CHAPTER V
INCENTIVE PLAN

This chapter discusses the improvement by incentive plan Concept, method and the result .

Although the cellular manufacturing can improve productivity from line production , but the worker overtime is still high especially in the peak order , the team still wait to delay the job in the overtime period . The team spirit is not so good , someone want to go home but the other want overtime , some worker does not help each other .

5.1 Incentive Plan

Incentive plan for the cutting die department is an incentive that try to solve a bottom neck in process of making cutting die . Ordering from the customer is changing , it is reduced very fast so PAN Group must train the employees before the production . Line production was changed to a small group for improve productivity and quality . A small group can make a relationship between the employees and re-rotate function of working .

Incentive plan for the cutting die department is based on a concept that used to improve the productivity. The small group of working can increase the production but the time to work can not control. The concept is concerned with a controllable the time to work and income of the employees must higher than the traditional production. The company must present this concept to the employees in a positive sense. Because everybody is fear to face with a changing.

There are 3 team in the department of cutting die. Each team have 4 men, where 4 men are jointly working together in process of making cutting die, it would be virtually impossible to install an individual incentive system, but a group plan

would be applicable because individual does not make the complete product , he make some operation process , the complete product should be from the group so we set the incentive by group .

The production planning is controlled by weekly due to the team complete the products by lot not daily . If the products have problem, they will be rejected by lot.This cause the raw material inventory , work in process is still high when we have high order because we can not control daily output .

5.1.1 Principle of incentive plan

In a small team , people discuss and compare quality problems and work out joint solutions for eliminating them . The relationship between quality , planning and production becomes clearer and easier to handle as all the people are involved . It create the conditions where defect levels will be zero . When shortages disappear , and quality problems drop , all the time that people used to spend waiting for shortages and reworking defects becomes available for useful work and productivity goes up dramatically . The people in the team have created the situation where the most logical , appropriate , rewarding thing is to do the job that needs to be done .

It create a series of small entrepreneurial activities inside the business where the things team members consider important , and the things they measure themselves by , are the same thing the overall business considers important and measures itself by (fig 5.1) .

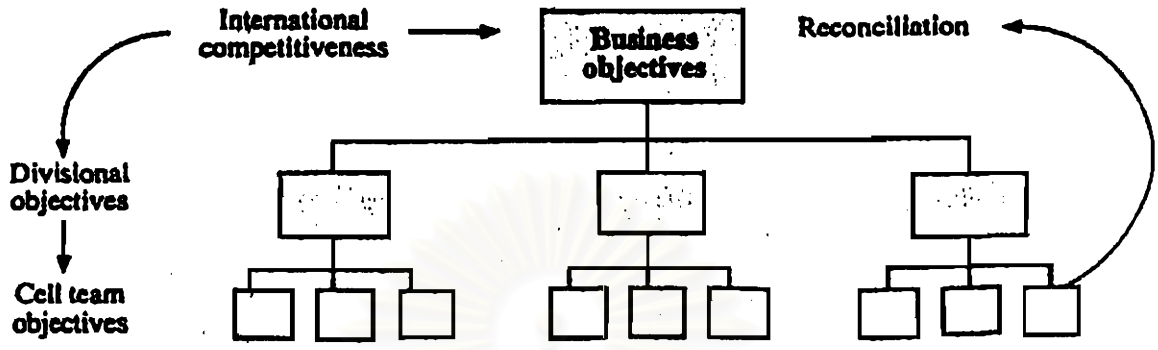

Figure 5.1 Aligning cell team objective with business objective

It allows us to define what we need from the cell in terms of business needs, then to measure the cell's performance in terms of meeting the business needs, so we close the loop backwards and forwards. We can define the competitiveness of the whole business as the sum of the performance of the individual team-based cells. This is in sharp contrast to the old world where it was very difficult to relate the labor and machine utilization directly to the overall health and profitability of the business. Many an accountant's career was base on the ability to interpret these figures, but cell manufacturing makes the organization of the business easier to understand and measure.

Incentive plan interested in human focus, because we think the human can learn and improve themselves all the time. Output per day will be fix and the

employees must work as a team that have self responsibility for the quality. It must simplicity for the employees , they can calculate by themselves.

5.1.2 Incentive plan Design and Implementation

It is an incentive that used with the team of working of a cutting die. Concept is based on team working and incentive , it is a group incentive. Every team will have an incentive when they can get target , they must work together.

Method for incentive plan design

1) Brainstroming with supervisor for setting incentive plan.

2) Selection incentive payment, the team working must have a group incentive. In these procedure , the supervisor must check all of overtime payment and income of the employees then compare with the unit, output and man-hours. He must check a time of working for setting up a target of working. The target of working is a statistic from the previous working. Then compare between output and time of working for a daily output, after that calculate payment for the daily output.

3) Team agreement and public relation to workers, when we can set up target and incentive for the employees, we must explain to the team of working. Every team have 4 person, and they must have team leader for monitoring of work. Everybody fare to face with a change, the company must explain the benefit, advantage and income to the leader, then he will explain to his team work. The finally, the company explain to everybody in the department of cutting die.

4) Selection a volunteer, the sample group for testing output , income and satisfaction of the employees are an important. If it work, It will expand to every team , but not we must check all of an information and the problem of it. Then re-arrange of group or setting up a new target.

5) Full system running , cellular manufacturing can increase productivity but the employees do not have an incentive for control unit cost , defect and working independently from time. After a sample group , it must expand to every team in the department.

5.1.3 Setting incentive target

1) Set group daily target exactly 100% (not high and not below) / constant output

- 1st target for 35 units ; pay 1,000 baht / team / day
- 2nd target for 50 units ; pay 1,400 baht / team / day
- 3rd target for 65 units ; pay 1,800 baht / team / day

2) The team can go home before time when they complete the target.

5.1.4 Problem in Setting Incentive

First time that setting , there are a lot of the problem that cause by the employees, they think that :

1) It is far from them . They think it can not be true , it is ideal.

2) They afraid to change the things .

3) Comparison with OT, they think they will receive income lower than OT.

4) They do not understand concept of incentive plan. , and have a meeting between themselves . It cause more misunderstand in concept.

5) Low season of shoe making. There are not enough volume order to make full efficiency incentive plan.

5.1.5 Solving Problem in Setting Incentive Plan

The company try to present them in concept of incentive plan . They will get concept that income more than OT, can go home before 8 hours working, high quality output, team working.

1) Always talk to the employees, every team must know all of concept , and try to help the other in group .

2) Set up sample group. One team group volunteer will show the benefit of incentive plan , and they can reach the objective .

3) Try to expand a new market in cutting die business to increase volume to increase workers revenues because their revenues will depend on productivity output . At present 100% orders are sent to the PAN Group. The marketing try to expand market out of PAN Group and the other business that used cutting die such as packing, foam, grove.

5.1.6 Calculation for Daily Target Output

The customer require the productivity by volume and delivery, it is various all the time. Some one wanted 300 units per 4 days , the other one wanted 200 units in 2 days. The output of cutting die is not per day . It always finish in lot size within the deadline . In the time working they work OT. These situation make cost variable and can not control budget and output.

From the data collection , statistic and the working improvement by the department of production planning , the customer maximum lot size (500 pieces) must finish in 4 days , so the maximum output per day of the cutting die should be 125 pieces (one lot size , 200 - 500 pieces) . But most of a lot size is 400 pieces , so the average output will be 100 pieces per day .

The similarity of complexity and the same production rate make the average output. When grouping product into 3 types ,one type may be much more than the other 2 types but the total average approximately 100 prices

To make the average output 100 pieces per day , the employees always work in the overtime length . They spent for 12 hours and get overtime payment approximately 100 baht per man . They will have income per day , 250 baht / man . So we decide to set up the target for working to 35 pieces per team , we will get 105 pieces from 3 teams . Then we give and incentive to every team , 1000 baht and they can went home as fast as they finish work .

The following is the sample calculation from the history data record :

Cellular manufacturing : capacity 22 pieces = 8 hours

: capacity 35 pieces = 12 hours

Team A ,4 employees have wage : 150 baht , 160 baht , 160 baht , 150 baht

total = 150 + 160 +160 +150 = 620 baht

in overtime 4 hours , company pay = 465 baht

total company pay = 1085 baht

So the company pay each team 1,085 baht for 35 pieces within 12 hours

By the method of incentive plan , the employees can finish work in 8 hours and get 1000 baht . They need not work in the over time period . The company can reduce payment 85 baht and capability to control exact output at 105 pieces per day .

By the method of incentive plan , the employees can get 1000 baht and go home when they finish working .

Sometime the company want output per day more than 105 pieces so we can set up the second and the third stage of working as 50 pieces and 65 pieces respectively.

35 pieces = 1000 baht

unit cost = 1000 / 35 = 28.6 baht

In the case of maximum lot at 500 pieces for period 4 days, total output per day will be 125 pieces. One of team must work at 50 pieces and the other two team are 35 pieces or all of them must work at 50 pieces for fast finish and get the new order.

50 pieces = 1000 + (28.6 * 15) = 1429 baht , the company pay 1400 baht

unit cost = 1400 / 50 = 28 baht

In a special case that some team must work more than 50 pieces, we set target at 65 pieces.

65 pieces = 1000 + (28.6 * 30) = 1858 baht , the company pay 1800 baht

unit cost = 1800 / 65 = 27.69 baht

The company can reduce unit cost in every stage of target , the employees can go home when they finish job.

There are 3 stage of target volume and income per day per team :

Type	Stage 1		Stage 2		Stage 3	
	target	income	target	income	target	income
A / B /C	35	1000	50	1400	65	1800

Application to the cutting die department by grouping into 3 team, A, B, C Each team have 4 technicians. Each person can work to substitute the other by the concept of team working. They will work until reach the target volume and independent from hours.

In the case of the employee in a group absent, the other must work for target 35 units. Then they will get 1000 baht per team or 333 baht per man. Sometimes they can relotate the position of working or getting help from the other employees from the other group and they can get 1000 baht or 250 baht per man.

By the incentive plan, the employees can go home when they finish job. If when the order is not enough for daily target , the supervisor may assign for repairing work and give them minimum wages.

By comparison of overtime and incentive plan the sample group, the employees have a satisfaction because of they can go home in 8 hours when they finish job but they can get income more than they work in an overtime period.

It is a benefit of incentive plan over than working with overtime period.

5.1.7 Calculation Payment for The Employees

The employees will get income by team working in every stage , and the calculation payment to everybody in team are in the equation :

$$A = \frac{\text{target price - (total team - wages)}}{4}$$

$$B = \text{income per person per day} + A$$

The following show the example of calculation : Team A have 4 persons , per day income are , Montree 150 baht , Pramol 160 baht , Prasert 160 baht ,

Wuttichai 150 baht . They work with type no pin , punch target volume 35 units per day . How much money they will get ?

By the equation :

$$A = \frac{1000 - (150 + 160 + 160 + 150)}{4}$$

$$A = 95$$

Every person will get :

Montree	=	150 + 95	= 245 baht
Pramol	=	160 + 95	= 255 baht
Prasert	=	160 + 95	= 255 baht
Wuttichai	=	150 + 95	= 245 baht

And they can go home at the time they finish working .

5.1.8 Penalty

We should have penalty to punish the team when they can not reach the target or quality together with give incentive to the team also .

In the case of the workers can not complete the target , the team has penalty as follow :

1) If the team can not complete the target , they should not get incentive but get only their daily wage .

2) If the products are rejected , the team should be penalty by deduct 10 baht per unit from the team incentive .

The penalty will be discussed if the daily target that not complete which caused from the company due to pre- production work e.g. the raw material preparation , wrong production planning , lack of facilities, machine breakdown or any interruption that effect the team.

5.2 System testing

The day starting of incentive plan at July 1997 , the supervisor of the department will collect the data day by day. She only fill in the blanket and easy to forecast the budget of the department. The data of income and scheduling control are in the attachment .

By the concept incentive plan method for the cutting die process, it can improve the productivity and satisfaction both the employees and the company.

1) The employees satisfied income and they can go home when finish work before 8 hours.

2) The employees can relotated and change the position working when they have high skill and want to improve themselves.

3) Create exact constant daily output.

4) It can reduce unit cost, but the company can get 100% target every day.

5.3 Productivity

From the data table 5.2 we can analyze that :

Method	Output / Labor	Output / (R/M)
Cellular Manufacturing	9.22	3.24
Incentive Plan	9.71	3.95
Increase	5.31%	21.90%

1) Cellular manufacturing can increase the average output per labor to 9.22 and output per material is 3.24 . It is an important method for a high production . The employees have a various skill because it is a small - team working . It can

solve a bottom neck problem and unit cost is reduced , but the overtime payments is still high and lack of team incentive .

2) Incentive plan : it is a method to increase the efficiency of a cellular manufacturing . We can pay overtime in a high efficiency , capability to control unit cost . The employees have a good team working , it can reduce the turn over . These concept , the employees must QC by themselves so it can reduce the time working and lost . This cause loop incentive increase output per labor to 9.71 or 5.31% and output per material to 3.95 or 21.9% .

Table 5.1 Model of Manufacturing , 1998

MONTH	MODEL	SIZE	QTY.	CUSTOMER
Jan '98	MAGIC SANDAL	6T-13	700	FTC
	ATTEST (2 SETS)		570	KPF
	AIR SHARP TW.	6-13	579	FTC
	W. AIR ORGANT	5-13	520	PAF
	AIR ORGANT	6-14	416	FTC
	TOTAL		2785	
Feb '98	ATTEST		279	KPF
	W. ATTEST		140	KPF
	ALATE BP	10-1	183	PUC
	ALATE BG	3T-6	107	PAF
	AIR MAX ENCOUNTER	6-13	340	PAF
	AIR MAS ASTOUND	6-15	309	ICF
	W. AIR MAX ASTOUND	5-12	271	ICF
	- PUNCH		507	
	AIR DOUBLE DOWN	6-15	75	PAF
	AIR VIS ILLUSION	3T-15	377	PAF
	LEATHER SCREECH	6-15	225	PAF
	TOTAL		2813	
Mar ' 98	ONE UP	6-13	420	FTC
	AIR ZOOM TRADITION II	6-15	401	ICF
	- PUNCH		15	
	W. AIR MAX ASTOUND ALL	5-12	354	ICF
	W. AIR MAX ENCOUNTER	6-18	221	FTC
	- PUNCH		17	
	MAGIC SANDAL II	6T-13	169	FTC
	AIR ACCESS BLU SD	6-15	161	FTC
	- PUNCH		25	
	AIR ACCESS PT (EE, D)	6-13	244	FTC
	- PUNCH		10	
	W. AIR MAX DOUBLE DOWN	6-15	140	PAF
	- PUNCH		21	
	TOTAL		2198	

MONTH	MODEL	SIZE	QTY.	CUSTOMER
Apr '98	AIR ZOOM TRADITION II DT	6-15	541	FTC
	- PUNCH		350	
	AIR ZOOM TRADITION II BL	6-13	552	FTC
	AIR ZOOM TRADITION II SW. SD	6-13	506	FTC
	AIR ZOOM TRADITION II SW. WEED	6-13	615	FTC
	W. AIR GALVANIZED	5-12	570	ICF
	W. AIR SUSPEND II	5-12	404	ICF
	AIR SIEGE 3/4 HI	6-18	411	ICF
	AIR GALVANIZED	6-15	365	PAF
	- PUNCH		86	
	TOTAL		4400	
May '98	PERFORMANCE BOAT SHOE + BOOT	6-12	273	FTC
	- PUNCH		102	
	W. AIR GALVANIZED	5-12	161	ICF
	- PUNCH		35	
	AIR ZOOM TRADITION II SW. SD	5-13	182	FTC
	W. AIR GALVANIZED		445	ICF
	- PUNCH			
	AIR VENGENCE LITE (ADDED)	6-15	175	PAF
	AIR GALVANIZED (ADDED)	6-15	396	PAF
	W. AIR SUSPEND II	5-12	184	ICF
	TOTAL		1953	
Jun '98	PERFORMANCE BOAT SHOE + BOOT	13	368	FTC
	W. AIR GALVANIZED	6-12	312	ICF
	W. AIR ROLLIN	7T-12	193	PAF
	W. AIR ROLLIN	5-12	344	PAF
	- PUNCH		34	
	W. SCREECH LEATHER	13-14	310	PAF
	- PUNCH		40	
	ATTEST LEATHER	6T-14	240	KPF
	TOTAL		1841	

MONTH	MODEL	SIZE	QTY.	CUSTOMER
Jul '98	AIR ZOOM TRADITION II SD	6-15	129	FTC
	AIR ACCESS SADDLE EE	6-13	204	FTC
	AIR ACCESS TRILOOP SP	6-13	247	FTC
	PERFORMANCE SLIP ON	7-11	184	FTC
	- PUNCH		53	
	AIR SADDLE SP	6-16	312	FTC
	- PUNCH		26	
	AIR ACCESS TRILOOP SP D,EE	6-15	248	FTC
	- PUNCH		15	
	W. AIR SHIMMER	5-12	286	PAF
	- PUNCH		12	
	TOTAL		1716	

Table 5.2 Comparison between Line Production , Cellular Manufacturing and Incetive Plan

Description	Jan	Feb	Mar	Apr	May	Jun	Jul	Average
Manufacturing output (Baht)								
- Line Production '96	364,362.75	425,660.84	347,839.59	401,829.04	454,629.81	513,028.64	509,171.00	430,931.67
- Cellular Manufacturing '97	825,731.74	968,136.86	557,188.78	894,452.53	634,525.23	450,243.65	512,061.75	691,762.93
- Incentive '98	835,398.97	843,510.02	659,415.75	1,320,591.87	586,136.09	552,409.87	514,783.05	758,892.23
Unit (Pieces)								
- Line Production '96	1,210.00	1,418.00	1,159.00	1,317.00	1,515.00	1,710.00	1,697.00	1,432.29
- Cellular Manufacturing '97	2,753.00	3,227.00	1,858.00	2,980.00	2,115.00	1,500.00	1,706.00	2,305.57
- Incentive '98	2,785.00	2,813.00	2,198.00	4,400.00	1,953.00	1,841.00	1,716.00	2,529.43
Raw Material Cost (Baht)								
- Line Production '96	119,948.19	141,876.91	117,625.56	131,750.00	152,159.90	173,320.41	163,195.95	142,839.56
- Cellular Manufacturing '97	256,438.19	297,888.04	174,552.82	273,532.73	194,638.93	145,264.40	160,701.25	212,325.77
- Incentive '98	212,569.98	212,471.94	169,381.45	326,170.11	147,011.65	137,820.99	133,796.72	191,317.55
Labor Cost (Baht)								
- Line Production '96	46,111.00	55,123.00	46,424.00	53,583.00	61,116.00	69,871.00	64,281.00	56,644.14
- Cellular Manufacturing '97	90,809.00	82,689.00	64,965.00	95,538.00	71,672.00	56,084.00	56,466.00	74,031.86
- Incentive '98	77,502.00	78,530.00	67,659.00	103,271.00	63,568.00	71,858.00	73,676.00	76,580.57
Man - Hour (M-H)								
- Line Production '96	2,210.00	2,251.00	2,210.00	2,903.00	2,930.00	3,099.00	2,912.00	2,645.00
- Cellular Manufacturing '97	3,021.00	3,097.00	2,893.00	3,046.00	2,965.00	2,893.00	2,915.00	2,975.71
- Incentive '98	2,998.00	3,000.00	2,964.00	2,972.00	2,382.00	2,388.00	2,666.00	2,767.14

Description	Jan	Feb	Mar	Apr	May	Jun	Jul	Average
Manufacturing / Raw Material								
- Line Production '96	3.04	3.00	2.96	3.05	2.99	2.96	3.12	3.02
- Cellular Manufacturing '97	3.44	3.25	3.19	3.27	3.26	3.10	3.19	3.24
- Incentive '98	3.93	3.97	3.89	4.05	3.99	4.01	3.85	3.95
Manufacturing / Labor								
- Line Production '96	7.90	7.72	7.49	7.50	7.44	7.34	7.92	7.62
- Cellular Manufacturing '97	9.09	11.71	8.58	9.36	8.85	8.03	9.07	9.22
- Incentive '98	10.78	10.74	9.75	12.79	9.22	7.69	6.99	9.71
Unit / Man - Hour								
- Line Production '96	0.55	0.63	0.52	0.45	0.52	0.55	0.58	0.54
- Cellular Manufacturing '97	0.91	1.04	0.64	0.98	0.71	0.52	0.59	0.77
- Incentive '98	0.93	0.94	0.74	1.48	0.82	0.77	0.64	0.90
Manufacturing / Man - Hour								
- Line Production '96	164.87	189.10	157.39	138.42	155.16	165.55	174.85	163.62
- Cellular Manufacturing '97	273.33	312.60	192.60	293.65	214.01	155.63	175.66	231.07
- Incentive '98	278.65	281.17	222.47	444.34	246.07	231.33	193.09	271.02