

CHAPTER 5



PROPOSED SOLUTION

Having done thorough analysis on the problems author is able to visualise much more clearly of the overall situation. There are problems, which required attention and needed to be solved as soon as possible for the sake of the customer as well as company. In this chapter author shall propose appropriate solutions to cure, if not alleviate the root cause to the problems identified in the previous chapter.

Author shall divide this chapter into three sections, where each section provides solutions to a corresponding attributes in chapter 4.

5.1 Proposed Solution for STAGE 1 (Section 4.1)

Stage 1 in the thesis represents must-be attribute meaning that customers have no expectation of any fancy features but basics (standard features) must work. In the past two chapters author has proven that this was not the case at ABC, some customers are dissatisfied because company fail to deliver basic features of swimming pool (problem 18, 14, 11 and others). From Cause and Effect diagram that helps brainstorm probable causes from various resources, why-why analysis that helps identify the root cause of the problems, through the meeting with the relating functions namely Sales and Technical together with author are able to accumulate thoughts and possible solutions to the problems, which are summarised and present in the table below.

Table 5.1 – Proposed solution to Problem 18

Problem Statement	Why? 1	Why? 2	Why? 3	Why? 4	Why? 5	Possible Solution or Prevention
Customers are unable to make water in the pool clean & clear	Owner not following procedure	Owner forget	Procedure unclear	No owner's manual give		Solution on Customer Training issue: Company should invest in setting up customer help line service enabling owners, who seek for help, to talk to the technician for necessary support/advice. In addition to that company should also provide owner's manual, which shall be discussed below. Only then company can afford to train customers/owners only once.
			Not enough training	Training only provided once		
		Owner is too lazy				Alternate solution on Customer Training issue: Company should provide regular training perhaps three days in the first week of purchase or once every week for a month, rather than just one-time training.
Water not being filtered	Water not circulate around system	Pump m/c breakdown		Mishandling	No owner's manual to refer to	Solution on Owner's manual issue: Company will need to produce and issue an owner's manual to the customers on their purchase of a swimming pool. The manual becomes a personal guide to how the owner should care for their swimming pool including, cleaning, maintaining swimming pool. Most importantly the manual should be reader friendly.
		Filter m/c breakdown		Mishandling	No owner's manual to refer to	
		Either m/c turn off		Forget to turn on the main power supply		
		Owner do not have time to clean				
		Filter cartridge needs cleaning	Cartridge is dirty (long time no clean)			

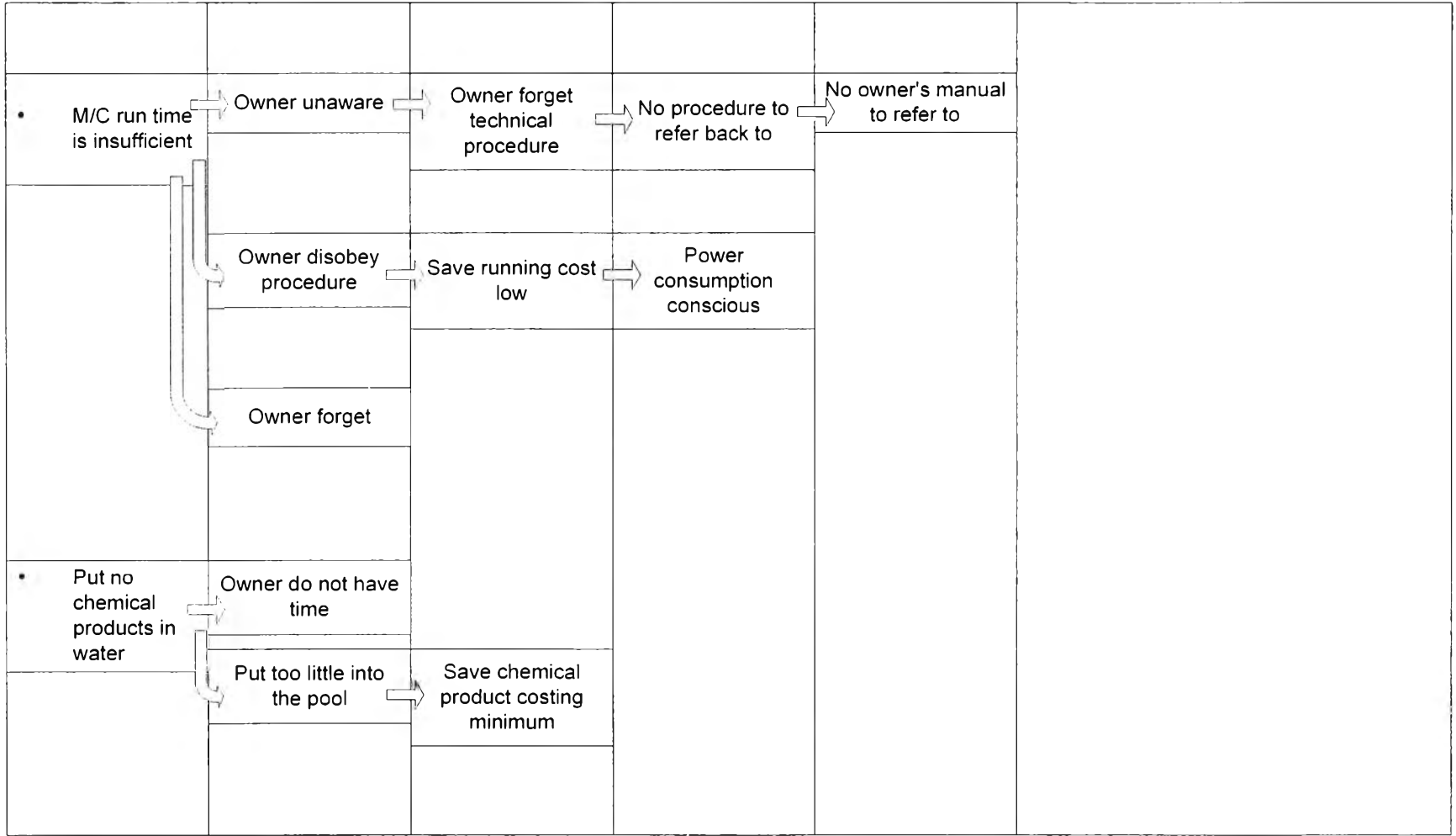


Table 5.2 - Breakdown of Proposed Solution to Problem 18

Possible Solution or Prevention	Details	Who is responsible?	Function involved?	Start-End Period (dd/mm/yy)	Duration/Frequency	Remark	Approximate costing
<p>Solution on Customer Training issue:</p> <p>Company should invest in setting up customer help line service enabling owners, who seek for help, to talk to the technician for necessary support/advice. In addition to that company should also provide owner's manual, which shall be discussed below. Only then company can afford to train customers/owners only once.</p>	<p>Customers shall be trained by company's technician on the following subjects:</p> <p>Basic machines operation Basic self-maintenance routine Water treatment procedure</p> <p>Head of the Technician is to select qualified technician as well as to make an appointment with customer regarding the appropriate day and time that training should take place.</p>	Mr XYZ	Technical	Customer appointment basis	One day training	On site customer training	200 Baht per training
<p>Alternate solution on Customer Training issue:</p> <p>Company should provide regular training perhaps three days in the first week of purchase or once every week for a month, rather than just one-time training</p>							
<p>Solution on Owner's manual issue:</p> <p>Company will need to produce and issue an owner's manual to the customers on their purchase of a swimming pool. The manual becomes a personal guide to how the owner should care for their swimming pool including, cleaning, maintaining swimming pool. Most importantly the manual should be reader friendly.</p>	<p>Manual should contain relevant information concerning the swimming pool. Owner's manual booklet is the alternative guide to the training given.</p> <p>Use & Handling of machines, equipments Functionality of important switches Looking after swimming pool, machines and equipments</p> <p>Refer to Appendix under 'Proposed Solution' section for <i>Owner's manual</i></p>	Mr. Supichet & Mr. XYZ	Design, Technical and Sales	01/09/03 - 15/09/03	1 manual for each customer	Given to every customer	100 Baht per manual

Table 5.3 - Proposed solution to Problem 14

Problem Statement	Why? 1	Why? 2	Why? 3	Why? 4	Why? 5	Possible Solution or Prevention
<p>Customers are unhappy with the fact that tiles are not laid down properly and perfectly</p>	<ul style="list-style-type: none"> Subcontractor fail to perform quality 	<p>Workforce inexperience</p>	<p>Subcontractor not up to standard</p>	<p>Ineffective workforce recruitment scheme</p>		<p>Solution on company's recruitment scheme:</p> <p>Instead of employing inexperienced and irresponsible staffs company should spend time doing some serious recruitment base on the experience each applicant had in the past. In additional to that</p> <p>Lastly trainees are to be on 3-6 months probation period, where their work shall be assessed.</p>
		<p>Workforce unskilful</p>	<p>Subcontractor not up to standard</p>	<p>Ineffective workforce recruitment scheme</p>		<p>Solution on subcontractor issue:</p> <p>Rather than rely on just one source of subcontractor, company should search for potential subcontractors, then evaluate base on experiences, quality of workforce and most importantly double check historical profile record on past project. Company should carry out an additional skill testing on the subcontractor.</p> <p>Since, usually subcontractor's performance tend to drift downhill overtime, company should regularly carry out a detailed appraisal on the quality of the work, performance, enthusiasm and other aspects (base on QC inspection and customer survey), which shall be reviewed every 6 months.</p>

Table 5.4 - Breakdown of Proposed Solution to Problem 14

Possible Solution or Prevention	Details	Who is responsible?	Function involved?	Start-End Period (dd/mm/yy)	Duration/Frequency	Remark	Approximate costing
<p>Solution on company's recruitment scheme:</p> <p>Instead of employing inexperienced and irresponsible staffs company should spend time doing some serious recruitment base on the experience each applicant had in the past. In addition to that applicants are to be status as trainees, where their work shall be assessed base on the first 3 months probation period.</p>	<p>In the future those who apply for a job at ABC co., Ltd shall undergo recruitment procedure and job analysis for instance:</p> <ul style="list-style-type: none"> • Interview to identify knowledge, skills, abilities, and traits • On the job training • Performance appraisal (after the first 3 months) 	Mrs. BCD and Mr. DEF	Human Resource and QA	----	3 months probation period	Effective after new year	50 Baht / person
<p>Solution on subcontractor issue:</p> <p>Rather than rely on just one source of subcontractor, company should search for potential subcontractors, then evaluate base on experiences, quality of workforce and most importantly double check historical profile record on past project. Company should carry out an additional skill testing on the subcontractor.</p> <p>Since, usually subcontractor's performance tend to drift downhill overtime, company should regularly carry out a detailed appraisal on the quality of the work, performance, enthusiasm and other aspects (base on QC inspection and customer survey), which shall be reviewed every 6 months.</p>	<p>Evaluation of subcontractor is based on the total score assessed base their performance on these relevant categories such as:</p> <ul style="list-style-type: none"> • Time factor • Quality factor • Cost factor • Customer complaint feedback • Quality control staff perception 	Mr. DEF and Mr. HIJ	QA and Procurement	----	Review every 6 months	Effective after new year	----

<p>Solution on Staff Training issue:</p> <p>Company must cultivate basis of quality to everyone (blue collar workers) in the company enabling them to understand the nature and concept of quality in ability to perform quality throughout operation. Possibly training through lecturing inviting external speaker in for tutoring.</p> <p>Similarly for the QA department should seek opportunity for more technical quality control training outside the company.</p>	<p>Manager and Assistant manager both or either are to attend seminar or course organised by external body such as University for example:</p> <ul style="list-style-type: none"> Mini Industrial Engineering course at Chulalongkorn University <p>As for staffs in other functions company should seek for external guest speaker or practitioner to visit company on a regular basis to educate and share thought and share experiences.</p> <p>Pay attention to the following area:</p> <ul style="list-style-type: none"> Customer Relationship Management Quality Assurance PDCA Problem solving techniques such as Why-Why, Cause & Effect, and Brainstorm 	<p>Mrs. BCD, Mr. DEF and Mr. GHI</p>	<p>HR, QA, QC and other functions</p>	<p>Effective after new year, 12/01/04 - 24/06/04</p>	<p>2 hours session</p>	<p>On-site/ Group session</p>	<p>100,000 - 200,000 Baht/ course</p>
				<p>Evening 6-8pm every Monday and Thursday of the 2nd and 4th week of each month.</p>			

Table 5.5 - Proposed solution to Problem 11

Problem Statement	Why? 1	Why? 2	Why? 3	Why? 4	Why? 5	Possible Solution or Prevention
Water pump machine often breakdown under customers' responsibility	• Pump insulator melt down	Corrosion	Owner put in too much chemical	Rough estimation		Solution on Instruction issue: Along side owner's manual another solution that should also be provided along with the manual, is a large & clear, well illustrated instruction of the procedure printed on a poster. This allows owners to simply follow through operating tasks step by step.
				Owner unawareness	No clear instruction	
		Pump m/c overheated	M/C running without water	Owner forget to open water valve	No clear reminder	
			M/C running for too long	Owner forget to turn off	No alarm signal/reminder	
	• Customer mishandling	Inability to handle m/c properly	M/C too technical to handle	No owner's manual		Solution on Reminder issue: The only effective reminder is through sound. Sound in term of audible alarm, beep etc to remind owner that the machine run time has finished its tasks/ completed and so it would not be safe to turn it off. This solution is a good idea, however, it is a high investment for the company as the company is required to manufacture a timer.
				Filter m/c breakdown		
		Unaware of procedure	Lack of clear description	No written reference	No owner's manual	
		Forget procedure	Too much for owner to remember	No owner's manual to refer to		
					Solution on Owner's manual issue: Company will need to produce and issue an owner's manual to the customers on their purchase of a swimming pool. The manual becomes a personal guide and instruct owners the necessary procedure to operating machines properly. The manual should, therefore, be reader friendly, with clear instruction and description on relevant equipments, including area on how to use the water pump machine.	

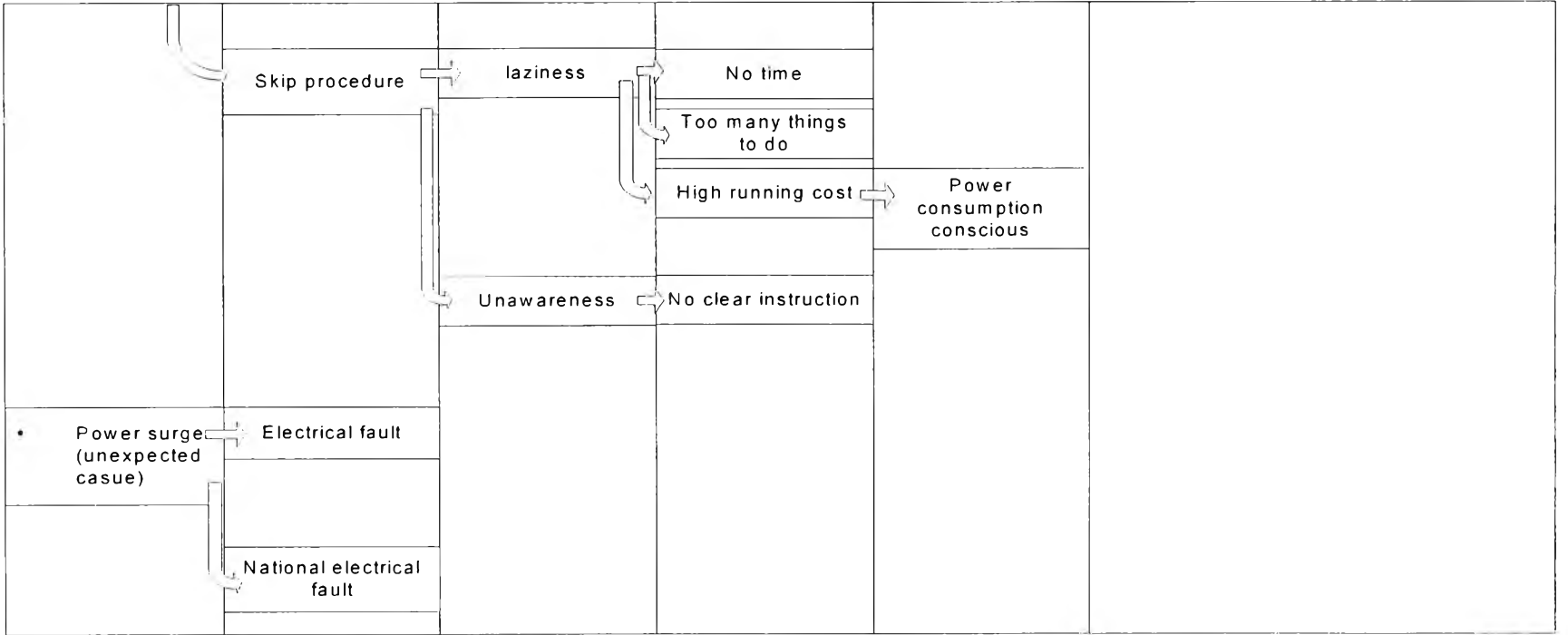


Table 5.6 - Breakdown of Proposed Solution to Problem 11

Possible Solution or Prevention	Details	Who is responsible?	Function involved?	Start-End Period (dd/mm/yy)	Duration/Frequency	Remark	Approximate costing
<p>Solution on Instruction Poster issue:</p> <p>Along side owner's manual another solution that should also be provided along with the manual, is a large & clear, well illustrated instruction of the procedure printed on a poster. This allows owners to simply follow through operating tasks step by step.</p>	<p>The poster should capture the following information:</p> <ul style="list-style-type: none"> • Typical layout of the machine system • Location and name of each machine • Systematic operating process <p>Refer to Appendix under 'Proposed Solution' section for a design sample of <i>Instruction Poster</i></p>	Mr. Supichet & Mr. XYZ	Technical and Design	05/09/03 - 15/09/03	1 poster for each customer	Colour poster	50 Baht per poster
<p>Solution on Reminder issue:</p> <p>The only effective reminder is through sound. Sound in term of audible alarm, beep etc to remind owner that the machine run time has finished its tasks/ completed and so it would not be safe to turn it off.</p> <p>This solution is a good idea, however, it is a high investment for the company as the company is required to manufacture a timer.</p>	<p>Although the solution to this problem may seem a fantastic idea, however, required decision making from management since this is considered as an investment and certainly involve money.</p> <p>It is either company responsible for the problem by having Design, Technical and Procurement look to outsource supplier who make timer or feedback this problem to Manufacturer and leave it to them to come up with a solution or perhaps redesign incorporating alarmed timer.</p>	Mr. CDE, Mr. XYZ and Mr. HIJ	Management, Design, Technical, Procurement, Manufacturer	To be proposed on 05/01/04	1 timer for each customer	Awaiting to be proposed and approved by management	220 Baht per timer
<p>Solution on Owner's manual issue:</p> <p>Company will need to produce and issue an owner's manual to the customers on their purchase of a swimming pool. The manual becomes a personal guide and instruct owners the necessary procedure to operating machines properly. The manual should, therefore, be reader friendly, with clear instruction and description on relevant equipments, including area on how to use the water pump machine.</p>	<p>Manual should contain relevant information concerning the swimming pool. Owner's manual booklet is the alternative guide to the training given.</p> <ul style="list-style-type: none"> • Use & Handling of machines, equipments • Functionality of important switches • Looking after swimming pool, machines and equipments <p>Refer to Appendix under 'Proposed Solution' section for <i>Owner's manual</i></p>	Mr. Supichet & Mr. XYZ	Design, Technical and Sales	01/09/03 - 15/09/03	1 manual for each customer	Given to every customer	100 Baht per manual

5.2 Proposed Solution for STAGE 2 (Section 4.2)

Stage 2 represents one-dimensional attribute, where company aim to meet customer's expectation as much as can possibly achieve, in order to maximise customer's fulfilment. The solution of this stage has been formulated around the feedback received from the customer survey and discussion from the group meeting, which mainly lies with how company serve customers after the sale. Therefore for stage 2. author intends to satisfy customers through customer servicing focus attention on the after sale. The propose solutions for stage 2 are summarised in the table below. Also refer to Figure 4.14 in chapter 4 for further understanding on how author differentiate criteria for STAGE 2 and STAGE 3.

Table 5.7 - Proposed Solution for One-dimensional attribute (Stage 2)

Possible Solution & Details	Who is responsible?	Function involved?	Start-End Period (dd/mm/yy)	Duration/Frequency	Remark	Approximate costing	Expected Benefits & Return
<p>Sales representative are to become more customer-centred:</p> <p>Sales must change the way they treat customer. To become more concerned of all customers and still pay attention to all even when sale is over. By all mean call customer every now and then after the sale to ask of how each customer is doing</p>	Mr. IJK (Sales Manager)	Sale	Effective after new year	Become standard procedure	----	----	<ul style="list-style-type: none"> Change customers' perception towards company's sales Rescue company's reputation Customers feel the warmth and sincerity intention of company Customers recommend company onward to the potential customers
<p>Free maintenance package: Pool keeping, check up and maintenance:</p> <p>To every purchase of swimming pool, and beside one-year warranty period, company must also offer free check up and maintenance, where by technician is to make a visit once every quarter of the year to perform tasks for customers, such as:</p> <ul style="list-style-type: none"> System check up Check up pool structure Water treatment Cleaning 	Mr. XYZ	Technical	Effective after new year	Become standard after sale service procedure	Once every quarter (4 times a year)	Free for one year	<ul style="list-style-type: none"> Increase customers' satisfaction and expand customer base Value added to the customer Show that company care for all the customers Potential customers see this as a good/value for money package and thus become customer to the company The company has all the reason to charge customers at higher price to competitors. Customers are willing to pay at premium price

<p>Offer opportunity to join up for a membership card:</p> <p>Membership card is established to benefit every customers. The idea of a membership card is to give every customers the opportunity to carry on the service as received from the company in the first year of warranty. Company offers customer the following benefits at only 5000 annual fee:</p> <ul style="list-style-type: none"> 0 Regular maintenance, clean up, water treatment 0 Service on demand 0 15% Discount on chemical products, equipments, and swimming pool 0 Home delivery on purchase products 	<p>Miss MND and Mr. XYZ</p>	<p>Marketing and Technical</p>	<p>Mid-year of 2004 01/06/04</p>	<p>New standard offer</p>	<p>Customer pay 5000 Baht per annual</p>	<p>25,000 Baht setting up cost</p>	<p>0 100 customers are anticipated to become member in the first year and another 150-250 customers are to join in the last quarter of the first year onwards</p> <p>0 Expect to boost up sale on chemical products and equipments.</p> <p>0 Generate approximately 500,000 Baht of cash flow per year.</p>
<p>Extend manufacturing warranty period to 3 years:</p> <p>Instead of the typical one-year warranty period, company should extend the warranty period to 3 years, with changes made to the condition/criteria of the warranty period. The condition of warranty differ each year in the sense of the warranty coverage:</p> <ul style="list-style-type: none"> 0 1st year - customers are covered by warranty made against any fault on the structure, machines, equipment and etc 0 2nd year - customers are entitled to free of charge replacement on the fault of machines and equipments. 0 3rd year - customers received free handling charges but shall pay for the faulty parts/equipments. 	<p>Board of management and Miss MND</p>	<p>Management, Marketing</p>	<p>01/06/04</p>	<p>New warranty terms</p>	<p>Under consideration by management</p>	<p>Ave Maintenance cost 800,000 Baht per annum</p>	<p>0 Psychologically build up customers' confidence in the quality of products</p> <p>0 Appeal to potential (new) customers, who are looking for swimming pool</p>

5.3 Proposed Solution for STAGE 3 (Section 4.3)

Stage 3 represents attractive attribute, where company provide service that customers are not at all expected to receive. Similar to stage 2, author intends to exceed customer expectation through customer servicing. Possible solutions are summarised and present in the table below. Also refer to Figure 4.14 in chapter 4 for further understanding on how author differentiate criteria of STAGE 2 and STAGE 3.

Table 5.8 - Proposed Solution for Attractive attribute (Stage 3)

Possible Solution & Details	Who is responsible?	Function involved?	Start-End Period (dd/mm/yy)	Duration/Frequency	Remark	Approximate costing	Expected Benefits & Return
<p>Customer response time:</p> <p>Company must be able to respond instantaneously to customers' problem within 2-3 hours by sending in technician, provided that customers live in the perimeter of the Bangkok city. For example a machine breakdown is to be fixed within the promise hours. However, since company's customers are situated all over Thailand so there may be numbers of customers, who would need to wait slightly longer, hence waiting time is within 48-96 hours.</p>	Mr. IJK and Mr. XYZ	Sale and Technical	15/02/04 onwards	On going procedure	New promise standard	Depends on the location of customer	<ul style="list-style-type: none"> ◆ Increase existing customers' satisfaction level, thus build up their confidence, which could lead to more potential customer (new customer) through word of mouth. ◆ Strengthen company's competitive advantage, which shall appeal to potential customers ◆ Expand potential customer base on past year's record at an approximation of 5% (30-70 new customers).
<p>Special occasion greeting:</p> <p>Birthday is by far the most meaningful greeting. Author always thought that greeting on special occasion like birthday is by far the most touching treat than a new year greeting. Company might as well provide customers gift or present, maybe a selection from the chemical product range, or even equipment etc.</p>	Mr. IJK	Sale	Effective after new year	----	New procedure	Price varies on the present	<ul style="list-style-type: none"> ◆ Customers shall be touched by company's sense of caring and concern even well after sale had completed. ◆ Customers realise how important they are to the company. ◆ Emotional overwhelming, which leads to more potential customers through word of mouth.

<p>Introduction of advance system controller technology:</p> <p>The ability to control swimming pool system (turn on/off, machine running etc) via mobile phone or the internet from any where at all that customers happen to be.</p>	Mr. CDE and Mr. XYZ	Sale, Design and Technical	05/05/05	Optional feature	Under research and development	25,000 Baht per unit	<p>The technology facilitates customers and enable them to take control of the pool system anywhere. Company expected customers with an interest to this technology to be around 1-2% of the total customer.</p>
<p>New attraction for product development:</p> <p>Customers are no longer restricted to ordinary swimming pool with tile floor. Thus, company is currently working towards an alternative solution to floor tile, which is the water & chemical resistance paint. The pool paint enable customers to transfer individual's preference of art directly to the swimming pool with ease and a lot less effort.</p>	Mr. IJK, Mr. CDE and Mr. XYZ	Sale, Design, Technical and Colour painting supplier	01/08/04	Optional feature	Under development and testing	2,500 Bath per sq metre	<p>Become the first company to introduce this extremely flexible technique. Approximate paint life span is 8-10 years until total renovate. Minimise the labour hour 50% of the new customers are expected to show interest but only 20% might go along with the technique, in the first year.</p>
<p>New added feature for swimming pool:</p> <p>Company is constantly searching for new adding on accessories/features to live up plain swimming pool. One particular product that company aims to introduce to the upper market, whose money is not an object, is an automatic platform cover for swimming pool. The cover is designed to transform swimming pool into a platform (extra floor area). There are 3 types of covers to choose from: glass, metal and wooden.</p>	Mr. IJK, Mr. CDE and Mr. XYZ	Sale, Design, Technical and external supplier	01/10/04	Optional feature	Automatic mechanism	Price varies on the pool size and type of cover chosen	<p>Niche market, luxury feature and high return profit of 40%, by a rough estimate. 1-5% of the new customers and perhaps existing customers would show sign of interest, which could lead to possible installation. Become famous for fascinating work</p>