight of the six-level organisational diagnosis. The last two sections are in regards to the results of the two management system assessments.

4.1 SIX TYPES OF DIAGNOSIS

4.1.1 SELF-ACTUATION DIAGNOSIS

Figure 2 : Self-actuation

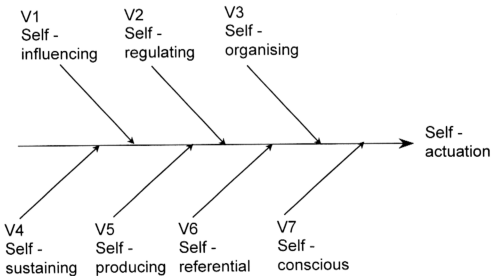


Table 1 : Self-actuation scores

	V1	V2	V3	V4	V5	V6	V7
CHS	3	4	4	4	2	3	4

In terms of self-influencing, CHS is graded 3. This phenomena is contributed by the constraint of the machine capacity and worker skill. For example, a large amount of raw material input does not assure a large amount of output as this depends largely on the complication of the design required by the customer and also the worker and machine capability to produce the output.

CHS has two management systems in ensuring the self-regulating of the system in the company. Thereby, 4 points are given in this characteristic. In terms of Production Control System, the Production Planning and Control Section will generate order for raw material when the stock level is low. On the other hand, the Production Planning and Control Section will signal the Sales and Marketing Department to take more order when the sales on hand is low and vice versa. For Environmental Management System, the increase of schedule waste in the plant will alarm the management to take measures to reduce the waste and engage an external contractor to manage the waste. As such, the waste level in the plant is controlled within a specified limit.

In self-organising, 4 points are accorded to CHS as it responses well to the perturbations from the internal and external environment. With the drastic change of the world economic and the economy slow down in United States, Europe and Japan, the demand for packaging material in Malaysia shrunk as foreign investors increasingly shift their manufacturing plant from Malaysia to China due to the cheaper labour cost. Hence, the competition level for flexible packaging in the Malaysian market has became stiffer. CHS top management has taken steps to boost its productivity through machines upgrading and improving on the product quality. The introduction of In-line Quality Control and Supplier-Customer partnership in the production area was launched on 1st July, 2001. Prior to the launch, two sessions of training were conducted for the shop-floor worker to prepare them for this change.

CHS is awarded 4 points in self-sustaining. This can be seen from the systematic way in handling customer order until delivery of goods. When the Sales and Marketing Department receive purchase order from the customer, the information from the purchase order will be converted to customer order by the Sales and Marketing clerk. This customer order will then be passed to Production Planning and Control Section to generate a work order. This work order will activate the work in production as well as work of other supporting departments such as Quality Department, Information Technology Department as well as Logistics Section whereby the goods will then be delivered to customer and the order is fulfilled.

However, CHS only scores 2 points in self-producing. The reason behind this low score is that the organisation has to purchase all the raw material from the suppliers and it ranges from raw material such as resin, film and ink; and packaging material such as carton box and plastic bags. Although it could not sustain at the front end, it is supported by AJ (M) at the back end, to which more than 60% of AJ's packaging materials requirements are supplied by CHS.

Self-referential scores 3 points in area such as quality of product and service but not in price of the goods. CHS is noted for its Quality Leadership but not Cost Leadership. The self-referential is also boosted by the strategic alliance with sister companies such as AP in Japan, FA in Thailand, AJ (Philippines), AJ (Indonesia) and also AJ (Japan). The Cost Leadership could not be achieved as there is no plan for horizontal integration. Consequently, CHS loose out in the price competitiveness as the cost of raw material purchased (major and minor) made up 60% of the total cost.

In another aspect, CHS's self-conscious is graded 4 as it is able to interact with description of self. This is evident by the annual internal audit and external audit [from customer, SIRIM and AJ (Japan)] to evaluate the performance of the Quality Management System and Environmental Management System. The company's performances are also being

reviewed during the biannual management review. Improvement Plans have been drawn to improve the situation besides pushing up the status of the company in the Malaysian market.

Table 2 : Frequency analysis for self-actuation diagnosis

Frequency analysis	Poor 1	Fair 2	Satisfactory 3	Good 4	Excellent 5
V1	0 %	0 %	100 %	0 %	0 %
V2	0 %	0 %	0 %	100 %	0 %
V3	0 %	0 %	0 %	100 %	0 %
V4	0 %	0 %	0 %	100 %	0 %
V5	0 %	100 %	0 %	0 %	0 %
V6	0 %	0 %	100 %	0 %	0 %
V7	0 %	0 %	0 %	100 %	0 %
means	0 %	14.29 %	28.57 %	57.14 %	0 %

The above results (Table 2) show that 57.14% of the self-actuation variables are graded with 4 points. This result reveals that CHS system is viable for organisational change to take place.

4.1.2 ACTOR SYSTEM DIAGNOSIS

The actor system diagnosis consists 2 levels of diagnosis. The first level of diagnosis is individual level as presented below.

Figure 3 : Actor System – individual level diagnosis

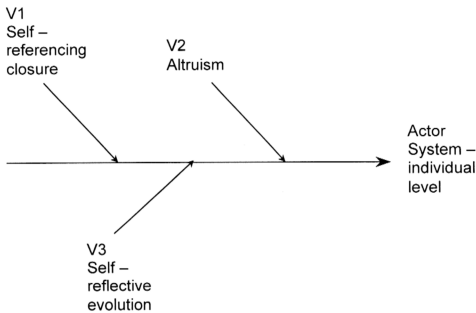


Table 3 : Actor system – individual score (See Appendix 7 to Appendix 9)

	V1	V2	V3
Manager	3.78	3.22	3.56
Supervisor	3.25	3.25	3.42
Operator	2.35	2.78	2.45
Mean	3.12	3.08	3.14
Frequency	3	3	3

The results unveil that the actor system – individual level generally scores a satisfactory grade. In the self-referencing closure, it seems that the manager level interact more with the environment as compare to the operator level. This is contributed by the scope of work between these two levels of employees. The nature of the manager job required them to interact more with the environment relatively to the operator job.

In the case of altruism, the operator mindset are the most difficult to change towards a new work design or method. This is because the operators are seeking for complacency in the work place. They fear that they are not able to cope with the newly assigned work. This has caused limitation of flexibility in the organisation. Therefore, only a satisfactory grade is given to this variable.

The self-reflective evolution also scores an average satisfactory grade. The results show that the operator level generally less reflective as compare to the supervisory and manager level. This is because they always take instruction from their superior and seldom think on the area of improvement.

Table 4 : Frequency analysis for actor system – individual level diagnosis

Frequency analysis	Poor 1	Fair 2	Satisfactory 3	Good 4	Excellent 5
V1	8.57 %	32.86 %	41.43 %	15.71 %	1.43 %
V2	1.43 %	21.43 %	61.43 %	15.71 %	0 %
V3	7.14 %	30 %	44.29 %	17.14 %	1.43 %
means	5.71 %	28.10 %	49.05 %	16.19 %	0.95 %

The above results showed that only 17.14% of the variables achieved good and excellent grade. Most of the scores fell in the satisfactory grade. This unveils that there is a wide room for improvement in this area.

The second level of diagnosis is generic level diagnosis as given below :-

Figure 4 : Actor System – generic level diagnosis

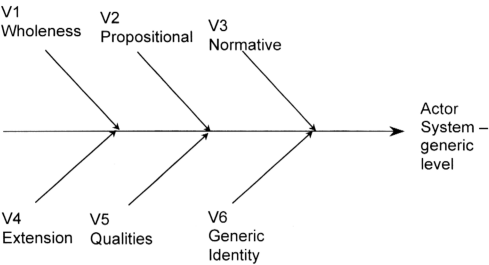


Table 5 : Score for the Actor System - generic (departmental) level diagnosis
(See Appendix 10 to Appendix 15)

Department	V1	V2	V3	V4	V5	V6
Sales & Marketing	3	4	4	4	3	4
Administration	3	3	4	3	3	4
Accounts	3	4	4	4	4	4
Printing	4	4	4	4	2	4
Lamination	4	4	4	3	2	4
Finished Goods	3	3	4	3	3	4
Quality	3	4	4	4	3	4
Production Control	3	4	4	3	3	4
Technical	3	3	4	3	3	4
Information Technology	3	4	4	4	3	4
Engineering	3	4	4	3	3	4
means	3.18	3.73	4	3.45	2.91	4
frequency	3	4	4	3	3	4

Only the Printing and Lamination departments employees are working in a cohesiveness team as the rest of the departments' employees are working independently to achieve the department and organisation objectives and targets. As such, both departments score good grade. As a whole, only a satisfactory grade is accorded to this variable.

The Administration, Finished Goods and Technical departments only attains satisfactory level for the proposition of each departments. Unlike other departments, these departments are having a few different propositions. For example, Administration Department has set different basic set of assumptions for three of the sections, namely Purchasing Section, Human Resource Section and Administration Section. However, most of the departments attain good grade as a result of sharing the same common goals or a single set of assumption for the department.

Generally, all the departments are awarded good grade as the set of characteristics are normatively agreed to define distinct classes of behaviour. For example, all the female attire for indirect processes such as Administration, Accounts and Sales and Marketing, Production Control and Information Technology departments are given 2 sets of peach colour uniform whereas the departments in the direct processes are given 2 sets of blue colour uniform. In the case of male uniform, both direct and indirect processes employees are given blue colour uniform except Quality Department who has its own white shirt and blue pants uniform.

The company policy required every departments to establish an action plan or a set of extension characteristics. The factory manager policy also required every direct process to develop the action plan in the quality area as well as productivity area. These action plan will be reviewed at least once a year to evaluate the effectiveness of the implementation. However, the implementation and review of the action plan were not done properly and effectively. Thus, only a satisfactory grade is awarded to this extension.

The performance of every departments are being reviewed internally or by external assessor. For example, the external assessors such as customer and the SIRIM auditors will assess the quality performance as well as the environmental performance of the whole organisation. In addition, the Audit firm and the parent company in Japan will also send their respective representatives to audit the performance of the whole organisation. On the other hand, the quality system and the environmental system in every departments are assessed at least once a year across the organisation. The results of the audit always unveil area of weaknesses in the respective departments for further improvement. Thereby, this qualities area is graded with satisfactory grade.

The generic identity of each departments attains good grade. This is contributed by the strong generic characteristics of each department. For example, the Printing department worker can be identified through the ink stain on their uniform because of the nature of work required handling of ink. The Information Technology Department has been called the doctor of the computer as they will be alert if there is any computer problems encountered. Further to this, the Quality Department personnels are wearing white shirt to differentiate themselves from the production employees and maintain their own identity as police force in the organisation.

Table 6 : Frequency analysis for Actor System - generic level diagnosis

Frequency analysis	Poor 1	Fair 2	Satisfactory 3	Good 4	Excellent 5
V1	0 %	0 %	81.82 %	18.18 %	0 %
V2	0 %	0 %	27.27 %	72.73 %	0 %
V3	0 %	0 %	0 %	100 %	0 %
V4	0 %	0 %	54.55 %	45.45 %	0 %
V5	0 %	18.18 %	72.73 %	9.09 %	0 %
V6	0 %	0 %	0 %	100 %	0 %
means	0 %	3.03 %	39.39 %	57.58 %	0 %

Table 6 presents that 57.58% of the variables in the actor system – generic analysis are awarded with good grade. This is a good finding in this diagnosis.

4.1.3 SYSTEM DISSIPATIVENESS DIAGNOSIS

Figure 5 : System Dissipativeness Diagnosis

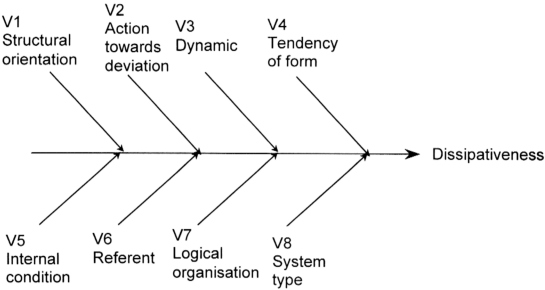


Table 7 : Score for the system dissipativeness diagnosis

	V1	V2	V3	V4	V5	V6	V7	V8
CHS	4	2	3	3	3	3	4	4

The structural orientation attains 4 points as the organisation structure change when the environments change. This is not only to accommodate the new environments for survival but also to grab new opportunities in the new environments.

The action towards the deviation only scores 2 points as most of the actions taken are after the deviation. This can be seen from the high process instability in the production which render high rejection.

The dynamic variable is given satisfactory grade. The organisation is a medium size organisation, as such, it is easy to change the way people work for adapting the requirement in the production. The employees can

be seconded from one process to another (Printing to Lamination) as there are some similarity of the processes. However, this flexibility is constraint by the limited number of machines or the machine capacity.

Tendency of form also scores a satisfactory grade as the organisation adopted the conservative Japanese management philosophy as well as localised the philosophy to suit the local government rules and regulations and also the local custom.

The internal condition attains satisfactory score. This is contributed by the external achievement such as certification of Quality Management System in 1995 and Environmental Management System in 2000. On the contrary, there are other problems encountered in the organisation such as process instability with small lot order and also the process capability.

The logical organisation scores good grade as the process in the organisation is cyclical irreversible process. For example, the quality of the finished goods that have been delivered to the customer will be feedback through Sales and Marketing Department. The Sales and Marketing Department will convey the complaint to the Quality Department. The Quality Department is responsible to get the quality improved by involving the relevant production section to take the necessary countermeasure and to follow up on the effectiveness of the countermeasure.

The system type adopted in the organisation is open, continuous and balanced energy exchanged. There are also two types of check and balance i.e. between the management and the corporate governance and also between the management with the employee union. As such, 4 points are accorded to this system type.

Table 8 : Frequency analysis for dissipativeness diagnosis

Frequency analysis	Poor 1	Fair 2	Satisfactory 3	Good 4	Excellent 5
V1	0 %	0 %	0 %	100 %	0 %
V2	0 %	100 %	0 %	0 %	0 %
V3	0 %	0 %	100 %	0 %	0 %
V4	0 %	0 %	100 %	0 %	0 %
V5	0 %	0 %	100 %	0 %	0 %
V6	0 %	0 %	100 %	0 %	0 %
V7	0 %	0 %	0 %	100 %	0 %
V8	0 %	0 %	0 %	100 %	0 %
means	0 %	12.50 %	50 %	37.50 %	0 %

The above results convey the message that only 37.50% of the variables scores good grade or having a dissipative system. Thereby, certain measures are needed to improve this situation.

4.1.4 SIX-LEVEL ORGANISATIONAL DIAGNOSIS

The six-level organisational diagnosis composed of 6 levels of diagnosis, namely General Environment, Industry Structure, Strategic orientation, Personal Characteristics and Individual Effectiveness.

Figure 6 : General environment Diagnosis

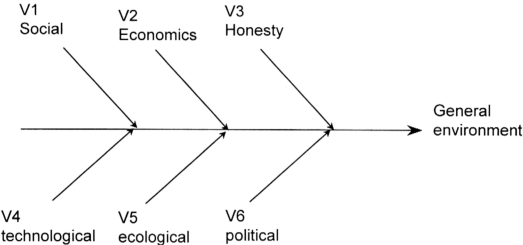


Table 9 : General Environment level diagnosis results

	V1	V2	V3	V4	V5	V6
CHS	4	4	4	3	4	4

CHS is looking ahead to anticipate public concerns and assess possible impacts on society of its products, services and operations. It has performed its social responsibility and ecological preservation by embarking for ISO 14000 Environmental Management System. CHS influences on communities as corporate citizen through contributions to charitable activities and the personal involvement of the employees. One of the charitable activities is the Blood Donation Campaign which is on the company yearly event called Safety Day (28th of June). This activity was first initiated in 1999. Besides this, in conjunction with the Montreal Protocol which banned the production of chlorofluorocarbons (CFC), CHS had changed all the CFC fire extinguisher and air-condition system to carbon dioxide fire extinguisher and CFC-free air-condition system. In addition, this company had also launched the waste management program

with scrap metals (machine parts and cylinders), papers, plastics, corrugated paper and wood recycling. Toxic wastes such as metal hydroxide sludge are sent to Kualiti Alam for treatment and storage. This activity is actually in line with the company's commitment towards ecological conservation. As such, the social and ecology factors are rated good (4 points).

During the recession period from 1997 to 1998, CHS had actually benefited from the situation because a lot of companies had taken measures such as cost down or downsizing in order to stay competitive or for survival during the economic downturn. In the food packaging market, the industrial market have opted for cheaper but reliable flexible film packaging in lieu of the previous tin or bottle packaging. Furthermore, consumers nowadays are looking for cheaper and convenience food packaging to accommodate their fast pace lifestyle. This is true in the Klang Valley and other cities along West Coast of Peninsular Malaysia. Therefore, this economic variable is accorded 4 points (good).

CHS believes that honesty is a very important criterion to attain customer satisfaction. It also recognised that to make economic sense in this context, corporate culture will need strong ethical content. As such, this variable scores a higher grading, as CHS believes in long term partnership with the supplier as well as customer. Suppliers will allow a longer payment term and credit line in raw material purchasing. Whereas the customers will buy the goods without doubt as to whether CHS is able to supply the specified goods to them on specified date with specified quantity. Besides, experienced employees will keep on working with this company and thus prospering the company. Thereby, this honesty scores 4 points.

CHS comparatively has the most sophisticated technology in the flexible packaging industry. This access to advance technology is obtained from the research financed by the sister company (AP) in Japan. In term of technological core that influences other design components, CHS has high

technical interdependence whereby different parts of a technological system are related. CHS manage the product development process through enhancing cross-functional communication, reducing product development time and ensure trouble free introduction of products and services. Conversely, the technical uncertainty is high due to a broad variety of products. As such, only 3 points are given for this technological variable. Looking at this situation, the Team Superintendent are empowered with decision making on the process approval as well as the shopfloor operation. The products that required high amount of information processing and decision making will be planned and scheduled during day-time so that contingency actions can be taken should it be required.

In the political climate, the impact of the government’s expansionary policy would continue to be felt in year 2001 with low interest rates expected to remain steady for a while in view of the low inflation rate. (Reuter, 7/01/2000). This has become the key value for profitability and the creation of competitive advantage. CHS was involved in the AICO Scheme (ASEAN Industrial Cooperation Scheme). AICO is an ASEAN programme to promote sharing of industrial activities between 2 ASEAN based company. Thus, the political variable is graded 4 points as CHS has participated in this programme by entering into an agreement to supply confectionery based packaging materials to Nestle-Philippines.

Table 10 : Frequency analysis for general environment level diagnosis

Frequency analysis	Poor 1	Fair 2	satisfactory 3	good 4	Excellent 5
V1	0 %	0 %	0 %	100 %	0 %
V2	0 %	0 %	0 %	100 %	0 %
V3	0 %	0 %	0 %	100 %	0 %
V4	0 %	0 %	100 %	0 %	0 %
V5	0 %	0 %	0 %	100 %	0 %
V6	0 %	0 %	0 %	100 %	0 %
means	0 %	0 %	16.67 %	83.33 %	0 %

From the frequency analysis result, one can conclude that 83.33 % of the variables are given the 'good' grade. Thus, the environment for business operation is conducive.

Figure 7 : Industry structure diagnosis

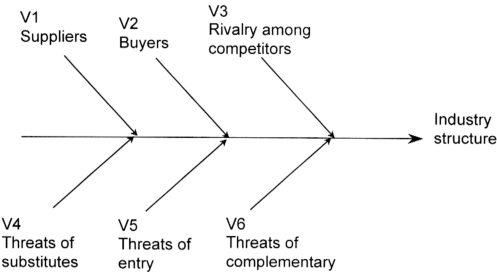


Table 11 : Results of industry structure level diagnosis

	V1	V2	V3	V4	V5	V6
CHS	2	2	3	3	4	4

CHS is considered fair (2 points) in bargaining power with the suppliers as well as the customers. In the first case, 60% of raw materials are imported from Japan, Korea and Indonesia and the balance 40% is from the local manufacturer. The imported raw material has to be purchased in bulk for economical of scale. However this strategy could not be implemented due to the short life span of the raw material. Whereas the local suppliers could not meet the quality requirement specified by CHS. Also, some of the local supplied raw materials could not be outsource from overseas market due to constraint imposed by the governmental policy. Hence, these have placed the supplier at a better position in the bargaining power. Further to this, machine vendors are having a greater say in pricing due to market monopoly. Nevertheless, this outcome had also been contributed by the

company's policy to purchase the machinery from limited numbers of Japanese manufacturer.

On the other hand, the bargaining power in the labour market is fair due to the nature of the job whereby solvent based ink and adhesive have created an uncondusive environment (solvent odour) in printing and laminating areas. Exhaust system installed are unable to rectify the situation entirely. This situation has rendered premature resignation due to the low adaptation to the new working environment. On the other hand, no exploitation of employee is observed as the Employee Union oversees the employees' welfare in this company.

The flexible packaging materials is one of the industrial products used mainly for packaging of consumer goods. The major buyer of the flexible packaging materials can be divided into 7 categories as given in Table 12. These buyers comprise big corporations who are able to lower the price of the products and thus decreases the profits making. As such, this has put CHS in a disadvantage position in term of setting the price and other terms and conditions. Thus, only 2 points are given to this buyer variable.

Table 12 : Buyer of flexible packaging in Malaysia

Categories	Manufacturers
Food and beverages	Ajinomoto, Nestle, Beecham, Adabi, Cocon
Household toiletries	Unilever, GLO, MSSB, Kao, Total Fame
Medical	B. Braun, Baxter, Terumo
Pharmaceutical	ICI, Pfizer, Roche
Agri-Chemical	DuPont, CCM
Label	F&N, Coca-cola, Spritzer
Rubber and plastic products	Durex, Ansell

The threat of rivalry among competitors is very high as the market for the flexible packaging materials is not large and approaching over supply. On the other hand, finished goods' pricing is very competitive due to the advantages of the larger players in the market (Table 13). Most competitors such as Daibochi and Goulene (GPP) produce their own raw

material such as Linear Low Density Polyethylene (LLDPE) and Cast Polypropylene (CPP). This has put them in a better position for adopting pricing strategy. The actual data of the competitor price is not available, however a market survey has been conducted and the results showed that CHS's pricing is normally higher than the competitors pricing. As such, the rivalry among competitors is rated satisfactory as CHS still able to compete in the market.

Table 13 : Estimation of sales (in million ringgit) of major competitors for high-end flexible film in Malaysia.

Firms	1995	1996	1997	1998
CHS	43.7	41.9	52.1	51.1
Daibuchi	67.5	65.9	55.5	54.1
Tomypak	66.1	71.5	66.35	65.3
APT	24.3	24.1	25.2	21.1
GPP	60.2	56	59	55
Others	102.2	100.6	106.85	103
	364	360	365	350

The threat of substitutes with other type of packaging is very minimal. This is because flexible film packaging is a cheaper source of packaging materials as compared to the traditional tin or bottle packaging. The market attractiveness and the potential for this flexible packaging are further assured after comparing the market performances of various packaging (Table 14). The packaging of can, bottle and box have shown downward trend except flexible packaging which is considered a modern packaging has picked up in sales since 1995.

Table 14 : Estimate of sales (in million ringgit) of various packaging in Malaysia

Packaging	1995	1996	1997	1998
Flexible	250	300	348	350
Can	750	732	696	665
Bottle	532	420	446	380
Box	270	263	235	195

However, outsourcing is a threat of substitutes to CHS as buyers can obtain cheaper source of packaging from Asean countries such as Philippines, Indonesia and Thailand. The threats are seen now whereby the ASEAN flexible manufacturer such as Star Pack (Philippines), Strong Pack (Thailand), Kimpai (Thailand) and Superior Metal (Singapore) have set up their sales office in Peninsular Malaysia. These threats may become obvious with the inception of Asian Free Trade Area (AFTA) in year 2003. In order to prepare the flexible packaging converter to be able to compete with other Asean converters, the government has reduced the import tax of this packaging material from 20% to 5% in year 2000. From the above-mentioned 2 factors, satisfactory grade is given to this threat as the positive force in the first factor has been neutralised by the drawback in the outsourcing.

The threat of entry is very mild due to the high opportunity cost as well as high set up cost. As most of the market players in flexible packaging industry are public listed company, the fixed assets data can be obtained from the balance sheet of the financial statements. The minimum amount of asset required to start a business is approximately RM 10 million. This amount is considered to be a huge investment and the risk of business failure is also high as a lot of area required socio-technological support. Therefore, the threat of entry is rated as good as CHS is in a better position against the new entry.

The threat of complementary is rated as good as the frequency of business failure of the complementary is very low. In fact, during the recession period, the demand for foods and medical products remained the same as these products are categorised under recession proof. Furthermore, other products such as pharmaceutical items that consumed the flexible packaging material are also not significantly affected for the reason of flexible packaging material is a more economical packaging compare to other types of packaging material such as bottles and cans.

Table 15 : Frequency analysis for industry structure level diagnosis

Frequency analysis	Poor 1	Fair 2	Satisfactory 3	Good 4	Excellent 5
V1	0 %	100 %	0 %	0 %	0 %
V2	0 %	100 %	0 %	0 %	0 %
V3	0 %	0 %	100 %	0 %	0 %
V4	0 %	0 %	100 %	0 %	0 %
V5	0 %	0 %	0 %	100 %	0 %
V6	0 %	0 %	0 %	100 %	0 %
means	0 %	33.33 %	33.33 %	33.33 %	0 %

Table 15 presents the variables in industry structures level diagnosis that are evenly spread from the fair grade to good grade. Therefore, intervention strategies designed for this planned change should include action plan to rectify this poor rating.

Figure 8 : Strategic Orientation Diagnosis

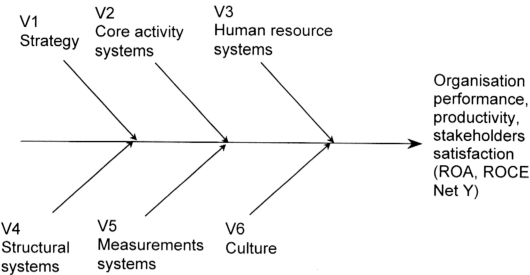


Table 16 : Results of strategic orientation level diagnosis

	V1	V2	V3	V4	V5	V6
CHS	4	2	1	3	4	3

CHS has a clear strategy as previously mentioned in the introduction whereby mission, objectives, quality policy, environmental policy and values serve as a foundation for strategic planning. Although the company's objectives are in general statements and do not carry any objective figure in terms of profitability, these statements have been translated into objective targets in the Factory Yearly Plan and Target. The profitability measure has been defined as 2 million ringgit after tax. In order to achieve this target, a strategic intent has been drawn with the Sales turnover of 58 million ringgit. Besides this, the internal rejection and external rejection ratio are fixed at 1 % and 0.5% of total sales turnover respectively, in line with the profit target. Therefore, 4 points are awarded to this strategy variable.

All the core activities namely Product Design, Plate Making, Printing, Extrusion Lamination, Dry Lamination, Slitting and Bag Making are linked by the newly installed Enterprise Resource Planning (ERP) computer system, JD-Edward One World System. This cost-accounting system is

not a process-based system whereby this accounting system does not store data in process terms. Further to this, costs are identified according to categories of expenses such as salaries, fixed costs and supplies. The hidden cost such as rework and absenteeism that rendered machine stoppage are not captured in this accounting system. This method of cost accounting may be misleading and can result in erroneous conclusion about how best to reduce cost. Therefore, only 2 points are appointed to the overall system.

The Human Resource system only gains 1 point as there is no human resource plan for selecting and developing the organisation members. The only available training plans, which are developed by the Section Heads are not being updated frequently. Most of the training is conducted at an ad hoc basis and the employees are fixed in to fill up the vacant places. Moreover, the training programme for the newly promoted employee was only implemented in January 2000. On the other hand, the appraisal system in CHS is inappropriate because different level and functions of organisation members share the same assessment criteria. The rewarding system also does not meet the purpose of recognising performance that contributes to organisation's goal achievement. Furthermore, the employees are rewarded based on the seniority in the organisation instead of performance level. Looking at this, some of the young aggressive employees have left the company for better job opportunity. Following this, the performance of the employees is generally in satisfactory level with the productivity still below the targeted amount but the external rejection ratio achieved the said target of 0.5 %.

In CHS, formal structures divide work by function. A Section Head heads every core activity in this company and he or she is responsible to accomplish the company objectives by ensuring the achievement of the productivity and quality target, human resource planning and development as well as future improvement planning. A Team Superintendent is assigned to the Section Head to assist him or her in monitoring and controlling the activities. Beside this, a group of Team Supervisors

reporting to the Team Superintendent will monitor the performance of the operators. This newly established structure is to promote a Self-Managed Team (SMT) in the production. The works across subunits are coordinated using weekly planned schedules prepared by the Production Planning and Control Section. With this new structure, everyone is playing a part in accomplishing the company goals. However, this concept was not implemented as it suppose to be as the employee involvement is still lacking. Hence, only 3 points are assigned to this structural system.

As the amount of uncertainty in the process environment and interdependence are high, another integration device in the organisation is a daily morning meeting for receiving additional information and updating the schedules. Besides the daily morning meeting for gathering, assessing and disseminating information, the aforementioned ERP system is capturing data from the entire daily operations and expenses. On every weekly, monthly and yearly periods, the production section heads are required to compile data for operation ratios, yield ratios and other productivity measures. The Quality Department's Section Head will report on the quantity of defects rejected internally as well as from external customer. This timely information are channelled to the Factory Manager for him to have a better understanding of current performance and prompt action will be taken to prevent further deviation from organisation goals. This measurement system is rated as good.

As for the breakdown of ethnic in CHS, there are 70 % Malays, 15 % Chinese, 2 % Indians, 3 % Bangladeshi and 5% Cambodian. Fortunately, this composition of ethnic does not significantly represent a variety of values, work ethics and norms of correct behaviour. Also, management practices aligned with this various culture values and support both career and family orientations. Hence, the employees work in a harmony environment without any tension although there is some language barrier between the local and foreign workers. In contrast, the organisation is still lacking in culture that promotes change and adaptive to new working environment. Nevertheless, 3 points are accorded to this culture variable.

Table 17 : Frequency analysis for strategic orientation diagnosis

Frequency analysis	Poor 1	Fair 2	Satisfactory 3	Good 4	Excellent 5
V1	0 %	0 %	0 %	100 %	0 %
V2	0 %	100 %	0 %	0 %	0 %
V3	100 %	0 %	0 %	0 %	0 %
V4	0 %	0 %	100 %	0 %	0 %
V5	0 %	0 %	0 %	100 %	0 %
V6	0 %	0 %	100 %	0 %	0 %
means	16.67 %	16.67 %	33.33 %	33.33 %	0 %

The above table shows 33.33% of the variables received 'good' grade. Two third of the variables are rated below good grade. Thus, proper measures should be outlined to overcome these lapses.

Figure 9 : Group Level Diagnosis

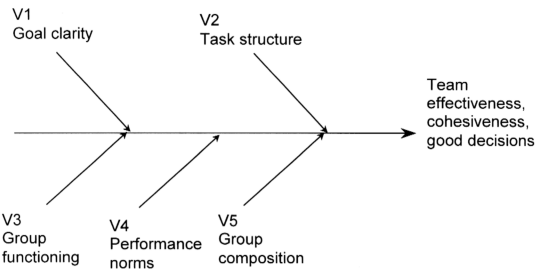


Table 18 : Score for the group (departmental) level diagnosis
(See Appendix 16 to Appendix 20)

Department	V1	V2	V3	V4	V5
Sales & Marketing	4	4	3	4	4
Administration	3	4	3	4	3
Accounts	3	4	3	4	3
Printing	4	4	4	4	3
Lamination	4	4	4	4	3
Finished Goods	4	3	3	4	3
Quality	4	4	3	4	3
Production Control	4	4	3	4	3
Technical	4	4	3	4	4
Information Technology	4	4	3	4	4
Engineering	3	4	3	4	3
means	3.7	3.9	3.2	4	3.3
frequency	4	4	3	4	3

In general, the organisation members are aware as well as understand the goal in their sections that was operationally defined. The Department Heads are given the authority to plan the resources required to achieve the goals. The resources are time, equipment, raw materials and access to information. The employees from all levels are encouraged to participate in clarifying goal measurement such as productivity. On the other hand, there is a Productivity and Quality whiteboard as a method of monitoring the daily performance as well as weekly performance in every core activities. The management provides incentive award for the team of employees who achieve the monthly goal. This incentive will also cultivate on the employee the sense of ownership. In general, the measurement, monitoring and feedback on the information of goal achievement are done on the weekly, monthly, half yearly and yearly management review. Thus CHS is categorised under good level in this area.

In the context of task structure, each department is empowered to plan and control their own activities towards the company goals. For example, the Production Control Department plan the master production schedule. Printing Department is the first process in the core activities that will produce according to the master plan. In order not to fail in the daily production, more emphasis is given on the task coordination as the task-performed are interdependent. Similarly, the same concept is also adopted in Lamination Department as interactions among group members are highly required. Whereas the interaction is not relatively important in Finished Goods Department as the group consists members who perform independent tasks, but not being empowered. On the other hand, in the absence of the Department Head, the Section Heads are empowered to take contingency actions whenever there is an unanticipated problem arising such as when an employee absents from work. If the Section Head is not around, the next in line will take charge. Thus, frequency of 4 points are recorded to this task structure.

Although Printing and Lamination Departments'employees work in group, the interpersonal competition and conflict among them do not exist

because they need support and help for each other. However, other departments such as Finished Goods Department scores a lower point in group functioning due to each operator is assigned to run one machine and the performance measurement is based on each individual employee. Further to this, there is no major interpersonal competition and conflict among members. On the contrary, there is healthy competition amongst groups in the productivity and quality area. The only weakness in this variable is concerned with the employee absenteeism, which affects the effectiveness of group functioning. On departmental level, considerable effort has been invested to help work group members develop healthy interpersonal relations including an ability and a willingness to share feelings and perceptions about members behaviours so that interpersonal problems and task difficulties can be worked through and resolved. Activities that enhanced group cohesiveness such as giving and seeking information and elaborating, coordinating and evaluating activities and the group-maintenance function are being carried out.

In general, one of the norms in the core activities is the pre-operation shift meeting. Meanwhile, the departmental level norms are to meet at 9.00 a.m. (Sales & Marketing, Administration Department and Accounts Department) and 1.00 p.m. (the rest of the departments) respectively. It has become a daily routine event to disseminate information as well as collecting information. Members are free to express their feelings and ideas for explicit norms whereas for the implicit norm, there is no serious issue regarding ideas or suggestion of certain group members are contradicting each other. Conversely, each department is encouraged to establish problem-solving groups. These groups are known as MSGA and the members will meet every week for one hour on company time in solving the workplace problem. The successful group will be rewarded accordingly. Beside this, there is another norm whereby every first day of the month is the shutdown maintenance day. Similarly, there will be a test run for qualifying the process prior to operation. The overall achievement is perfectly good.

The group composition in CHS is quite balance. The employee age distribution is 35% below 25 years, 55% employees fall within 25 years to 40 years and the rest of the employees are above 40 years old. The group of employees below 30 years old is posed with higher education compare with their older peers. As such, there is a mix of experienced and skilful senior workers with the young educated junior workers. The Human Resource (HR) side is working very closely with production to ensure that sufficient manpower is recruited to meet production requirements. This include introducing incentive scheme to the operators who introduce a new employee as well as outsource the employee from third world country such as Bangladesh and Cambodian (lately). It is also the functions of HR to ensure that job candidates have the requisite skills through On the Job Training (OJT). On the other hand, the senior employees are sent to motivation courses to increase their performance. However, there are lapses in the implementation stage due to the shortage of resources. As such, this variable only scores a satisfactory level.

Table 19 : Frequency analysis for group (departmental) level diagnosis

Frequency analysis	Poor 1	Fair 2	Satisfactory 3	Good 4	Excellent 5
V1	0 %	0 %	27.3 %	72.7 %	0 %
V2	0 %	0 %	9.1 %	90.9 %	0 %
V3	0 %	0 %	81.8 %	18.2 %	0 %
V4	0 %	0 %	0 %	100 %	0 %
V5	0 %	0 %	27.3 %	72.7 %	0 %
means	0 %	0 %	29.1 %	70.9 %	0 %

The results in Table 19 reveal that 70.9% of the variables are rated good. Thus, indicate that the departmental level is doing quite well.

Figure 10 : Job Level Diagnosis – personal characteristics

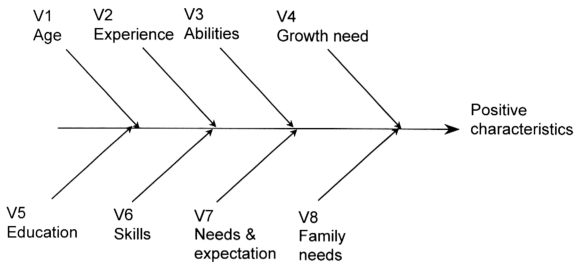


Table 20 : Score for personal characteristics diagnosis
(Refer to Appendix 21 to Appendix 28)

	V1	V2	V3	V4	V5	V6	V7	V8
Manager	3.33	3.11	4.33	3.56	3.89	3.33	3.67	3.11
Supervisor	3.17	4.00	3.08	3.42	2.58	3.67	3.50	2.83
Operator	2.96	2.41	2.06	3.29	2.18	2.65	3.22	2.84
Mean	3.04	2.77	2.53	3.34	2.47	2.91	3.33	2.87
Frequency	3	3	2	3	2	3	3	3

The results show that the personal characteristics generally fall within the range of fair to satisfactory grade. The average age group is graded satisfactory because Human Resource section is continually recruiting new employees especially school leavers. As such, CHS will not encounter pre-dominantly middle age and older workforce at this moment. These young workers do not place heavy demands on healthcare services, are more mobile and have better career advancement opportunities. This situation renders high labour turnover due to the unconducive work environment (high solvent odour).

The experience of the work force in CHS is graded below satisfactory because majority workforces in the core activities are below 3 years in

service with this company. In addition, the routine task and the narrow job specification have create a barrier for the workforce to gain experience in other task.

The skill acquired is correlated with the experience of the employee as the more knowledge acquired, the more skill gained. However, it also depends on the individual employee as skill will become obsolete as time passed with the emergence of new technology. This is the situation observed from the majority workers behaviour in CHS. Although there are procedures or instructions to guide the machine operation, the technical knowledge obtained by the employees are very shallow as most of the manual are not translated to the national language. Consequently, the skill is rated below satisfactory.

The younger workers are more mobile, thus they demand for jobs with more challenging, advance opportunities more prevalent and an enriched quality of work life. However, these young workers lack experience, abilities and skills to accomplish major task and projects. This is because the experience and skills acquired will complement the abilities in handling major task. However, the recent massive training for self-managing team and recruiting the young graduates with projects handling background have improved the current situation. On the contrary, the older worker with more experience and skill, the ability is limited either by physical capabilities or written capabilities. Furthermore, this group of employees comprises standard six school leavers in the 1970's. Hence, the opportunity for career advancement is very dim for the reason they are handicap in report writing and unable to hold a higher position. Consequently, only average satisfactory rate is awarded to this ability.

The education variable only attains fair grade because majority workforce in the core activities only received secondary education; only a small number received tertiary or vocational education. This has created a knowledge deficit situation because the majority task required the workers

to deal with the machines and processes. Lack of this knowledge will render ignorant mistake.

The growth need generally related to demographic of the employees. Since majority of the employees in CHS are in the lower to middle range, the affinity to self-direction, self-learning and personal accomplishment are only moderate due to influence from senior employees and also the employee personal characteristic with little self-motivation. This group of employees has attained complacent and resisted to change as they felt insecure in the new work environment. This will create a resistance for change in the work place. Hence, management has taken a step further by providing motivation training such as outbound camp in Lata Kinjang and introduction to self managing team. The same implication applied to personal needs and expectation. The reason behind this scenario is that this group of older employees have steady earning and are gradually accumulating wealth. The younger employee with lower pay will be more aggressive and will work harder to obtain management recognition. They are more receptive to management change and creative in the work place. Thereby, both growth need and personal needs and expectation are rated above satisfactory level.

In contrast, the family needs score fall slightly below satisfactory level as the company medical expenses are not covering the medical expenses for family members. Anyway, there is no serious family sickness from the responses obtained during the interview. However, some of them requested that their family members be insured. The education expenses of the employees are very low, as majority of the employees does not support children or siblings in the tertiary education.

Table 21 : Frequency analysis for personal characteristics level diagnosis

Frequency analysis	Poor 1	Fair 2	Satisfactory 3	Good 4	Excellent 5
V1	7.14 %	21.43 %	37.14 %	28.57 %	5.71 %
V2	18.57 %	27.14 %	27.14 %	12.86 %	14.29 %
V3	11.43 %	44.29 %	28.57 %	11.43 %	4.29 %
V4	0 %	11.43 %	47.14 %	37.14 %	4.29 %
V5	0 %	65.71 %	22.86 %	10 %	1.43 %
V6	7.14 %	17.14 %	54.29 %	20 %	1.43 %
V7	0 %	14.29 %	41.43 %	41.43 %	2.86 %
V8	0 %	22.86 %	67.14 %	10 %	0 %
means	5.54 %	28.04 %	40.71 %	21.43 %	4.29 %

The above results show that the personal characteristics frequency distribution actually form an almost symmetry bell shape distribution with the peak at satisfactory level. It is important to move the bell shape distribution to the right side (good and excellent side). Therefore, emphasis should be given on the variables that do not received good grade.

Figure 11 : Job Level – Individual effectiveness diagnosis

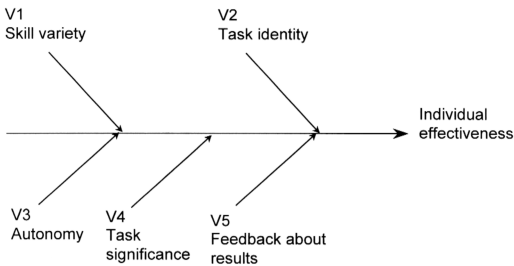


Table 22 : Results of individual effectiveness diagnosis
(Refer Appendix 29 to Appendix 33)

	V1	V2	V3	V4	V5
Manager	2.78	1.00	4.22	3.33	3.78
Supervisor	2.58	1.00	2.92	3.92	3.42
Operator	1.67	1.00	1.73	2.29	2.86
Mean	2.34	1.00	2.96	3.18	3.35
Frequency	2	1	3	3	3

In general, the variety of skill is small because each task is assigned to the individual ability and thus become a repetitive task. However, as the seniority of the employee increases, the employee is required to acquire a variety of skills such as machine controlling, adjusting and supervising skills. In line with this requirement, the management has established On the Job Training (OJT) manual for core activities employees to be trained in the necessary field. Unfortunately, the OJT manual is still in the midst of preparation and a lot of modules have yet to be established. As such, the average score is below satisfactory level.

The task identity is almost poor because of the pre-setting and standardisation of work. Although the finished goods are tailored made to suit customer's requirement, the variety of products manufactured are

unidentifiable due to automation of the core activities. In addition, the workers are only involved in fixing the raw materials to the huge machines and no direct forming skills are required. Thus, render a poor rating on the task identity.

Autonomy is awarded to the worker in term of decision-making but they have to adhere to the standard operation procedure. This autonomy is in the form of empowerment that is mentioned previously in the structure level (Self-Managed Team). In this team concept, the employees are given the latitude to be resourceful and creative with new assignment, but also set dates for progress reports and review so that the management can ensure that the tasks are in the correct course. The daily tasks include productivity, quality, cost, delivery, safety & health and morale. Hence, there are 10 goals that the team required to accomplish and these are efficiency, internal rejection ratio, external rejection ratio, yield, on-time delivery, accident rate, medical rate, absenteeism, employee turnover and housekeeping. This is in fact a good management tools. However, the implementation is still weak as the entire concept lack in direction. As such, this team concept only remain on the planning stage and yet to be implemented in entity. Therefore, this variable only scores an average fair rating.

The task significance is great because any error in the activities may cause machinability problem in the next process. For example, the printing work in-progress with poor winding or uneven winding will render off-centre lamination in the lamination process. However, there is task that does not have a great significance such as employees who involve in rework, 5S and external set up activities. This has nullified the other employees' task significance. Therefore, this variable only attains an average score of 2.88.

The feedback of the results is above satisfactory level due to the company's rules requiring the section heads to attend every meeting to provide feedback on the results to the Factory Manager. The daily

reporting includes productivity and quality issues. The productivity is measured against target set by the Production Planning and Control Section. Whereas, the quality issues entails process abnormality that cause hiccup to smooth operation of the process. Besides this daily meeting, there is also monthly meeting attended by the Section Heads to provide feedback on the monthly achievement in term of productivity and quality. Conversely, the information from the management will be channelled to the operator level through daily shift meeting in the respective sections. It is undeniable that some of the information is not passed down to the operator level and causing unnecessary downtime in the production.

Table 23 : Frequency analysis for individual effectiveness diagnosis

Frequency analysis	Poor 1	Fair 2	Satisfactory 3	Good 4	Excellent 5
V1	37.14 %	38.57 %	14.29 %	10 %	0 %
V2	100 %	0 %	0 %	0 %	0 %
V3	31.43 %	31.43 %	21.43 %	11.43 %	4.29 %
V4	24.29 %	21.43 %	14.29 %	40 %	0 %
V5	2.86 %	18.57 %	51.43 %	22.86 %	4.29 %
means	39.14 %	22 %	20.29 %	16.86 %	1.72 %

From the above tables, the self-effectiveness of the individual does not received a good rating. Thirty nine percent of the employees are rated poor and only 1.72% of the employees is rated with excellent. This has revealed a very unhealthy environment for an organisation to develop further because human effectiveness is the main indicator for achieving good performance.

4.1.5 INTERNAL ENVIRONMENTAL ASSESSMENT

Table 24 : Results of Internal Environmental Assessment

	V1	V2	V3	V4	V5	V6	V7	V8	V9
CHS	3	2	4	4	3	2	1	1	4
	V10	V11	V12	V13	V14	V15	V16	V17	
CHS	4	1	1	1	2	3	2	2	

1. Environmental Policy (V1)

This variable scores 3 points. This policy is available in Bahasa Malaysia and English version at 13 identified locations. However, the content only mildly related to the company activities, does not associate to the Significant Environmental Impact (SEI) of the aspects and legal and other requirement.

2. Planning

2.1 Environmental Aspects (V2)

Criteria to evaluate SEI does not correspond to the Environmental issue and activities of the company. Moreover, the frequency and purpose for reviewing the procedure were not clearly stated. As such, only 2 points are accorded to this variable.

2.2 Legal and Other Requirement (V3)

There is a procedure to guide the legal requirement of this Environmental Management System. Thereby, 4 points are given to this legal and other requirement.

2.3 Objectives and Targets (V4)

The objectives and targets set are specific, measurable and within a time frame. This environmental objectives and targets are reviewed during the management review. Hence, this variable is graded 4 points.

2.4 Environmental Management Programme (EMP) (V5)

This variable attains 3 points as this company has drawn up EMP for achieving its environmental objectives and targets set. Also,

there is budget under Environmental budget allocated to each committee. However, there are still lapses in the implementation of the programmes.

3. Implementation and Operation

3.1 Structure and Responsibility (V6)

The structure and responsibility only attains 2 points. Although there is an organisation structure in the environmental manual, no responsibility stated for the Environmental Management System (EMS) matter. The Environmental Management Representative should not be given the responsibility as the EMS auditor because there is no independence of the audit system.

3.2 Training, Awareness and Competence (V7)

There is no evident that all the operators have been trained or briefed on the ISO 14000 concept. Training requirements are not identified or documented in the procedure. The legal requirements training is not provided to all the employees so that they will comply with these requirements. Thus, only 1 point is accorded to this variable.

3.3 Communication (V8)

This communication also graded with 1 point as there is no format for the non-written complaint from outsider. Furthermore, the communication to external parties such as Department of Environment (DOE) and the internal communication on the nonconformity are not clearly stated in the procedure.

3.4 Environmental Management System Documentation (V9)

This variable scores 4 points as all the activities concerning the EMS are documented in the form of manual, procedures, reports and records, either in hardcopy or in electronic.

3.5 Document Control (V10)

The document control element gains 4 points as the controlled locations are identified for different type of documents. The environmental manual, procedures and instructions are available at 4 locations, namely Main Office Block, Main Production Block,

Finished Goods Block and Production Office Block. Each location is assigned to the relevant personnel to be responsible for the controlled documents. However, 1 additional copy of instructions is available at the relevant workplace and under the respective section head responsibility.

3.6 Operation Control (V11)

This variable only attains 1 point as the operation control is very poor. At the schedule waste area, recycle drum label is not taken out. In addition, one ink drum is found lying at the rubbish area. Solvent and ink stain are found on the shopfloor but there is no records to show the spillage.

3.7 Emergency Preparedness and Response (V12)

The Emergency Preparedness and Response is also graded with 1 point. This is because there is no interaction of aspects and impacts on the procedure. The procedure does not cover the treatment of spillage after emergency event. Also, there is no record on fire drill and the evaluation record for year 2001.

4. Checking and Corrective action

4.1 Monitoring and Measurement (V13)

This variable also attains 1 point only. Although the air and water monitoring are done by the external contractor, there is no evidence to show that the contractor equipment is calibrated. Further to this, the environmental record for air and water monitoring is not available during the time of audit.

4.2 Non-conformance and Corrective and Preventive Action (V14)

There is no classification of Non-conformity as major, minor or mild. Furthermore, the Non-conformity Corrective Action Request and Preventive Action is not being linked to the regulatory requirement. Hence, only 2 points are given to this variable.

4.3 Records (V15)

The records element gains 3 points. Although there is a storage area for the records at Environmental Document Control Centre, there is still some record such as environmental monitoring and

measurement data sheets are not available at the centre during audit. The retention time is identified according to the type of records.

4.4 Environmental Management System Audit (V16)

This variable only scores 2 points as there is no criteria and qualification in selecting and appointing an auditor. Although the audit checklists are prepared, the length of the checklist is varies from one auditor to another. This shows that some of the auditors are not well prepare before the audit.

4.5 Management Review (V17)

The management review is being addressed in the Environmental Manual but the content does not state the chairperson of the review meeting, who should do the review of the meeting and the responsibility of the management representative in the review meeting. As such, only 2 points are given to this management review.

Table 25 : Frequency analysis for Internal Environmental Assessment

Frequency analysis	Poor 1	Fair 2	Satisfactory 3	Good 4	Excellent 5
V1	0 %	0 %	100 %	0 %	0 %
V2	0 %	100 %	0 %	0 %	0 %
V3	0 %	0 %	0 %	100 %	0 %
V4	0 %	0 %	0 %	100 %	0 %
V5	0 %	0 %	100 %	0 %	0 %
V6	0 %	100 %	0 %	0 %	0 %
V7	100 %	0 %	0 %	0 %	0 %
V8	100 %	0 %	0 %	0 %	0 %
V9	0 %	0 %	0 %	100 %	0 %
V10	0 %	0 %	0 %	100 %	0 %
V11	100 %	0 %	0 %	0 %	0 %
V12	100 %	0 %	0 %	0 %	0 %
V13	100 %	0 %	0 %	0 %	0 %
V14	0 %	100 %	0 %	0 %	0 %
V15	0 %	0 %	100 %	0 %	0 %
V16	0 %	100 %	0 %	0 %	0 %
V17	0 %	100 %	0 %	0 %	0 %
mean	29.41 %	29.41 %	17.65 %	23.53 %	0 %

Table 25 reveals that 23.53% of the variables received good grade. However, approximately 58.82% of the variables still below the satisfactory level. Hence, attention should be paid to rectify this situation.

4.1.6 INTERNAL QUALITY ASSESSMENT

Table 26 : Results of Internal Quality Assessment

	V1	V2	V3	V4	V5	V6	V7	V8	V9	V10	V11
CHS	5	5	2	3	5	3	3	2	4	2	2
	V12	V13	V14	V15	V16	V17	V18	V19	V20	V21	
CHS	3	3	2	3	4	4	4	3	3	3	

5.1 Management Commitment (V1)

This clause scores 5 points as the management has communicating importance of meeting customer and regulatory requirement by establishing a Technical Department in year 2000, to enhance product development and provide technical service to customer. There are quality policy and company objectives to direct the company. Each year, there is at least one management review is being conducted to review the quality performance. Appropriate resources are then made available to the relevant section or department.

5.2 Customer Focus (V2)

As mentioned above, the Technical Department is being established with the aim of enhancing customer satisfaction. A Technical Service personnel has been assigned to attend to customer complaint. Beside this, CHS also provide additional service to the customer by providing free testing on other competitor packaging material, helping customer to cost down by diverting the tin can packaging to more economical flexible packaging material and propose new packaging structure to enhance the customer product shelf-life. Hence, 5 points are accorded to this variable.

5.3 Quality Policy (V3)

The quality policy is appropriate to the purpose of the organisation. The quality policy is being briefed to every new employee who joined the

company. However, there is no documented framework for establishing and reviewing quality objectives. The policy is only being updated every year without much changes to the policy. Thereby, only 2 points are given to this variable.

5.4 Quality Planning (V4)

The quality objectives is being established for direct production departments but not for supporting departments such as Technical Department, Information Technology Department and Accounts Department. The quality performance for direct production is measured through internal rejection and external rejection. On the other hand, the product quality is determined through a set of measurable criteria (such as material thickness and integrity) and a set of mutual agreed criteria between CHS and customer (such as printed colour and aesthetic defect). In view of this, a satisfactory grade of 3 points are given to this clause.

5.5 Administration (V5)

A Quality Department Head has been appointed by top management to be the management representative. The management responsibility includes reporting on performance of Quality Management System (QMS) and need for improvement during the management review and the department head weekly meeting. In ensuring promotion of awareness of customer requirements throughout the organisation, the quality manager has drawn a quality journey for CHS. Further to this, the In-line Quality Control has been launched on 2nd of July, 2001. In this In-line Quality Control, a few Quality Inspectors have been assigned as quality ambassador to the direct production (Printing department and Lamination department) to promote the quality awareness among the production worker. Thus, 5 points are given to this clause.

5.6 Management Review (V6)

This variable only scores 3 points although there is a planned interval to review the quality performance. The main reason behind this scoring is because there is no proper follow up on the project that has been abandoned or suspended at the previous review. However, the review has included assessing the opportunities for improvement and need for changes to Quality Management System (QMS) objectives but not quality policy.

6.1 Provision of resources (V7)

A satisfactory grade is assigned to this variable because the top management has determine and provide resources needed to implement, maintain and continually improve effectiveness of QMS and enhance customer satisfaction by meeting customer requirements. Each sections are allocated with yearly budget and the section heads are empowered to plan and expense their budget. However, the training budget allocation for the whole organisation is extremely low as compared with the recommendation by Yong (1996) where the training budget for an organisation should be set at approximately three percent equivalent of the pay roll.

6.2 Human Resource (V8)

This variable only attains 2 points. The competency of the personnel performing work affecting product quality is still ambiguous in the organisation. Although there is well-structured training material such as training manual; the well-structured and comprehensive training materials did not serve any purpose because there is no emphasis on how people learn but focuses on what is to be taught. Hence, knowledge have not been transferred to the learner and behavioural change was not effectively induced.

6.3 Infrastructure (V9)

This variable scores 4 points as the top management has identified, provide and maintain infrastructure needed to achieve conforming

product. For example, in the year 2000, the top management has identified the potential market of the medical supply industry. Since then, budget has been allocated to build the relevant facilities such as hygiene work place and engaged qualified external contractor to provide better pest control services. On the other hand, the top management also allocated a huge amount of money in ensuring the information system in the company is Y2K compliance. Electronic mail facilities are provided to the executive level staff to enhance the internal and external communication.

6.4 Work Environment (V10)

This variable is given 2 points. This is because the part of the main core activities i.e. Printing department and Lamination department do not provide a good work environment due to the nature of the job. Although there is personal protective equipment such as respirator, the operators do not want to use it because they do not feel the chronic effect of the solvent inhalation. Other than this, there is heat and noise in these areas as the machines are huge and generate a lot of heat and noise.

7.1 Planning of Product Realisation (V11)

Only 2 points are accorded to this variable as most of the process of product realisation is not being plan properly. Although there is a procedure to guide the testing of new product but it is not substantial to be classified as product realisation on how to invent, innovate and commercialise the product. There is verification activities and criteria of acceptability being established on the basis of trial and error. It is only recently the protocol for validation activities are being established.

7.2 Customer-related processes (V12)

3 points are given to this variable. As mentioned in the introduction, CHS tailor made the flexible packaging material for the customer. The Sales and Marketing personnel coupled with the production expert will

advice customer on the suitability of the packaging structure and material processability. The market research is conducted to study the various packaging composition in the market. However, there is no competitor analysis and benchmarking due to lack of information and resources.

7.3 Design and Development (V13)

Although there is Application Development Section to coordinate the development of the new structure of packaging and the Technical Service personnel to trial run the material at customer premises, only 3 points are awarded for this variable. The reason behind this low score as there is no risk assessment to assess the potential for and the effect of possible failure in products or processes.

7.4 Purchasing (V14)

The Purchasing variable only scores 2 points as there is lack of active outsource for cheaper but with acceptable product quality raw material. Although the assessment of risks associated with the purchased product is carried out with the testing of new material, the follow up activities of evaluating the materials with the content is inadequate. Moreover, there is no tracking of total cost of purchased products to take account of performance, price and delivery.

7.5 Production and service provision (V15)

The operation control is well defined. However, the process stability is still poor because it is also dependent on human skill and experience to make the proper adjustment. For example, the colour of the printing process is not solely dependent on the ink used. It also affected by the cylinder cell depth. When the printing cylinder have been used for more than 20,000 m, the cell depth will reduce and less ink is being transferred to the film. Thus, the colour strength will deviate from the standard colour and required adjustment such as new colour matching. Thereby, only 3 points are accorded as there is experience and skilful staff in the organisation to reduce the deviation of the colour strength.

7.6 Control of Monitoring and measuring devices (V16)

4 points are allocated to this clause as the identified monitoring and measuring devices are being calibrated internally and by external party. The results of calibration is being recorded. Although the control of monitoring and measuring devices are being decentralised to the section, there is a mechanism to coordinate the calibration and ensure the functionality of the equipment.

8.1 Planning (V17)

This clause also scores 4 points as there is a quality plan to define, plan and implement the measurement and monitoring activities needed to assure conformity and continuous improvement. Further to this, statistical technique is being incorporated in the measurement and monitoring activities.

8.2 Measurement and monitoring (V18)

The measurement and monitoring variable scores 4 points. The internal measurement and monitoring activities encompass the internal quality audit, to which it will be carried out once a year. The customer satisfaction is not only measured by the number of customer complaint but also the survey question being posted to the selected customers. At the other end, the supplier is also being audited if the performance is below the specified target.

8.3 Control of nonconforming product (V19)

The control of nonconforming product gains 3 points as there is a good system to guide the segregation and disposition of the non-conforming product. However, there are time whereby the operator does not carry out proper marking on the products and the products are dispatched to the customer.

8.4 Analysis of data (V20)

Only 3 points are accorded to this variable although there is a lot of data collected during the measurement and monitoring activities. The

reason leading to this satisfactory rating is the person who collected the data does not know how to utilise the statistical tools to analyse the data and convert into useful information.

8.5 Improvement (V21)

This variable is awarded with satisfactory grade (3 points). Most of the problems are solved in the corrective action and not the preventive action. This is due to the weaknesses in the analysis of data.

Table 27 : Frequency analysis for Internal Quality Assessment

Frequency analysis	Poor 1	Fair 2	Satisfactory 3	Good 4	Excellent 5
V1	0 %	0 %	0 %	0 %	100 %
V2	0 %	0 %	0 %	0 %	100 %
V3	0 %	100 %	0 %	0 %	0 %
V4	0 %	0 %	100 %	0 %	0 %
V5	0 %	0 %	0 %	0 %	100 %
V6	0 %	0 %	100 %	0 %	0 %
V7	0 %	0 %	100 %	0 %	0 %
V8	0 %	100 %	0 %	0 %	0 %
V9	0 %	0 %	0 %	100 %	0 %
V10	0 %	100 %	0 %	0 %	0 %
V11	0 %	100 %	0 %	0 %	0 %
V12	0 %	0 %	100 %	0 %	0 %
V13	0 %	0 %	100 %	0 %	0 %
V14	0 %	100 %	0 %	0 %	0 %
V15	0 %	0 %	100 %	0 %	0 %
V16	0 %	0 %	0 %	100 %	0 %
V17	0 %	0 %	0 %	100 %	0 %
V18	0 %	0 %	0 %	100 %	0 %
V19	0 %	0 %	100 %	0 %	0 %
V20	0 %	0 %	100 %	0 %	0 %
V21	0 %	0 %	100 %	0 %	0 %
mean	0	23.81%	42.86%	19.05%	14.29%

The above table shows that only 33.34% of the variables received good and excellent grade. The fastest way to improve the situation is by moving the 42.86% of the satisfactory grading to the good grading.

4.2 TESTING OF HYPOTHESES

This section presents 12 tables with the analysis of the significant in all level of diagnosis and assessment. The last table in this section provides a clear indication of the acceptance or rejection of the hypotheses null that have been outlined in the first chapter. If the significant column states 'Yes', it connotes that the hypotheses null is rejected as there is a significant deviation of the means. In turn, the hypotheses null is accepted if the column is stated with 'No'.

Table 28 : Significant deviation analysis for self-actuation

Self - Actuation	Mean	μ	Significant
Self-influencing	3	4	Yes
Self-regulation	4	4	No
Self-organising	4	4	No
Self-sustaining	4	4	No
Self-producing	2	4	Yes
Self-referential	3	4	Yes
Self-conscious	4	4	No

Table 29 : Significant deviation analysis for Actor System – Individual level (Refer to Appendix 7 to Appendix 9)

Individual Level	Mean	Upper Limit	Lower Limit	t obs	Significant
Self-referencing closure	2.69	4.22	3.78	-12.31	Yes
Altruism	2.91	4.16	3.84	-13.90	Yes
Self-reflective evolution	2.76	4.21	3.79	-11.88	Yes

Table 30 : Significant deviation analysis for Actor System - Generic level (Refer to Appendix 10 to Appendix 15)

Generic Level	Mean	Upper Limit	Lower Limit	Z obs	Significant
Wholeness	3.18	4.24	3.76	-6.71	Yes
Propositional	3.73	4.28	3.72	-1.94	No
Normative	4	4	4	∞	No
Extension	3.45	4.31	3.69	-3.46	Yes
Qualities	2.91	4.32	3.68	-6.71	Yes
Generic identity	4	4	4	∞	No

Table 31 : Significant deviation analysis for System Dissipativeness

Dissipativeness	Mean	μ	Significant
Structural orientation	4	4	No
Action towards deviation	2	4	Yes
Dynamic	3	4	Yes
Tendency of form	3	4	Yes
Internal condition	3	4	Yes
Referent	3	4	Yes
Logical orientation	4	4	No
System type	4	4	No

Table 32 : Significant deviation analysis for General Environment

General Environment	Mean	μ	Significant
Social	4	4	No
Economics	4	4	No
Honesty	4	4	No
Technological	3	4	Yes
Ecological	4	4	No
Political	4	4	No

Table 33 : Significant deviation analysis for Industry Structure

Industry structure	Mean	μ	Significant
Suppliers	2	4	Yes
Buyers	2	4	Yes
Rivalry among competitors	3	4	Yes
Threat of substitutes	3	4	Yes
Threat of entry	4	4	No
Threat of complementary	4	4	No

Table 34 : Significant deviation analysis for Strategic orientation

Strategic orientation	Mean	μ	Significant
Strategy	4	4	No
Core activity systems	2	4	Yes
Human resource systems	1	4	Yes
Structural systems	3	4	Yes
Measurements systems	4	4	No
Culture	3	4	Yes

Table 35 : Significant deviation analysis for Group level

(Refer to Appendix 16 to Appendix 20)

Group Level	Mean	Upper Limit	Lower Limit	Z obs	Significant
Goal Clarity	3.73	4.28	3.72	- 1.94	No
Task Structure	3.91	4.18	3.82	- 1	No
Group functioning	3.18	4.24	3.76	- 6.71	Yes
Performance norm	4	4	4	∞	No
Group composition	3.27	4.28	3.72	- 5.16	Yes

Table 36 : Significant deviation analysis for Personal characteristics
(Refer to Appendix 21 to Appendix 28)

Job Level (Personal charac.)	Mean	Upper Limit	Lower Limit	t obs	Significant
Age	3.04	4.25	3.75	- 7.90	Yes
Experience	2.77	4.32	3.68	- 7.92	Yes
Abilities	2.53	4.24	3.76	- 12.45	Yes
Growth Needs	3.34	4.18	3.82	- 7.43	Yes
Education	2.47	4.18	3.82	- 17.36	Yes
Skills	2.91	4.21	3.79	- 10.73	Yes
Needs & Expectation	3.33	4.18	3.82	- 7.43	Yes
Family Needs	2.87	4.14	3.86	- 16.78	Yes

Table 37 : Significant deviation analysis for Job level – individual effectiveness (Refer to Appendix 29 to Appendix 33)

Job Level (Ind. effectiveness)	Mean	Upper Limit	Lower Limit	t obs	Significant
Skill variety	1.97	4.23	3.77	- 17.63	Yes
Task identity	1	4	4	- ∞	Yes
Autonomy	2.26	4.28	3.72	- 12.67	Yes
Task significance	2.70	4.30	3.70	- 8.83	Yes
Feedback results	3.07	4.20	3.80	- 9.25	Yes

Table 38 : Significant deviation analysis for Internal Environmental Assessment

Internal Environmental Audit	Mean	μ	Significant
Environmental Policy	3	4	Yes
Environmental Aspects	2	4	Yes
Legal and other requirement	4	4	No
Objectives and targets	4	4	No
Environmental Management Programme	3	4	Yes
Structure and responsibility	2	4	Yes
Training, awareness and competence	1	4	Yes
Communication	1	4	Yes
Environmental Management System Documentation	4	4	No
Document Control	4	4	No
Operation Control	1	4	Yes
Emergency preparedness and response	1	4	Yes
Monitoring and measurement	1	4	Yes
Nonconformance and Corrective and preventive action	2	4	Yes
Records	3	4	Yes
Environmental Management System Audit	2	4	Yes
Management Review	2	4	Yes

Table 39 : Significant deviation analysis for Internal Quality Assessment

Internal Quality Audit	Mean	μ	Significant
Management Commitment	5	4	No
Customer Focus	5	4	No
Quality Policy	2	4	Yes
Quality Planning	3	4	Yes
Administration	5	4	No
Management Review	3	4	Yes
Provision of resources	3	4	Yes
Human Resource	2	4	Yes
Infrastructure	4	4	No
Work Environment	2	4	Yes
Planning of Product realisation	2	4	Yes
Customer related processes	3	4	Yes
Design and Development	3	4	Yes
Purchasing	2	4	Yes
Production and service provision	3	4	Yes
Control of Monitoring and measuring devices	4	4	No
Planning	4	4	No
Measurement and monitoring	4	4	No
Control of nonconforming product	3	4	Yes
Analysis of data	3	4	Yes
Improvement	3	4	Yes

Table 40 : Testing hypotheses for organisation performance
 (Refer to Appendix 34 to Appendix 39)

	Mean	Upper Limit	Lower Limit	Z obs	Significant
Self-actuation	3.43	4.58	3.42	- 1.92	No
Actor system	3.29	4.34	3.66	-4.07	Yes
Dissipativeness	3.25	4.49	3.51	-3.00	Yes
Six Level Organisational Diagnosis	3.09	4.44	3.56	- 4.10	Yes
Internal Environmental Audit	2.35	4.56	3.44	- 5.81	Yes
Internal Quality Audit	3.24	4.43	3.57	- 3.51	Yes

4.3 SUMMARY OF RESEARCH RESULTS

The results of the diagnosis and assessment show that all the areas are having lapses although some areas are graded good. These lapses derived from the variables with significant deviation from the population means and thereby become the critical success for the organisation. The following table presents the critical success factors in relation to the six types of diagnosis.

Table 41 : The Critical Success Factors

Diagnosis Type	Critical Success Factors
Self-actuation	Self-referential, Self-producing, Self-influencing
Actor System	Individual – Self-referencing closure, Altruism, Self-reflective evolution Generic – Wholeness, Extension, Qualities
System Dissipativeness	Action towards deviation, Dynamic, Tendency of form, Internal condition, Referent
Six level Organisational Diagnosis	General environment – Technological Industry structure – Suppliers, Buyers, Rivalry among competitors, Threat of substitutes Strategic orientation – Core activity systems, Human resource systems, Structural systems, Culture Group level – Group functioning, Group composition Personal characteristics – Age, Experience, Abilities, Growth needs, Education, Skills, Needs & expectation, Family needs Individual effectiveness – Skill variety, Task significance, Task identity, Autonomy, Feedback about results
Internal Environmental Assessment	Environment policy; Environmental aspects; Environmental Management Programme; Structure & responsibility; Training, Awareness & Competence; Communication; Operation control; Emergency preparedness & response; Monitoring & measurement; Non-conformance and Corrective & Preventive Action; Records, Environmental Management System Audit; Management Review
Internal Quality Assessment	Quality policy; Quality planning; Management review; Provision of resources; Human resource; Work environment; Planning of product realisation; Customer related processes; Design & development; Purchasing; Production & service provision; Control of non-conforming product; Analysis of data; Improvement