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19098

DP/ID/SER.A/1448
7 March 1991
ORIGINAL: ENGLISH

REHABILITATION AND IMPROVEMENT OF PRODUCTION OPERATIONS
UNDER THE CONTROL OF THE PROVINCIAL GOVERNMENT
OF EAST JAVA

DP/INS/88/009

INDONESIA

Technical report: Preliminary report on Aneka Jasa Printing Industry*

Prepared for the Government of Indonesia
by the United Nations Industrial Development Organization,
acting as executing agency for the United Nations Development Programme

Based on the work of Mervyn Croft, consultant
for the printing industry

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*This document has not been edited.

V.91-22496

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Executive Summary

Since the report DP/ID/SER.A/1401, very little has changed in Aneka Jasa Puri.

This is because the caretaker management which was installed some months ago has only recently been replaced. Their role was to keep status quo until a new management could be appointed. To a certain extent this was achieved but no gains or accomplishments were recorded.

The main reason for this appears to be that the Anekas are so diverse that it would be impossible to gain the necessary in-depth knowledge to make day to day decisions across so diverse a field. The problem is compounded by inept unit management.

As previously stated, the expert favoured competent unit management under the umbrella of the Directors; each unit responsible for its own profitability and able to make its own internal management decisions. It would appear that this could perhaps happen only if the units become a wholly-owned Government P.T. and a completely autonomous. This would in effect sever the constraints of the bureaucratic system. They would become like Panca Pujibangun, a wholly owned Government P.T.

In the interim period between the reports DP/ID/SER.A/1401 and DP/ID/SER.A/1400 a slight improvement was seen in the Puri sales performance.

In order to build upon this upturn, several positive actions must be taken.

1. The promise of Ministry cooperation must become an everyday fact of life. In addition to confidential work, there has to be sufficient bread and butter work to keep the plant ticking over. This must be supported by letter from the Governor or it simply will not happen. Good intent is not enough.
2. The sales team must be lead by an aggressive sales oriented person. It is incongruous that one man heads production and sales. The necessary friction between them will be missing.
3. A better and fairer method of payment for effort must be employed. At present if an executive brings in an order for a billion Rp. his reward is the same as one who sits and does nothing.

Until an executive establishes his client list he will cover a lot of ground. There is no mechanism to assist him or to repay his out of pocket expenses. This has to change.

There is no substitute for payment by results. Targets must be set.

The sales figures for the first eight months of this year total:

Puri	845,094,905
Serail	127,601,121
Continuous	366,358,200

	1.339,054,226

None of the credit for continuous form goes to the unit but directly to Directions Costs. This in effect negates the efforts of the sales executive bringing in the work.

The costing and estimating scheme presently used has no uniformity from one job to another and no investigations at the end of a job to ensure the system is working. The process of gathering information was difficult and painstaking and took a considerable amount of time.

When a new system is adopted, management, sales and marketing teams and the estimating department must have an intimate knowledge of its workings. The present situation of only one person being able to give an estimate is unnecessary and unacceptable.

The envisaged marketing campaign would be aimed at the top half of the market. This includes the long-run black and white work that comes from the various ministry departments. In addition to this, an increasing volume of colour and quality work is to be the target of the sales force/

But before this can happen, the new factory should be nearing completion.

The entire staff at Aneka Jasa Puri would be on a continual training programme.

It is suggested that UNIDO help with management expertise in three areas:

1. Expert in Printing Management.
2. Expert in Sales and Marketing.

These positions should begin at the planning stages of the new facility, run for two to three years, with the experts working very closely with newly appointed local counterparts.

The need for management involvement and not just advice becomes more evident every day. The delays in estimates and then in the production process could be interpreted as either incompetence or an attempt at self destruction.

3. Expert in Quality Control.

To gradually upgrade the quality of work and to train a counterpart in this vital function. This position would begin when the new facility is nearing completion.

The future for Aneka Jasa Puri can be extremely secure. They have an ideal opportunity to build a new purpose-built factory and to equip it with the right kind of machinery.

There is a definite need for the facility but it will take a great deal of effort from the new Directors to put the plan into action. It will also take positive action from Government to see that the unit is given more than the sensitive, security work that it presently exists upon. Already, the ratio of Government to private work is 80% - 20% which is quite encouraging in just 3 months.

This unit may prove vital to the long-term Government requirements of East Java. It is recommended that it be supported by real orders now so that the existing factory can become profitable and efficient. Only then can a large investment in new factory and equipment be certain to succeed.

In early October 1990, the sales target for Puri and Setail was set at 3 billion Rp. It was made up as follows:

Setail	200,000,000 Rp.
Continuous Form	1,000,000,000 Rp.
Puri	1,800,000,000 Rp.

For Setail it is not a fair assumption of its capacity.

For Puri the target is perhaps one fifth of its true capability and is only 1.5% of the Ministry budget.

It can only be assumed that the continuous form target is the Puri/Setail contribution.

UNIDO was not consulted in the preparation of this target nor, it is understood were the incoming Directors.

Introduction

Planning for the future

Without a plan for the future Aneka Jasa Puri is aimless, no control, no budget and no funding.

In order to establish the basic facts of any plan AJP must ask 3 questions:

1. Where are we now?
2. Where do we want to go?
3. Can we use our present assets to achieve our aims?

Before they go headlong into the building of a new factory, the answers to the questions should be digested quite thoroughly, and acted upon now.

In addition to this a 9-point plan can be set out detailing where they are now and where they want to go.

1. Where we are now and a brief history of how we got to this point.
2. Sales performance for past 5 years, what is being done to improve the situation?
3. Turnover for the past 5 years.
How are we doing?
4. What is our product range?
5. Are we expensive when compared to the rest of the market and if we are, why?
6. What new developments have occurred in our industry that we should investigate?
7. Where does AJP want to go?
8. Objectives for short-term and long-term. These objectives must:
 - a. Be specific.
 - b. Be realistic.
 - c. Have a definite but realistic timescale.
 - d. Show a positive benefit to AJP and the customer alike.
9. Budget. The most important part of a marketing plan. It provides a means of control. It is money set aside to achieve objectives. It deals with the resources that need to be diverted to accomplish strategic aims.

Marketing AJP can be achieved in a number of ways: Advertising, Direct Mail, Promotions, Exhibitions. All are cost effective and results can be easily monitored in isolation. But by far the most cost effective are the people on the ground representing AJP. It is with them that the real future lies. They are as much an asset as a piece of machinery. They gain in

monetary value to the company as they gain experience. Machinery declines in value.

Sales for Puri and Setail, including continuous form for the first eight months of 1990 came to 1,339,054,226 Rp. Encouraging, but a long way from the factories' true capabilities.

AJP is still being held back by indecisive management. It needs:

1. A 5 year plan.
2. A positive direction.
3. A firm management.
4. A budget.
5. A positive attitude to sales and marketing, which includes commissions/and or expenses to sales executives.
6. A strong and accurate estimating department.
(A new estimating scheme is detailed in chapter III).
7. A new daily time sheet detailing how each day is spent. Only in this way can all time be accredited to cost sheets. All production staff should fill out daily time sheets.

AJP internal management must be knowledgeable and motivated and have a definite and positive role to play. They must be allowed to manage the unit and report their progress to the Directors at frequent intervals.

Moving management sideways creates a situation where people are not directly responsible to anyone or for anything. This results in a top-heavy management incapable of decision making.

I. Sales for half year January 1990 to June 1990

It is pleasant to report that the sales figures for the first half of 1990 for Aneka Jasa Puri were very encouraging. They reflect a new motivation and commitment towards the future, but it was not surprising to hear from Mr. Dinsbach that the newly trained sales executives on the occasions they were able to go out, were more actively involved in the market than the established ones.

Aneka Jasa Puri was the only unit to be in credit during the period. From a turnover of 622,991 Rp. they made an operating profit before tax of 58,108,991 Rp. However, this was effectively wiped out by all other units making a collective loss of 255,270,544 Rp. See Annex 1.

It is noted that all continuous form orders were attributed to Direksi and show neither profit nor loss, although clearly there is a minimum of 10% profit from each printing. This profit should be shown in the operating figures of the unit whose sales executives brought the order in. It should be shown as sales.

Sales of continuous amounted to 366,358,200 Rp.

Setail was expected to obtain orders to the value of 62.755.621 Rp. but shows a working loss of 31.296.009 Rp. This was to be expected. The old technology employed at Setail effectively rules out long-run work. Letterpress is slow in its assembly as compared to offset and also slow in its production when compared with offset. Therefore, the expectation as far as collective budget is concerned is too high for Setail to obtain. However, some of the continuous form orders were obtained by Setail and are not reflected in the figures. As indicated in the report DP/ID/SER.A/1401, the viability of any letterpress unit is limited in today's market place, and should be phased out at the earliest opportunity. Now is the time to halt the decline in the printing houses. To accept this situation and to perpetuate it could have disastrous results.

Every effort must now be made to seek the long-run Ministry work, and to receive positive discrimination to achieve it.

To take a very simple analogy.

If the average invoice value of work produced is low, then the expectation of the unit involved is also low.

If the average invoice value of work produced is high, then the expectation of the unit involved is also high.

Take that analogy further.

If the average machine size of a unit is small and the work needed to fill those machines is jobbing work, then the reward for the effort involved is low.

But, if the average machine size of a unit is large and the work needed to fill that capacity is large and long-run, then the average invoice value will be high.

With short-run, small work, the profit margin has to be on the high side because of all the down-time on machines.

Long run work allows for a smaller profit margin to be charged and the unit is more competitive with the market.

At present AJP is roughly 40% above market prices. This is due to two factors.

1. The factory is not being run on a professional basis.
2. Overhead costs are very high.

If you are selling quality, there will always be a section of the market which wants your services. But if you are competing for general-type work, then price and delivery will always govern whether you take an order. Customers remember bad service.

When the expert returned to Surabaya in August 1990, many of the suggestions made had not been put into action. In order to take hold of the market, AJP management must be more aware of the demand from an active and work hungry sales force, and become a management which is sales oriented.

Basically the sales force must have certain factors in their favour:

1. They must be led by an aggressive Team Leader who is constructive in his advice and criticism. Who leads by example and always lets his team know new about ideas and innovations.
2. The whole factory must be made aware of the vital work that the sales force is doing. A successful sales force means a successful factory. At present the salesmen are held to ridicule by both management and shop floor.

This situation cannot be allowed to continue. AJP is a government print shop, where the present attitude is that work will come regardless of the effort that the salesmen put in, therefore the work they do is seen to be superfluous. It is not. They are seeking to step into the private sector for the first time. If AJP is to survive it will take the concerted efforts of everyone involved.

3. There must be an efficient costing and estimating system with a competent person in charge. Unless costs are recovered through the client a loss situation ensues. See also chapters III and IV. The estimating should preferably be computerized for efficient through-put of the sales team's efforts. This also allows for standardization of all estimates and gives an accurate record of each salesman's hit rate. (Orders obtained).
4. A fair method of payment for effort must be employed. At present, no transport is provided and no reimbursement of monies spent. This is counter-productive and must not be allowed to continue. This is not to suggest an open cheque book policy but a fair method of return for effort would solve this problem and also encourage the sales team to work harder.
5. Production management and shop floor must be made aware of the vital life-blood that the sales team provide. The salesman is in constant touch with the client. He is aware of his needs. When these needs are conveyed to the production staff, they must be responded to.
6. We are all subject to learned behaviour. When there is no work we get lazy and when it does come, we don't want to do it. It is for this reason that a constant stream of work must be channelled through the factory, with everyone on their toes, and ready to react to it.
7. Areas or types of customer should be allocated to the sales team in a fair manner. If the team leader takes the best customers there will be resentment. In order for any system to work, it must be seen by all to work fairly. Whilst having his own customers, the team leader must also take time to go around with each of his team, to see how they are performing and to give advice where necessary. He must be seen to have his finger on the pulse.
8. Production must respond to the requirements of sales in a positive manner. At present it is taking up to 3 months for a simple letter press proof. It is doubtful that it is pressure of work that is causing this delay.

9. A similar production bonus for the shop floor would have them driving the sales executives to greater efforts in an attempt to earn similar bonuses for themselves.

Sales training sessions should continue as part of the weekly sales meetings. Even when the sales team is busy with a client, time must be spent each week with the team leader, who acts as a counsellor to the sales executive and picks up and deals with any frustrations that he has. These meetings must take place, and have a vital role in a successful business.

If the sales executive has difficulty getting work from the factory, it is the duty of the Sales and Marketing Director to sort it out quickly. There is always a compromise, and when it is reached, it must be conveyed to the client. As far as the client is concerned, he is the only customer AJP has. It is important that he is kept happy.

Unilever, a new customer for one recently trained executive, gave an order for requisition books in June 1990. On 17 September 1990, they telephoned to see what had happened to the proof. Quite unacceptable.

Ramayana Hotel gave a trial order to the same sales executive. Because it was a "trial" the order was small. After several weeks in the factory, without movement, it was agreed to produce the work for the client to gain his confidence. (Meeting 22 September 1990 at which Mr. Loeff, Mr. Dinsbach and the expert were present).

Two weeks later the client withdrew his work through inactivity.

Puri will never improve its market-share if the management are not responsible.

This is precisely why the expert advocates the future involvement of UNDP/UNIDO in educating the new management. The present one appears to have little concept of how to run a unit such as Puri.

Breakdown of work achieved by sales team for first half of 1990.

The breakdown of sales achieved in the first-half of 1990 is as follows.

Company (no representative)	395,841,388
Mr. Dinsbach	116,000,000
Hesti Budisrihartati	1,500,000
Mr. Soewarno	29,000,000
Agus Haryono	650,000
Mr. Kanan (Setail)	80,000,000
Mr. Ilhan	000000
Mr. Suprayitno	000000
Mr. Soekarjito	000000

These figures do not reflect the true capability of the sales force. Their activities are being curtailed by lack of transport and slow response from the estimating and production departments. 7 to 10 days for an estimate could mean that the client has gone elsewhere for his work.

Also, as representatives sometimes go out in two's and threes it is not possible to credit all work involved. It is credited to one representative only.

II. Management Structure

The present management structure of Aneka Jasa is cumbersome and top heavy. And completely unworkable.

On page 13 of report DP/ID/SER.A/1401. it was suggested that Puri (and in fact all units) be allowed to float free of the constraints of the present system.

They should individually get their act together and swim or sink out of existence, but not be a drain on each other.

At the moment each unit struggles to make a profit. If it does, all of that profit goes into the pot to make up the deficit of other units. Over a period of time, because that profit is not re-invested in the unit that made it, it too becomes uncompetitive in the market place and begins to go into decline.

Clearly, this has happened in Aneka Jasa Puri.

The top management have been intent on making Aneka Jasa pay its way and have neglected the profitability of individual units.

A recipe for disaster.

Management is regarded as a function. A duty to be performed and no account of the necessary in-depth knowledge of a process is taken. Management are moved from unit to unit and are completely unsuited for the purpose of directing workers. The workers in turn take advantage of the inefficiency and ignorance of the management. At present the Director Utama has two Directors whose function it is to control production and administration. They, in turn control thirteen sections that form the management of Aneka Jasa.

Next we have unit level management which at present stand at five for Puri and three for Setail.

The caretaker Directors Messrs. Harun, Soeseno and Prawoto, were unable to keep a status quo without a positive input from government levels, and no firm decisions had been taken with regard to the management of each unit.

At this stage, it is again suggested that for the long term future UNIDO experts participate in the instigation of a new management structure for the units that form Aneka Jasa.

The suggestions for Puri are as follows:

UNIDO experts to shadow managers 2 and 3 and also a Quality Controller to oversee training. Each submitting quarterly reports to UNIDO, and for a minimum period of two years.

In any business there is a distinct chain of command.

1. **Managing Director.** In this instance let us say Director Utama. He is responsible for the profitability of his company and reports back to his Board of Directors. In this instance the Government of East Java. He may sit on many boards either as a board member or as Chairman of a Group of Companies. In this instance Aneka Jasa. He has two factory managers to help him run the business. They report directly back to him.

2. **Works Manager.** The Works Manager has an in-depth knowledge of the processes of his trade. He may have begun his working life as a tradesman working at one of the many processes that make up the business he now manages. It is his job to instruct and delegate to section leaders within the factory. He and only he is responsible for decisions taken within the unit, and for the quality and production of that unit. He works in close cooperation with:

3. **Sales and Marketing Manager.** Who is solely responsible for the work input necessary to fill the capacity of the factory.

If either of his senior executives is seen not to be achieving target the Director must assess the situation, and if necessary, hire new managers. The workers should be left in no doubt that they are being led by professional people who will accept nothing but the best that each worker can give, either in skill or effort.

The Works Manager in turn has section leaders. Work is delegated to them and they report directly back to him. If they do not perform the duties that he has given to his fullest satisfaction, he must either issue better and fuller instruction, or improve the quality of his section heads. The Works Manager should rarely get involved in shop floor matters. His talents are better employed in directing his team leaders to better efforts.

A constant programme of re-training would mean that all machines could be covered in cases in holidays, illness and overtime.

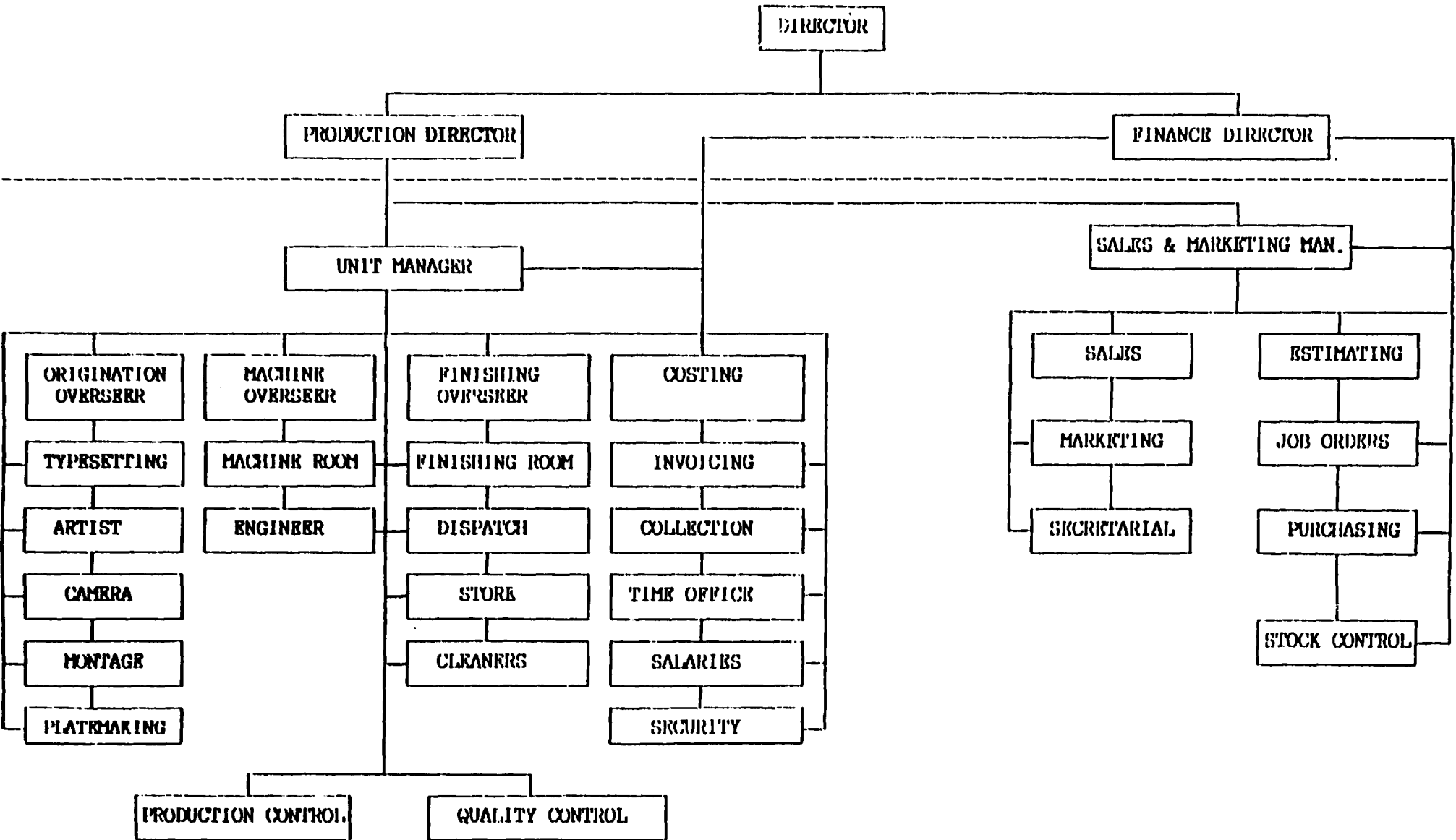
All personnel should be inter-changeable in times of emergency or slackness of work in other areas. This takes time and organization and should not be undertaken lightly.

The present bureaucratically led management is tied down by legislation which in effect only allows for non decisions to be made. An example of this is that some of the newly trained sales executives who were supported by Mr. Soeseno to have their job descriptions changed, had the recommendation turned down by someone else along the line.

Mr. Harun's dictate that AJP personnel should be the first choice for any re-training was a good one and one that is supported. Bureaucracy must not stand in the way of AJP becoming a success and this further supports the suggestion for unit-led management, able to make instant decisions on the running of their businesses and to respond to the vagaries of business and market instantly.

Bureaucratically managed units are slow to respond to market forces because of the delays in making management decisions. Even when decisions are made they can be countermanded at a later stage. The opposition does not have this built-in self-destruct mechanism. The following chart shows a proposed organizational structure for Aneka Jasa Printing.

PROPOSED ORGANISATION STRUCTURE



III. Estimating

The basis for profitability in any business is having an accurate costing and estimating system. Without it, it is guesswork.

Machines or working operations are termed Cost Centres. These are given a value, usually for a specific operation or commodity or an hourly rate for man or machine hours.

In the printing industry, cost centres help identify areas of profitability and areas of weakness for future investment.

The system that has been devised has areas of growth built into it. This is essential in order that AJP upgrade its operation to compete with the market. These are indicated *.

Just to highlight this point, AJP has no artist capable of real design. This results in a very poor product even though all other operations may have been performed adequately. The finished job looks amateurish.

Every effort must be made to upgrade the capability and capacity of AJP. Re-investment of profits made, is essential in order to be able to afford the men and materials necessary to the company's growth. At present nothing is ploughed back into the organization and this has resulted in the present situation. Units must stand alone and be judged on their own profitability.

No matter how good an estimating system is, if all the profit is syphoned off by other ailing units, the single profitable unit will also fail. Some part of the profits must be re-invested in the company's future.

A minimum of 10% profit should be allocated to "Renewal of Equipment Budget". A planned growth for up to 5 years ahead will determine where that money will be spent.

The Cost Centre values given here are a guide only and should be revised upwards or downwards as required when analysis with a number of cost sheets indicates a weakness.

Proposed Estimating System. Offset.

* Outwork at present, with intention to become self-sufficient at a later stage.

Cost Centre	Cost Rp.	Hour/quan.	Comments
1* Photography	O/w	Per photo or assignment	Outwork. Cost plus 20% profit
2* Design	O/w	Per job for top quality	Outwork. Cost plus 20% profit
3 Design	Rp.1500	1 hour	Simple in-house design
4 Typesetting	Rp.2000	1 hour	Display
		3000 ens or keystrokes	Body Text
5 Paste-up	Rp.1500	3 pages hour 6 pages hour	Difficult Simple
6* Photocopy	Rp. 50	Per copy	Outwork. Cost plus 20% profit
7* Scanning	O/w	Per 4-col set	Outwork. Cost plus 20% profit

Area in CM2	Price Per CM2	Total
Minimum		Rp. 29.000
150 CM2	Rp. 213	Rp. 32.000
250 CM2	Rp. 200	Rp. 50.000
350 CM2	Rp. 190	Rp. 66.500
450 CM2	Rp. 180	Rp. 81.000
550 CM2	Rp. 170	Rp. 93.500
650 CM2	Rp. 160	Rp.104.000
750 CM2	Rp. 155	Rp.116.250
850 CM2	Rp. 150	Rp.127.500
950 CM2	Rp. 145	Rp.137.750
1.050 CM2	Rp. 140	Rp.147.000
1.150 CM2	Rp. 135	Rp.155.250
1.250 CM2	Rp. 130	Rp.162.500
1.600 CM2	Rp. 125	Rp.200.000
2.000 CM2	Rp. 120	Rp.240.000
3.000 CM2	Rp. 110	Rp.330.000

Conditions of acceptance by supplier: (Straight translation).

- * The above prices include 1 sent of Progressive Proofs.
- * The cost of montage (strip in) is calculated by complicated and simple work.
- * Colour separation for special orders, the cost of which is not included in the list, is calculated by complicated or simple work by sight of original only.
- * The minimum cost of 1 set of films without proof is Rp. 15.000.
- * If there is damage or loss of original slide/colour photograph which is caused by the factory, the factory is willing to replace it Rp. 50.000 per set maximum.
- * AJP are not responsible for damage or loss if AJP has already given the film and its progressive proof.
- * The above prices do not include 10% tax.
- * The above prices are subject to change at any time without notice.

Cost Centre	Cost Rp.	Hour/Quan.	Comments
8 Line negatives 50 X 60 CM	Rp. 6600	Per piece	
9 Half-tone negs 50 X 60 CM	Rp. 9500	Per piece	
10* Contact 50 X 60 CM	Rp. 6600	Per piece	Double contacts Drops ins and Drops outs charge double
11 Film Clean	Rp. 1000	Per piece	Used for cleaning customers exist- ing film before use
12 Montage		GTO/Favorit size	System A and B is costed for 4 foils
A. Simple positive 4-colour work 4 foils.	Rp. 8000	Per set	cleaned, punched corner marks, cut marks, colour strips and burn- out masks
B. Complex positive 4-colour work 4 foils	Rp. 10000	Per set	
C. Simple negative 2-colour work 2 foils	Rp. 4500	Per set	System C 2 foils
D. Simple negative 1-colour 1 foil	Rp. 2500	Per piece	System D 1 foil
13 Montage		Parva/Sorz size	Explanation as above
A	Rp. 14000	Per set	
B	Rp. 17000	Per set	
C	Rp. 7500	Per set	
D	Rp. 6000	Per piece	

Cost Centre	Cost Rp.	Hour/Quan.	Comments
14* Punch colour sets	Rp. 0000	Per set	Protocol punching of colour sets
15 Line, tone, tint	Rp. 1500	Per patch	Price per patch
16 Plates 730 x 610	Rp. 9000	Per plate	
730 x 610	Rp. 16000	Per plate	
975 x 755	Rp. 16000	Per plate	
915 x 715	Rp. 14000	Per plate	
17 Machine proof	Rp. 2500	Per colour	Allow wash-up
18 Make Ready Favorit	Rp. 2500	Per m/r	Allow wash-up
GTO	Rp. 0000		
Sorz	Rp. 0000		
Parva	Rp. 2500		
19 Machine run Favorit	Rp. 2500	Per 1000	
GTO	Rp. 0000	sheets per	
Sorz	Rp. 0000	colour	
Parva	Rp. 2500		
20 Thermography	Rp. 1000	Per 100	Use with GTO or letterpress
21* GTP Foil Blocking	Rp. 0000		Make-ready
22* GTP Run	Rp. 0000	Per 1000	GTP Run
23* Foil	Rp. 0000		Cost of foil
24* Dies	Rp. 0000	Per Die	Cost of Dies plus 10% outwork
25* Bobst m/r	Rp. 0000		
26* Bobst Run	Rp. 0000	Per 1000	
27* Bobst forme	Rp. 0000	O/w	
28 Perforate	Rp. 500	Per 1000	
29 Folding	Rp. 1500	Per 1000	Up to 4 folds
30 Collate	Rp. 1500	Per 1000	Folded section
31 Section sewn	Rp. 2000	Per 1000	Section

Cost Centre	Cost Rp.	Hour/Quan.	Comments
32 Saddle stitch	Rp. 2000	Per 1000	Per copy
33 Stab stitch	Rp. 2000	Per 1000	Per copy
34 Cutting (final)	Rp. 2000	Per hour	Finished work
35 Cutting (pre-m/c)	Rp. 2000	Estimate hours Per hour	Top quality work. Trim sheets.
36 Padding	Rp. 1000	Per 100 pads	
37 Perfect Bind	Rp. 4000		M/r
38 Perfect Bind	Rp. 2500	Per 1000	Run
39* Laminate	O/w		Outwork
40 Blocks	Rp. 2000	Per block	Small size
41 Ink	Rp. 1800	Per 1000	Per colour
42* Spiral Bind		Per 1000	Outwork
43 Packing	Rp. 250	Per parcel	Includes material
44 Outwork	-	-	Unspecified. Cost plus 10%

Materials estimated as per job description.

Delivery charge 50,000 Rp. Allow more if big job. Check cost.

Order Charge 1%.

Estimating Letterpress

Cost Centre	Cost Rp.	Hour/Quan.	Comment
101 Typesetting (body)	Rp. 3000	Per 3000 ens	
102 Typesetting display	Rp. 200	Per line	
103 Proof (hand)	Rp. 250	Per proof	Depends size of job
104 Authors corrections	Estimated 5 mins. per correction	Per part of an hour	Estimated time
105 Imposition Platen	Rp. 500	Per forme	15 minutes each
106 Imposition Cylinder	Rp. 1000 Rp. 1500	Per forme	4 page = 30 min 8 page = 45 min
107 Make-ready Platen	Rp. 500	Per m/r	15 minutes
108 Make-ready Cylinder	Rp. 1000	Per m/r	30 minutes
109 Run Platen	Rp. 1500	Per 1000	
110 Run Cylinder	Rp. 2500	Per 1000	

Example of how the estimating system works

Job description :

1.	Description	Brochure
2.	Contents	32 pages text. 4 pages cover
3.	Size	210 x 297 mm (A4)
4.	Materials	Text : 120 gsm art Cover : 240 gsm art card
5.	Method of printing	4-colour offset process throughout
6.	Origination	Typesetting AJP. Design and artwork AJP. 36 colour separations. 4 x 215 x 305 42 x 200 x 150 (approx)
7.	Binding	Saddle stitch
8.	Quantity	4000
9.	Delivery	4 weeks after signed proof

The above is an enquiry brought in by a sales executive.

It now goes on to the estimator.

Method of Estimating

Cost centre	Work involved	Rp.
1.	Nothing	
2.	Cover Design outwork 20,000 Rp. + 20% profit	24,000
3.	33 x 30 min. per page x 1,500 Rp.	24,750
4.	1 hour display setting x 2,000 Rp. 5 hours text setting x 2,000 Rp.	2,000 10,000
5.	8 hours paste-up x 1,500 Rp. Average 4 pages per hour.	12,000
6.	Photocopy - 35 copies x 50 Rp.	1,750
7.	Scan outwork 4 x 21.5 x 30.5 cm x 160 Rp. 32 x 20 x 15 cm x 200 Rp. = 2,339,630 Rp. + 20% profit	2,807,616
8.	11 x (text) at 6,600 Rp.	72,600
9.	Nothing	
10.	Nothing	
11.	Nothing	
12.	Nothing	
13 A.	10 x 14,000 Rp.	140,000
14.	Nothing	
15.	Nothing	
16.	40 x PARVA x 16,000 Rp.	640,000
17.	10 formes x 4 cols. + 4 wash-ups x 2,500 Rp.	110,000
18.	40 x PARVA x 2,500 Rp.	100,000
19.	40 x 4 x 2,500 Rp.	400,000
20.	Nothing	

Cost Centre	Work involved	Rp.
21.	Nothing	
22.	Nothing	
23.	Nothing	
23.	Nothing	
24.	Nothing	
25.	Nothing	
26.	Nothing	
27.	Nothing	
28.	Nothing	
29.	4 x 4 x 1,500 Rp. 8 p.p. 1 x 4 x 1,500 Rp. 4 p.p.	30,000
30.	20000 sheets x 1,500 Rp.	30,000
31.	Nothing	
32.	4 x 2,000 Rp.	8,000
33.	Nothing	
34.	1 hour x 2,000 Rp.	2,000
35.	1 hour x 2,000 Rp.	2,000
36.	Nothing	
37.	Nothing	
38.	Nothing	
39.	Nothing	
40.	Nothing	
41.	40 x 4 x 1,800 Rp.	288,000
42.	Nothing	
43.	40 x 250 Rp.	10,000

No Letterpress.

Plus :

1. Cost of paper as advised by supplier (at present) + 10% handling - warehouse, delivery to stores, etc.
2. Profit margin 10%.
3. Plus 10% margin for tax.
4. Order charge 1% to cover sales and administration costs.
5. Standard delivery charge 50,000 Rp. More if large job.

Total Cost.	4,959,900
Paper Cost.	3,208,700
Delivery.	50,000
Order Charge.	82,186
10% Profit.	830,078
Tax 10%	913,086

	10,043,951

6. Add Directions Costs % of yearly contribution.

Paper Calculation

Sheet size SRA 2 = 640 x 450 mm.

Printing 4 pages to view or 8 pages to a single sheet of paper.

Text :

One copy will take 4 sheets of 120 gsm art paper.

Calculation : 1 divided by 4 = 0.25.

Cover :

One copy will take one half of a sheet. i.e. 2 pieces of A3 in a single sheet.

Calculation : 1 x 2 = 2.

Calculation :

Text	:	4000	divided by	0.25	=	16,000	sheets plus
		10% overs			=	1,600	sheets

					=	17,600	sheets

Cover	:	4000	divided by	2	=	2,000	sheets plus
		15% overs			=	300	sheets

						2,300	sheets

% overs will depend upon number of times the sheet passes through the machine, and length of run.

See Annexe 2.

CUSTOMERS LETTER

Perusahaan Aneka Jasa dan Permesinan
 Jl. Tanjung Anom No. 1a
 Surabaya.

Date 00 00 0

Dear Sirs,

We thank you for your enquiry and have pleasure in submitting the following estimate.

1. Description	Brochure.
2. Contents	32 pages text 4 pages cover.
3. Size	210 x 297 mm.
4. Materials	Text 120 gsm art Cover 240 gsm art card.
5. Method of printing	4 - colour offset process.
6. Origination	Design, typesetting and artwork by AJP. 36 colour separations by AJP.
7. Binding	Saddle stitch and trim to size
8. Quantity	4000
9. Price	10,044,000 Rp.
10. Delivery	4 weeks from signed proof

We trust that this estimate meets with your approval and await your written instructions to proceed.

Yours faithfully,

Mervyn Croft

JOB SHEET

No. 000000

Date into Production 00 00 00
 Delivery Date 00 00 00

Customer.
 United Nations Industrial Development Organisation
 Jl. Musi No. 4
 Surabaya.

- | | | | |
|-----|-----------------------|---|--|
| 1. | Description | Brochure | |
| 2. | Contents | 32 pages text
4 pages cover | |
| 3. | Size | A 4 | |
| 4. | Materials | Text 120 gsm art
Cover 240 gsm art card | |
| 5. | Method of Printing | 4-colour offset process | |
| | Special colours | None | |
| 6. | Origination | Design artwork and
typesetting AJP.
36 colour separations | |
| 7. | Binding | Saddle stitch | |
| 8. | Quantity | 4000 | |
| 9. | Proof dates | Photocopy 00 00 00
Colour 00 00 00 | |
| 10. | Special Instructions | | |
| 11. | Delivery Instructions | | |

Job Sheet Reverse

Materials Required

Materials	Unit	Quan	Unit Cost Rp.	Total Price Rp.	Selling Price Rp.
120 gsm Art	500	35	70,200	2,457,000	2,702,700
240 gsm Art	100	23	20,000	460,000	506,000
Film	1	11	5,600	72,600	72,600
Plates	1	40	15,000	640,000	640,000
Ink				288,000	288,000
TOTAL					4,209,300

Outwork Cost

Supplier	Unit	Quan	Price Rp.	Selling Price Rp.
Colour Seps.	1	36	2,808,600	3,052,800
Design	1	1	20,000	24,000
TOTAL				3,076,800

Materials Requisition

There are many forms of materials requisition. Interdepartmental slips seem to be the more favoured method. These have been explained by Paul Broeder in his report (DP/ID/SER.A/1400).

However, the expert would suggest that the job sheet also reflects the correct materials used for any particular job. Only in this way will the estimator be sure that he has calculated all elements, and the cost sheets mirror the true value of work involved.

The main idea is of course to be sure that all materials and man hours are charged back to cost sheet and ultimately charged to customer. The job sheet should therefore be signed when material is issued.

Examples of very simple Material Requisition and Daily Time Sheets follows.

Aneka Jasa Puri

MATERIALS REQUISITION

Date _____

Department _____

Job No. _____

Reg No. _____

Overseer _____

Materials	Quantity	Cost

3 copies

- 1 Fast in book.
- 2 To Store.
- 3 To Cost Office.

ANEKA JASA PURI

DAILY TIME SHEET

Date _____

Department _____

Name _____

Clock No. _____

Job No.	Customer	Cost Centre/ Impressions	start	Finish

Downtime _____

Reason _____

Signed _____

In evaluating existing work for this estimating system, newly completed orders were relied on and both estimating sheets and completed cost sheets were analyzed.

Many discrepancies and inconsistencies were discovered. Just one job, 9190024, Police Year Book 1989/1990, illustrates this point.

1. Only basic text paper was estimated - no spoilage (overs) allowed for, also no cover paper or end papers material allocated in the estimate.
2. Only 40 pieces negative film allowed to produce a 392 page book. Only 5 pages are obtainable from one piece of film. 76 were used, at a cost of 418,000 Rp. Nothing was recorded on the cost sheet and charged to client.
3. Cost of plates is calculated at 10,500 Rp. each. On the cost sheet the cost per plate is 5,649 Rp.
4. 2.5 kilos of ink estimated by 8 kilos were issued to cost sheet.
5. 375,000 Rp. spent on typesetting outwork.
6. Tips or BLO amount to 701,746 Rp. but nothing allowed in the estimate.
7. 545 man hours estimated to complete the job but 1419 actually used. Cost sheet says there was a profit of 39,175.44 Rp. This is because actual cost of labour is around a third of that used as figure to estimate by. A similar situation therefore exists with Overhead Costs and Direksi Costs.

This can only serve to inflate all estimates, making AJP more uncompetitive with the opposition.

Whilst it is understandable that at times there is discrimination in the customer's favour in order to take his work, it should be done at the end of the estimate, and the profit margin reduced from 25% to 20% or 15%. Only then can we really control the real costs.

Costs have been calculated on present cost sheet values or average values and should be adjusted upwards or downwards when information changes.

See Annex 3.

The whole point of having so many cost centres is that the cost sheet can be analyzed in detail to be sure that hourly rates and machine rates are correctly charged.

If it was estimated that an artist would paste-up 4 pages an hour for a 40 page brochure but he actually took 20 hours - twice the estimate, an investigation may find that the estimate was too low or that the artist had a problem. Such a system would enable the problem to be isolated to a single cost centre, and appropriate action to be taken.

SEKOLAH POLRY NEGARA

Comparison of job 9190024 with new estimating system.

Description :	Book
Contents :	392 pages text. 8 pages end papers. 4 pages covers.
Size :	15 cm x 21.5 cm.
Material :	85 gsm art text. 100 gsm white end papers. 300 gsm duplex covers.
Method of Printing :	4 - colour process.
Origination :	AJP.
Binding :	Section sewn, end papers, linen spine. Capital Band and Ribbon. Inserted into covers.
Quantity :	500
Price :	20.500.000 Rp.

Cost Centre Value Breakdown. (Estimated).

4	Typesetting	170 hours	Rp.	340,000
5	Paste-up	98 hours	Rp.	147,000
6	Photocopy	380	Rp.	19,000
7	Scan * o/w (cost Rp. 4,208,000)		Rp.	4,628,800
8	Negatives	76	Rp.	501,600
13	Montage	50	Rp.	400,000
16	Plates	200	Rp.	3,200,000
18	Make ready	200	Rp.	500,000
19	Run	200 x .5	Rp.	250,000
29	Fold	12500	Rp.	18,750
30	Collate	12500	Rp.	18,750
31	Section sew	12500	Rp.	25,000
34/5	Cutting	5 hours	Rp.	10,000
38	Bind by hand	35 hours	Rp.	57,500
41	Ink	100000	Rp.	180,000
43	Pack	25 x 20	Rp.	6,250
Delivery				Rp. 50,000
Panca Pujibangun (actual)				Rp. 3,874,613
Covers	725,000 Rp.	plus 10%	Rp.	797,500
Paper	1,575,620 Rp.	plus 10%	Rp.	1,733,182
				Rp. 16,787,945
Profit 10%				Rp. 1,678,794
Tax 10%				Rp. 1,846,673
Order Charge 1%				Rp. 203,134
Total				Rp. 20,516,547

Add Directions Costs % of years contribution.

There are several areas where profit is added to goods or services bought in. This can be reduced if necessary in order to take a job. Or left when the factory is full of work.

The point of the exercise is of course to make as much profit as possible.

Explanation

cc.

4 500,000 keystrokes. 166.6 hours.
 5 392 pages. Some handwork estimated 4 pages per hour.
 6 380 proofs.
 7 Scan. O/w. Cost plus 10% profit.
 8 Negatives. 5 pages from each sheet.
 13 50 montages.
 15 200 plates. 48 x 8 pages plus 2 x 4 pages.
 18 200 make readies.
 19 200 x 500 run.
 29 12500 sheets folded.
 30 12500 sheets collated.
 31 12500 sections sawn.
 34/35 5 hours cutting.
 38 35 hours hand binding. 15 copies per hour.
 41 100 x 1800 Rp. ink.
 43 Packing Rp. 6,250
 Delivery Rp. 50,000
 Profit 10%
 Tax 10%
 Order Charge 1% (Pays for Sales and Marketing)

Comparison

Close comparison of the two systems could not be achieved because the Cost Sheet showed only hours in "Setting", which covered typesetting, paste-up, camera, montage and plate making, "Printing" and "Finishing".

320 hours were estimated in origination. 857 were used.

165 hours were estimated on machine. 402 were used.

60 hours were estimated in finishing 126 were used.

There were many unexplained costs, which were not estimated for.

Only half the job was printed in-house. Average impressions per hour are less than 200. Four hours each forme.

Cost of printing half the job out is Rp. 2,632,000.

Cost of printing half the job in-house is Rp. 1,071,499.

In total the entire job is only 100,000 impressions and 200 make-readies and should have taken around 170 hours only in machine section.

The slackness of the present system allows Parkinson's Law to flourish because a post mortem can not be undertaken. Cost Centres for each chargeable operation are essential. Each worker must understand the importance of recording time to the correct Cost Centre number in order that the cost sheet is a true representation of hours and materials used.

If a number of jobs lose money in any area, the value of the Cost Centre can be adjusted upwards or new equipment bought.

See Annex 3.

IV COSTING

Perusahaan Daerah Aneka Jasa dan Permesinan. Unit Puri.

Cost Sheet

Customer
 Date of Order 00 00 00
 Description

Estimate No. 000000
 Job No. 000000
 Debit Note No. 000000

Cost Ctr	Date	Operation	Hrs/No.	Rate Rp.	Total Rp.	Over Budget
1	00.00.00	Photography	00	0000000	0000000	0000000
2	00.00.00	Design (outwork)	00	0000000	0000000	0000000
3	00.00.00	Design (in house)	00	0000000	0000000	0000000
4	00.00.00	Typesetting	00	0000000	0000000	0000000
5	00.00.00	Paste-up	00	0000000	0000000	0000000
6	00.00.00	Photocopy proof	00	0000000	0000000	0000000
7	00.00.00	Separation	00	0000000	0000000	0000000
8	00.00.00	Line negs	00	0000000	0000000	0000000
9	00.00.00	Half-tone	00	0000000	0000000	0000000
10	00.00.00	Contact	00	0000000	0000000	0000000
11	00.00.00	Film clean	00	0000000	0000000	0000000
12	00.00.00	Montage	00	0000000	0000000	0000000
13	00.00.00	Montage	00	0000000	0000000	0000000
14	00.00.00	Pnch/c/set	00	0000000	0000000	0000000
15	00.00.00	Tint/tone	00	0000000	0000000	0000000
16	00.00.00	M/c proof	00	0000000	0000000	0000000
17	00.00.00	Plates	00	0000000	0000000	0000000

Cost Ctre	Date	Operation	Hrs./No.	Rate Rp.	Total. Rp.	Over Budget
18	00.00.00	Make ready	00	0000000	0000000	0000000
19	00.00.00	Machine run	00	0000000	0000000	0000000
20	00.00.00	Thermog	00	0000000	0000000	0000000
21	00.00.00	GTP m/r	00	0000000	0000000	0000000
22	00.00.00	GTP Run	00	0000000	0000000	0000000
23	00.00.00	GTP material	00	0000000	0000000	0000000
24	00.00.00	Dies	00	0000000	0000000	0000000
25	00.00.00	Bobst m/r	00	0000000	0000000	0000000
26	00.00.00	Bobst run	00	0000000	0000000	0000000
27	00.00.00	Bobst forme	00	0000000	0000000	0000000
28	00.00.00	Perforate	00	0000000	0000000	0000000
29	00.00.00	Collate	00	0000000	0000000	0000000
30	00.00.00	Collate hand	00	0000000	0000000	0000000
31	00.00.00	Padding	00	0000000	0000000	0000000
32	00.00.00	Saddle stitch	00	0000000	0000000	0000000
33	00.00.00	Stab stitch	00	0000000	0000000	0000000
34	00.00.00	Cutting	00	0000000	0000000	0000000
35	00.00.00	Cutting	00	0000000	0000000	0000000
36	00.00.00	Folding	00	0000000	0000000	0000000
37	00.00.00	Perf. bind make ready	00	0000000	0000000	0000000
38	00.00.00	Perf. bind run	00	0000000	0000000	0000000
39	00.00.00	Laminate	00	0000000	0000000	0000000

Cost Ctre	Date	Operation	Hrs/No.	Rate Rp.	Total Rp.	Over Budget
40	00.00.00	Blocks	00	0000000	0000000	0000000
41	00.00.00	Ink	00	0000000	0000000	0000000
42	00.00.00	Spiral bind	00	0000000	0000000	0000000
43	00.00.00	Pack	00	0000000	0000000	0000000
44	00.00.00	O/w	00	0000000	0000000	0000000
101	00.00.00	Typsetting body	00	0000000	0000000	0000000
102	00.00.00	Typesetting display	00	0000000	0000000	0000000
103	00.00.00	Procf	00	0000000	0000000	0000000
104	00.00.00	Authors	00	0000000	0000000	0000000
105	00.00.00	Imposition platen	00	0000000	0000000	0000000
106	00.00.00	Imposition cylinder	00	0000000	0000000	0000000
107	00.00.00	Make ready platen	00	0000000	0000000	0000000
108	00.00.00	Make ready cylinder	00	0000000	0000000	0000000
109	00.00.00	Platen run	00	0000000	0000000	0000000
110	00.00.00	Cylinder run	00	0000000	0000000	0000000

Materials Ordered.

Date	Quantity	Buying price Rp.	Selling price Rp.	Received by.
0000	0000000	0000000	0000000	
0000	0000000	0000000	0000000	
0000	0000000	0000000	0000000	

Materials From Stock

Date Ordered	Quantity	Buying Rp.	Selling Rp.	Issued Date
00.00.00	00,000,000	00,000,000	00,000,000	00.00.00
00.00.00	00,000,000	00,000,000	00,000,000	00.00.00
00.00.00	00,000,000	00,000,000	00,000,000	00.00.00

Cost Analysis	Estimated Rp.	Actual Rp.	Difference Rp.
Cost of Materials	0,000,000	0,000,000	0,000,000
Cost of Labour	0,000,000	0,000,000	0,000,000
Outwork	0,000,000	0,000,000	0,000,000
Total			

The Cost Sheet is an invaluable tool to any business.

Previous work history may be analyzed to form the basis of the estimating system. Only in this way can we be reasonably sure that when an estimated job is completed we will be in profit.

Nevertheless, it must be repeated here again that the present method of recovering overheads (Directions Costs) is hit and miss and is not conducive to good business practice. It is open ended, infinite.

The calculated break-even point of any unit should be anticipated to supply that units Directions Costs. That figure should be spread over the year's sales target, to be recovered during the year.

It would have the immediate effect of reducing the cost to customer and would attract work in the process.

It is a chicken and egg situation. How do you deduce the contributions of a successful unit whilst being unable to collect revenue from the less successful ones?

A proportion of profit must be re-invested in the plant to ensure a secure future. The only way that this will happen is that each unit be autonomous, having its own bank account and simply paying its dues to Aneka Jasa at the appropriate times.

V MARKETING CAMPAIGN FOR NEW FACILITY

Any marketing campaign must have the express intent of either beginning with a new facility from which to produce the work, or as a means to further that end.

The present situation at AJP is one of learned behaviour.

The sales force know that the factory is incapable of producing quality or colour.

What has to change is the mental attitude of the sales team to the response of the factory.

It is their job to bring in enquiries and to go back to the clients with written estimates to have that work produced. The costing of that work and the actual production of it, is not their responsibility.

The Sales and Marketing Director now has a decision to make. Can the work be produced in house? If yes, an estimate follows in due course. If no, then AJP make enquiries within the market to send the work out for production. They take prices from suitably qualified companies and then convey those prices back to the client, having added a mark-up for the work involved for AJP.

It is vitally important that agreement is reached that the producer will not approach the client and that price, quality and delivery are tied down, with possible penalty clauses if the work warrants it.

To make the point yet again.

When the target for the sales team is set at the beginning of the financial year, the team go out to sell PRINT. It is a management function to decide how that work is produced and where. Not the sales executives.

The aids that the sales team has are the very tools of their trade.

They are :

1. Fliers - Mail shots.
2. Advertisements.
3. Brochures.

4. Trade fairs.
5. Newly completed work.
6. Mailing lists of existing and prospective clients.
7. Greeting cards for festive occasions.

What now must be decided is exactly what section of the market to aim for.

Work categories :

1. Jobbing type.
2. Longer run black and white type.
3. Poster. Flier type.
4. Magazine. Catalogue type.
5. Continuous-form type.
6. Annual report. Company brochure. Quality type work.
7. Greeting cards.
8. Boxes. Packaging.

Each of the types of work listed above needs specific knowledge and machinery to produce. However, the new facility is designed to produce a range of work from categories 2 through 8.

The marketing campaign will commence with

1. Invitation to a top dignitary to open new facility.
2. Invitation to attend opening to Ministries, top companies and officials of East Java.
3. Mailing of fliers to old and prospective clients.
4. Television and radio news coverage. Not advertising, so will cost nothing, but very valuable to AJP.
5. Mail shots to go out at regular intervals, along with greeting cards on festive occasions. Each executive will sign the cards of his own clients, to maintain strong links with them. A quality calendar should be sent out in December.
6. Old and new clients together with top dignitaries would be invited to visit the factory, and to have photographs taken and to sign the visitor's book. Photographs would be sent to the papers for inclusion together with suitable captions.

At first, if AJP is not capable of printing its own fliers, they must go out for design and print. This is to create confidence within the market of AJP's ability to produce such work.

Fliers are a valuable aid to the sales team and a vital key to unlocking inaccessible doors.

Fliers must have a message and in order to deliver that message must have both quality and design.

It is better to use illustrations that can be easily recognized for what they are: important buildings or monuments from unusual angles, i.e. from the air, people and events, or simply illustrations that give a message.

A new logo should be designed which could be included on everything that AJP print. It would become synonymous with AJP and people would soon recognize it.

See Annex 4.

VI. Factory Training

The training of the factory staff into the new technology that the facility will have must have the active involvement of a Quality Controller. It is suggested earlier in chapter II that UNIDO provide a capable person to work very closely with a local counterpart to train personnel in all production areas. The reason for involving a Quality Controller and not just a qualified instructor is that this is the beginning of an enterprise with a tremendous potential providing no corners are cut at the outset and that staff are aware of the stringent standards that will be necessary from all.

At present there is a very large gap at the quality end of the market in Surabaya. AJP could fill that gap provided they are able to sustain the production of quality and black and white work under pressure. The pressure will be the work in the pipeline, awaiting production.

Initial training for key personnel should take place whilst the new facility is being finished and equipped. They will be sent to the factories which manufactured those machines which are being installed. Cost involved will be minimal. Just transport to and accommodation in the country of origin of the purchased machines.

Men involved should be:

Origination	1.
Machine room	3.
Finishing	1.
Engineer	1.

Their training should take place immediately prior to the commissioning of the factory so that none of the training that they receive will be lost.

In addition to this training, the fitters, who will install the new equipment should also train personnel on the new machines for a period of up to two weeks.

At this stage in the training it must be emphasized that all middle management, i.e. all those overseers directly in control of production workers must be part of this training package.

They must include:

1. Origination Overseer. He is in direct charge of all operations up to and including plate-making.
Layout and design
Photo-composition
Camera and montage (negative assembly)
Plate-making.
2. The Quality Controller

It is vitally important that the Quality Controller is trained in the workings of all equipment. He must know what machines are capable of and how to achieve it. He becomes the company's training officer.

The Production Controller need only know what each piece of machinery is capable of producing and how long it takes. He is also aware of how much time the estimating department has allowed for each production process. He

is also aware of how much time the estimating department has allowed for each production process. He is the planner and advises of shortages of work or bottlenecks.

The quality and knowledge of these two key personnel must not be in question.

The factory will now be ready to produce work.

Further training seminars will be organized by the Quality Controller and if necessary conducted by him outside working time so that machinery is not left idle. This training will be specific to each person's weaknesses, which cannot be quantified here.

It is suggested that wherever possible machinery be obtained from one source. This not only means a better opportunity to get a reduction in price, but also allows trainees to remain together in alien surroundings.

The Quality Controller's territory is in fact all production areas of the factory, from origination to finished goods and all personnel come directly under his influence. His experience must of necessity span the whole spectrum of skills within the factory. It is his job to see that every piece of work leaves Puri in its best condition and that men and equipment are utilized to their fullest.

In many instances, all that is necessary is on-the-job training and advice but where he sees the need for further training, he will take whatever steps are needed. Because it is an unquantifiable need, he will be taking decisions as they become necessary, in consultation with the Factory Manager.

Areas of training :

Health and Safety at work

1. This category deals with the cleanliness of the factory and the daily use of potentially dangerous items such as chemicals, oils, water, electricity, waste, materials left in gangways, protection of head, hands eyes and body, correct lifting posture, etc.

Origination

2. Correct use and maintenance of typesetter, camera, platemaker and processor. Chemical mixes and their lifespan.
3. Correct use of film products. Optimum temperatures to give maximum shelf-life.
4. Storage of unused plates, film and chemicals.
5. Disposal of used chemicals.
6. Storage of used film and plates.

Machines

7. Daily and weekly maintenance of all machines in the factory.
8. Maintenance of materials and spares necessary for maximum production levels.
9. Eliminate down-time where possible.
10. Storage of new and completed work.

Finishing

11. Paper storage.
12. Materials storage and handling.
13. Machine maintenance.
14. Handling of completed work.
15. Maintenance of stock levels.

When people are being trained on a regular basis, whether it is selling, health and safety, machine maintenance or a new technique, they are constantly aware of what is expected from them and it also gives them a sense of worth to the business.

The sales team should meet every Saturday and act through any difficult situation that they may have encountered during the week. Feed-back of customer reaction is the life-blood of any salesman's life. He must have the tools at hand to react to any given situation without losing face or the client. It is so easy to be too busy to attend and take part in these meetings, but no man is an island and it takes a collective effort to reach target.

Each member of staff whether Sales, Production or Finishing can all benefit from regular training sessions. We all lapse into bad habits and need to be patted back into line when necessary. Management will benefit from frequent short seminars in the skills necessary to their positions.

Maintenance of all machines should be seen as a daily and weekly task. Daily oiling and cleaning usually takes 15 minutes of an operators time each shift on take-over, whilst greasing, oiling and cleaning usually takes place on a Monday morning before the week's work begins, and takes 30 minutes.

This is termed preventive maintenance.

However, wear is an inevitable part of a machine's life pattern and breakdowns do occur. This is where a good engineer and adequate spares play their part. The use of week - ends and unused shift times for repair, is preferable to down-time on a production schedule. A machine is only valuable when it is being used to its fullest extent, i.e. if it is costed to run on a two shift basis then that is exactly what it must do in order to recoup its cost.

It is suggested to alter the shift patterns to five days of two eight-hour shifts with at least a 15 minutes handover period when the shifts meet. i.e. hours 6 am to 2 pm and 1.45 pm to 9.45 pm. This leaves the weekend free for overtime where necessary.

Maintenance and Production Schedule
(Over a two-shift working day)

Monday



Tuesday



Wednesday



Thursday



Friday



Saturday



Sunday



Planned
Maintenance

Handover

VII. Future Recommendations

In this report and in report DP/ID/SER.A./1401 an attempt has been made to point the direction in which a facility such as Aneka Jasa Puri should be headed.

The future must include the full spectrum of the printing world for which it is equipped.

It has already been suggested to use high-speed sheet-fed machines capable of either long-run black and white or quality colour work. In addition, the very large and lucrative field of computer stationery is destined to play a very large part into the foreseeable future.

Beyond this, once AJP can re-invest its profits into new equipment, exercise book production and web printing to a high quality for use at home and for export to the Middle East and Australia can be considered.

A freelance sales executive paid on a commission basis should be based in Jakarta, as soon as possible.

In addition to this, lines of business may be set up with suitable companies through-out the region. Middle East, Australia, New Zealand, etc. (But only on Irrevocable Letter of Credit). Governments import large quantities of schoolbooks. These are allocated on a tender basis to local suppliers, who seek the best prices available from other outlets. AJP strength is its ability to produce so cheaply.

The Sales and Marketing departments must be strengthened to cope with the work. As stated elsewhere, the duty of the sales executives is simply to bring in print enquiries. It is up to the Sales Director to decide whether to print it in-house or send it out to another supplier.

The sales office should be manned by:

1. Sales and Marketing Director/Manager.
2. Sales Personnel, who use the office as a base.
3. Estimator (computerized). also takes telephone enquiries.
4. Secretary (to type estimates) Also doubles as manager's secretary.
5. Receptionist.
6. Order Clerk. Also takes telephone enquiries. Doubles as estimator when necessary.

A number of telephone lines and also fax facility should be installed as soon as possible. Ease of communication is very important, and can save vital time. For instance a proof can be faxed from any part of the world in minutes, eliminating any lengthy delay.

Estimates must take no more than 24 hours to process. At present they take 7 to 10 days and the client may have already had his work printed by the time AJP has processed his enquiry.

The AJP of the future must be a very professional and elite unit whose forward looking management are constantly aware of their position in the market and always seeking to improve it. If they do not take advantage of the available opportunities, the opposition will.

Rewards must be brought into line with the rest of the market. If this does not happen, once a worker is trained, he will walk.

Men must also be trained in continuous form as per the agreement with that company. In addition sales must also have some training in that process.

VIII. Summary

Reference has been made several times in this report to any future Aneka Jasa Puri being in the hands of competent unit management.

Under the umbrella of the Directors a fresh and aggressive management team must be assembled which is capable of giving a new direction to AJP.

The present management is tired, and lacking new ideas, it has accepted the situation in which it now finds itself, and is apparently powerless to revive the situation.

It is apparent that there is no real control of the workers. Quality is not good and work takes three times as long as it should. It is not because they are incapable.

A young team must be assembled and trained as soon as possible to add the vitality and direction which is missing.

It must be made up of printing based people who already have the basic knowledge of the craft and whose future lies in the management structure.

With the decline in the fortunes of the printing units the interest of the workers in the job that they are doing has also waned. They still have the ability but little interest.

When the factory is re-trained, a system of reward for work done must be adopted. If this does not happen, they will take their newly-gained knowledge to the highest bidder.

The letterpress units of Puri and of Setail are old technology and must be phased out and replaced by the more efficient offset process. It must not be taken into a new facility.

It is to the credit of the Setail management that the unit performs so well under its burden of old and worn out machines and materials.

However, the long term future demands investment and re-training of management in addition to shop floor in new technology. Management should always be looking for a better and more efficient way to obtain results.

Without basic knowledge they do not know where to begin, so simply moving in a manager will not suffice.

They must become conscious of the needs of its sales force. There is the most difficult job of all. There must be a voice in management for the sales executive in the shape of a Sales and Marketing Manager.

The proposed estimating scheme, once it has been fine-tuned by time, should prove invaluable. It provides the building blocks to the production control system and cost sheet alike, and is an accurate assessment of the worth of men and machinery.

Training of shop floor should be geared to the new facility. It will also give management time to select the personnel for key positions and have the effect of a completely new beginning.

For the moment though, every effort must be made to support the factory by real work until the transition can be achieved.

Lastly, a word of advice should be given to the new Directors. Please delegate the management of the units to competent people whilst you concentrate your efforts on the direction of the whole. It is too much to expect of yourselves to give "hands-on" management at unit level. The task is too great.

It is the considered opinion of the expert that UNIDO should help provide expertise in key areas with active involvement in the three areas suggested in this report.

Competent management with systems that will work have been missing for too long.

ACKNOWLEDGEMENTS

This report is the second that I have been privileged to prepare for UNIDO to assist Aneka Jasa Puri to prepare themselves for the future.

East Java is extremely competitive in the Printing World and Puri will require a very strong management to see it through this transitional period. However, I feel that it is now in safer hands with the appointment of Mr. Soemartono and Mr. Dinsbach as Directors of the Anekas. Heart felt congratulations and thanks go to these two gentlemen in the wish that they are given the support and the breaks that they deserve.

My thanks to Adriaan Loeff who as always was a never-ending source of useful help and information and encouragement.

Special thanks to the Vice Governor and to Mr. Harun for the very positive input and commitment.

Thanks also to the many people who contributed with advice and information.

Lastly, but by no means least, my grateful thanks to Martha M. who typed both this report and the last and who never complained once about my bad writing or the re-writes.

SALES FIGURES FOR FIRST SIX MONTH OF 1990 FOR ALL UNITS

B.E.P UNIT PURI

Penjualan	Rp. 622,991,388.49
Biaya Tetap	Rp. 88,425,945.60
Biaya Variabel	Rp. 444,494,824.07
Break Even Point	Rp. 308,625,526.66

Note : Penjualan lebih besar dari B.E.P.

B.E.P UNIT SETAIL

Penjualan	Rp. 21,420,770.98
Biaya Tetap	Rp. 27,500,961.24
Biaya Variabel	Rp. 12,003,694.99
Break Even Point	Rp. 62,755,621.99

Note : Penjualan lebih kecil dari B.E.P.

B.E.P UNIT WAHANA KARYA

Penjualan	Rp. 125,970,100.32
biaya Tetap	Rp. 34,869,996.16
Biaya Variabel	Rp. 98,113,918.87
Break Even Point	Rp. 157,676,369.59

Note : Penjualan lebih kecil dari B.E.P.

B.E.P. UNIT KONTRAKTOR

Penjualan	Rp. 211,004,190.94
Biaya Tetap	Rp. 42,184,952.11
Biaya variabel	Rp. 210,903,636.72
Break Even Point	Rp. 88,521,413,520.13

Note : Penjualan lebih kecil dari B.E.P.

B.E.P. UNIT KALIMAS

Penjualan	Rp. 74,014,101.47
Biaya Tetap	Rp. 61,472,062.15
Biaya Variabel	Rp. 55,347,796.97
Break even point	Rp. 243,743,985.08

Note : Penjualan lebih kecil dari B.E.P.

B.E.P. UNIT SUMBER MAS

Penjualan	Rp.	47,852,206.74
Biaya tetap	Rp.	46,602,189.61
Biaya Variabel	Rp.	20,420,172.03
Break Even Point	Rp.	81,292.461.00

Note : Penjualan lebih kecil dari B.E.P.

B.E.P. UNIT BARADA KIRANA

Penjualan	Rp.	91,361,651.01
Biaya Tetap	Rp.	76,898,056.09
Biaya Variabel	Rp.	45,743,030.36
Break Even Point	Rp.	154,005,826.21

Note : Penjualan lebih kecil dari B.E.P.

Paper in regular use

Code	Paper
001	Kert. HVO LECES 62 x 86 cm
002	Kert. HVS LECES 65 x 100 cm
003	Kert. HVS LECES 65 x 100 cm
004	Kertas. HVS 65 x 100 cm
005	Kertsa. HVS 65 x 100 cm
006	Kertas. HVS CK 65 x 87 cm
007	Kertas. HVS CK 65 x 100 cm
008	Kertas. HVS CK 62 x 88 cm
009	Kertas. HVS CK 65 x 100 cm
010	Kertas. HVS CK 65 X 100 cm
011	Kertas. HVS CK 65 x 100 cm
012	Kertas. HVS CK 65 x 100 cm
013	Kertas. HVS CK 65 x 100 cm
014	Kertas. HVS BW I 65 x 100 cm
015	Kertas. HVS LECES 65 x 100 cm
016	HVO Potongan 44 x 69 cm
017	HVO LECES 62 x 86 cm
018	KERTAS HVO LECES POTONGAN
019	KERTAS. HVS. 65 x 100 cm
020	KERTAS DOORSLAG 44 x 69 cm
021	KERTAS DCORSLAG 44 x 69 cm
022	KERTAS DOORSLAG 44 x 69 cm
023	KERTAS DOORSLAG 44 x 69 cm
024	KERTAS DOORSLAG 44 x 69 cm
025	DOORSLAG POTONGAN 22 x 32 cm
026	KERTAS BC JKT. 65 x 100 cm
027	KARTON BC JKT. 65 x 100 cm
028	KERTAS BC S I JKT. 61 x 86 cm
029	KERTAS BC 79 x 109 cm
030	KERTAS BC BLABAG 61 x 86 cm
031	KERTAS BC BLABAG 61 x 86 cm
032	KERTAS BC BLABAG 61 x 68 cm
033	KERTAS BC BLABAG 61 x 68 cm
034	KKERTAS BC CK 65 x 100 cm
035	KERTAS BC MANILA 79 x 109 cm
036	KERT. BC KARTHOTEK 79 x 109 cm
037	BC. LEGER 750 X 600 X 0.15 cm
038	BC LEGER 1030 x 600 x 0.15 cm
039	KRT. BC EX. APOLLO 61 X 86 CM
040	KERTAS BC. KINGDRIK 79 X 109 cm
041	KERTAS BUFFALOW 79 x 109 cm
042	KERTAS BUFFALOW 79 x 109 cm
043	KERTAS BUFFALOW 79 x 109 cm
044	KERTAS BUFFALOW 79 x 109 cm
045	KRT. BUFFALOW TIKER 79 x 109 cm

Code	Paper
046	KRT. BUFFALOW KULIT KARTING
047	KRT. BUFF. TIPIS LET 79 x 109 cm
048	KERTAS BUFFALOW 79 x 109 cm
049	KERT. CORAN DRUK 65 x 100 cm
050	KERT. CORAN DRUK 65 x 100 cm
051	KERT. CORAN DRUK 65 x 109 cm
052	KERT. CORAN DRUK 65 x 109 cm
053	KERT. CORAN DRUK 65 x 109 cm
054	KERT. KUNSD. T`SIDE 65 x 100 cm
055	KERT. KUNSD. T`SIDE 65 x 100 cm
056	KERT. KUNSD. T`SIDE 65 x 100 cm
057	KERT. KUNSD. T`SIDE 65 x 100 cm
058	KUNSDRUK ONESIDE 65 x 100 cm
059	KUNSDRUK KART. VIET 79 x 109 cm
060	KUNSDRUK KARTON 79 x 109 cm
061	KERTAS CASSING 65 x 100 cm
062	KERTAS CASSING/PAK 90 x 120 cm
063	KERT. CASSING LOCAL 90 x 100 cm
064	KRT. CASSING SAMSON 90 x 120 cm
065	KERT. LENEN II MK 79 x 109 cm
066	K. LENEN EMBOSS TPS/ 79 x 109 cm
067	KERT. LENEN WARNA 79 x 109 cm
068	KERT. LENEN TEBAL 79 x 109 cm
069	KERT. LENEN TEBAL 79 x 109 cm
070	KERTAS KAIN LENEN
071	KERT. NCR TOP WHITE 65 x 100 cm
072	KERT. NCR TOPPINK 58 1/2 X 91 CM
073	KERT. NCR TOPYELLOW 65 x 100 cm
074	KERT. NCR TOPGREEN 65 x 100 cm
075	NCR MIDDLE WHITE 65 x 100 cm
076	NCR MIDDLE BLUE 65 x 100 cm
077	NCR MIDDLE YELLOW 65 x 100 cm
078	NCR BOTTOM PINK 65 x 100 cm
079	NCR BOTTOM YELLOW 65 x 100 cm
080	NCR BOTTOM BLUE 65 x 100 cm
081	NCR BOTTOM GREEN 58 x 88 cm
082	KERT. MIRRORCOATED ONESIDE
083	KERT. UNION SKEIN 58 x 88 cm
084	KERTAS DIAMOND SKIN FOLIO
085	KERTAS RADIO BOND 23 x 34 cm
086	KERTAS RADIO BOND 65 x 100 cm
087	KERTAS IVORY 65 x 10 cm
088	KERT. ARISTON 62 x 87/TIPIS
089	KERT. ARISTON 62 x 87/TEBAL
090	KERTAS IVORY 65 x 100/LECES
091	KRT. IVORY BOND CIWI 65 x 100 cm
092	KERTAS IVORY 79 x 109 cm/LCS

Code	Paper
093	KERT. ARISTON 62 x 87/TIPIS
094	KERTAS ARISTON TEBAL
095	KERTAS LETAK 79 x 109 cm
096	KERTAS LLITAK 79 x 109/TIPIS
097	KERTAS LITAK C 79 x 109 cm
098	GLORY POST MIRRORCOATED
099	KERT. MARMER POLOS 48 x 50 cm
100	KERT. FASTASI WANGI 79 x 109 cm
101	KERT. BC 65 X 100 cm/LECES
102	KERTAS BC 64 X 86 cm/LECES
103	BC. MANILA KARTON 79 x 109 cm
104	BC. MANILA KARTON 79 x 109 cm
105	BC. MANILA KARTON 79 x 109 cm
106	UNDERPLAY PAPER 1/2 x 0.15 cm
107	UNDERPLAY PAPER PL/TBO.10
108	UNDERPLAY PAPER 1/2 x 0.10
109	KERTAS BC 61 x 86 cm
110	KERTAS PERG. ERSAT 75 x 100
111	KERTAS POLYESTER ROLL
112	KER. POLYESTER FOLIO 21 x 33 cm
113	KERTAS KALKIR 110 x 10 cm
114	KERT. MINYAK/KACA 90 x 120 cm
115	KODAK SETTING PAPER 8" X 150 cm
116	KODAX RC. 4"/KERT. FOTO SET
117	KAIN LENEN 117 16 cm
118	DUPLEX KARTON 79 x 109 cm
119	STROBOART NO. 40
120	STROOBORD NO. 140 64 x 76 cm
121	AMPLOP KULIT JERUK 10 x 15 cm
122	AMPLOP KULIT JERUK 10 x 17 cm
123	AMPLOP KULIT JERUK 14 x 20 cm
124	AMPLOP KULIT JERUK 17 x 23 cm
125	AMPLOP LEN. EMBOSSET 17 x 23 cm
126	AMPLOP WANGI/PUTIH
127	AMPLOP LITAK CREM 21,5 x 18
128	AMPLOP LETAK BUF. 14 1/2 X 20
129	AMPLOP LIT. BUFFALO 14 X 20 cm
130	AMPLOP LIT. BUFFALO 12 x 18 cm
131	AMPLOP LITAK 11 x 17 cm/PTH
132	AMPLOP LENEN 12 1/2 x 18 cm
133	AMPLOP LENEN 14 1/2 x 20 cm
134	AMPLOP WANGI 14,5 x 20 cm
135	AMPLOP LENEN 14,5 x 20 cm
136	AMPLOP KABINET BSR SWALLOW
137	AMPLOP KWARTO PERSEGI JAG
138	AMPLOP C. TANGGUNG 17 x 27 cm

Code	Paper
139	AMPLOP C. WIRU SAMPING
140	AMPLOP CASSING FOLIO
141	KART. NAM. PINGGIR MAS 5 x 9 cm

To calculate paper weight. (Sheets per tonne).
Based on size 60 x 90 cm

Substance	Weight per sheets (gsm)	Sheets per ream	Weight per ream. kgs	Sheets per tonne
45 gsm	24.3	500	12.150	41,152
50 gsm	27.0	500	13.500	37,037
55 gsm	29.7	500	14.850	33,670
60 gsm	32.4	500	16.200	30,864
65 gsm	35.1	500	17.550	28,490
70 gsm	37.8	500	18.900	26,455
80 gsm	43.2	500	21.600	23,600
90 gsm	48.6	500	24.300	20,576
100 gsm	54	500	27.000	18,518
110 gsm	59.4	500	29.700	16,835
120 gsm	64.8	250	16.200	15,432
130 gsm	70.2	250	18,900	13,227
150 gsm	81	250	20.250	12,345
160 gsm	86.4	250	21.600	11,574
120 gsm	91.8	250	22.950	10,893
180 gsm	97.2	250	24.300	10,288
190 gsm	102.6	250	25.650	9,246
200 gsm	108	100	10.800	9,259
210 gsm	113.4	100	11.340	8,818
220 gsm	118.8	100	11.880	8,417
240 gsm	129.6	100	12.960	7,716
250 gsm	135	100	13.500	7,407
300 gsm	162	100	16.200	6,172

PERUSAHAAN DAERAH JAWA TIMUR
"ANEKA JABA DAN PERMESINAN"

DAFTAR KALKULASI HARGA

AWAL PERTAMA (V.C.)

PEMBAHARUAN KE I

AKHIR (I.C.)

T.K. No. 9/19002/2/

TANGGAL : 18-6-90

REF. :

UNIT : Puri 4

PEMESAN	NAMA :	SEKOLAH POLISI NEGARA / ST
	ALAMAT :	71. RAYA BANGAL - Mjtjo.
URAIAN PESANAN	JUMLAH :	500. Exp. & 400. Hal Buku
	NAMA BARANG / JASA DAN UKURAN	MEMORANDUM KEMANGKAWAN Siswa Seba Polri 89/90
SELESAI TGL		

	DEPARTEMEN	Jumlah tenaga	VOLUME	NILAI sejam	Jumlah	JUMLAH
Beyas Tenaga Langsung	A. <u>PERSIAPAN</u>		320 jam	Rp. 1258	Rp. 402.560	Rp. 633.96
	B. <u>PERCEKAKAN</u>		165	1033	170.445	
	C. <u>PENYELEKSIAN</u>		60	1016	60.960	
	D.					
Beyas Overhead Pabrik	A. <u>Persiapan</u>		320 jam	Rp. 1590	Rp. 508.800	1035.0
	B. <u>Percekanan</u>		165	2724	449.460	
	C. <u>Penyeleksian</u>		60	1279	76.740	
	D.					

JUMLAH					Rp. 668.9
OVERHEAD		PENJUALAN : 5,2 %	Rp. 862.860	1.902.6	
		DIREKSI : 62 %	1.034.758		

BAHAN (Lihat perincian dibalik lembar ini)	Rp. 2.339.700	
BEAYA FIKAK KETIGA (idem)	8.065.000	
BEAYA KEMASAN		
BEAYA PENGIRIMAN <u>11.90.450</u>		
BEAYA LAIN - LAIN <u>10.19.819</u>	7.762.900	18.167.6

Kepala Seksi Produksi : <u>12/90</u> <u>16</u>	RUGI / LABA yang diperhitungkan	JUMLAH	Rp. 21.739.1
Kepala Unit : <u>10</u>	PPN : 10 % dari Rp.	%	Rp. 2.010.8
	HARGA PENJUALAN	JUMLAH	23.750.00
			26.125.00

Dir. Adm. & Keu :	Kabid Keu/Kasi Kas/ Anggaran :	Kabid Pembukuan (File) :	Ka. SPI :
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BIDANG PEMBUKUAN

**PERINCIAN VOLUME BAHAN/ALAT
PEKERJAAN**

No.	URAIAN	Satuan	Banyaknya	@	Jumlah Harga
<u>BAHAN / MATERIAL</u>					
1.	Konsort 0595 kg/100	R.	14.	70.200	982.800,
2.	Film - - -	1bx.	40.	5500	220.000,
3.	PLATE	1bx	104.	10.500	1.092.000,
4.	TINTA HITAM.	kg.	1/2	8000	4.000,
5.	- - - WARNA	kg.	2.	20.000	40.000,
6.	PERTAS Bungkus	1bx.	300	30.	900,
Jumlah Rp.					2.339.700

<u>BIAYA FIHAK KETIGA</u>					
1.	CS	1bx	380	—	3.834.00
2.	PER. Angkasa.	1bx	112	23.500	2.632.000
3.	COVER - - -	exp	500	1450	725.000,
4.	IBM - - -	1bx	—	—	274.000
5.	BIAYA: perbandingan + perbandingan per- bandingan order.	—	—	—	500.000
Z					

PERUSAHAAN DAERAH JAWA TIMUR
"ANEKA JASA DAN PERMESINAN"
UNIT :

DAFTAR KALKULASI HARGA
AWAL PERTAMA (Y.C.)

T.K. No. 9 | 1 | 9 | 0 | 0 | 2 | 5

Unit: Puri

PEMBAHARUAN KE II

TANGGAL 23 Juni 1990

AKHIR (N.C.)

PEMESAN	NAMA :	SEKOLAH POLISI NEGARA (SPN)
	ALAMAT :	Jl. RAYA BANGSAL - KIJOKERTO
URAIAN PESANAN	JUMLAH :	500 Exp. e 400 Hal Buku
	NAMA BARANG/JASA DAN UKURAN :	Kerang-menangan Siswa Seba Polri 89 / 90
SELESAI TGL.		

	DEPARTEMEN	Jumlah tenaga	Volume	Nilai sejam	Jumlah	JUMLAH
Biaya Tenaga Langsung	A. Pers.C.Offset		320 jam.	Rp 1.258	Rp 402.560,-	
	B. Cetak Offset		165	1.033	170.445,-	
	C. Peny.C.Offset		60	1.016	60.960,-	
	D.					Rp 633.965,-
Biaya Overhead Pabrik	A. Pers.C.Offset		320 jam	Rp 1.590	Rp 508.800,-	
	B. Cetak Offset		165	2.724	449.460,-	
	C. Peny.C.Offset		60	1.279	76.740,-	
	D.					1.035.000,-
					JUMLAH	Rp 1.568.965,-
OVERHEAD		PENJUALAN		5,3%	Rp 82.455,-	1.123.213
		DIREKSI		62%	1.074.758,-	1.032.540,-

BAHAN (lihat perincian di balik lembar ini)	Rp 2.339.700,-	
BEAYA FIHAK KETIGA (idem)	8.065.000,-	
BEAYA KEMASAN		
BEAYA PENGIRIMAN		
BEAYA LAIN-LAIN	3.487.500,-	13.892.200,-
JUMLAH		Rp 16.684.200,-
RUGI/LABA yang diperhitungkan		
PPN : 10 % dari Rp		Rp 2.742.514,-
JUMLAH		Rp 10.471.219,-
MARGA PENJUALAN		1.043.182,-
		Rp 21.375.000,-

Kepala Seksi Bazar : Penjualan
[Signature]
Kepala Unit :
[Signature]

Dir. Adm. & Kew : Kabid Kew/Kasi Kas/Anggaran : Kabid Pembukuan : Ka. SPI (File) :

**PERINCIAN VOLUME BAHAN/ALAT
PEKERJAAN**

No.	U R A I A N	Satuan	Banyaknya	@	Jumlah Harga
<u>BAHAN MATERIAL</u>					
1.	Kardus 85 gr. 65 x 100	Klem	14	70.200	982.800,-
2.	F i l e	lbr.	40	5.500	220.000,-
3.	P l a t e	lbr.	104	10.500	1.092.000,-
4.	Pinta Hitam	kg.	5	8.000	40.000,-
5.	Pinta Warna	kg.	2	20.000	40.000,-
6.	Kertas Berglas	lbr.	30	30	900,-
Jumlah Rp.					2.339.700,-
<u>BIAYA PIHAK KETIGA</u>					
1.	CS	lbr.	388	-	3.834.000,-
2.	Pengiriman	lbr.	112	23.500	2.632.000,-
3.	Cover	lbr.	500	1.480	725.000,-
4.	IMB	lbr.	-	-	374.000,-
5.	Biaya-adanya penbending + Pasca riam / Pengurusan Order	-	-	-	500.000,-

KARTU HARGA FOKOK

NOMOR PESAMAN : 91.90.00024	JENIS BIAYA	BIAYA TAKSIRAN	BIAYA SESUNGGUHNYA	SELISIH
NAMA PEMESAN : SEKOLAH POLRI NEGARA (SPN)	BIAYA BAHAN BAKU	2,339,700.00	1,776,887.00	562,812.97
TANGGAL PESANAN : / /	BIAYA TENAGA KERJA	633,965.00	594,789.56	39,175.44
NAMA PESAMAN : BUJUK KENANG-KENANGAN	BI OVERHEAD PABRIK	17035,000.00	948,308.01	867,691.99
JUMLAH SATUAN : 500 EXP	BIAYA PIHAK KE III	11,552,500.00	12,141,358.50	588,858.50
HARGA TERMS.PFN. : 21,375,000.00				
HARGA DIPDT.PFN. : 19,431,818.18				
RENCANA SELESAI : / /				
DI DEBIT NOTA NO: 211.90.0459 SEJUMLAH : 21,375,000.00	TOTAL	15,561,165.00	15,461,343.10	99,821.90

BIAYA BAHAN BAKU DAN PEMBANTU				BIAYA TENAGA KERJA LANGSUNG			BIAYA OVERHEAD PABRIK			BIAYA PIHAK KE III					
TANGGAL	NO.33N/BBK	JENIS BAHAN	JUMLAH SAT.	JUMLAH RUPIAH	TANGGAL	NOMOR JKM	JUMLAH JAM	JUMLAH RUPIAH	TANGGAL	TARIP	JUMLAH RUPIAH	TANGGAL	NO.PP/BLO	NAMA PEMBORONG	JUMLAH RUPIAH
													13/03/90:8190.19501:BLO		36,200.00
													24/03/90:8190.19503:BLO		58,400.00
													06/04/90:8190.19508:BLO		23,000.00
					16/04/90:71.90.0032:13.5	JAM		4,995.46	16/04/90:	Z	6,288.78				
					17/04/90:71.90.0033:13.5	JAM		4,995.46	17/04/90:	Z	6,313.76				
					18/04/90:71.90.0034:12	JAM		4,440.40	18/04/90:	Z	5,612.22				
					19/04/90:71.90.0035:13.5	JAM		4,995.46	19/04/90:	Z	6,313.76				
					20/04/90:71.90.0036:19	JAM		3,330.30	20/04/90:	Z	4,192.51			19/04/90:8190.19511:BLO	50,400.00
20/04/90:50.1.00409		LINEN DUA MUXA 79 X 109	16 LBR	4,500.00											
					21/04/90:71.90.0037:12	JAM		574.32	21/04/90:	Z	285.32				
					21/04/90:71.90.0037:12	JAM		4,440.40	21/04/90:	Z	5,612.22				
21/04/90:50.1.00414		AMPLOP LINEN 12 1/2 X 18 1/2	100 LBR	3,050.00											
					23/04/90:71.90.0038:13.5	JAM		4,995.46	23/04/90:	Z	6,313.76				
					24/04/90:71.90.0039:13.5	JAM		4,995.46	24/04/90:	Z	6,313.76				
					30/04/90:71.90.0040:18	JAM		6,353.29	30/04/90:	Z	7,998.16				
					01/05/90:71.90.0041:38	JAM		16,938.29	01/05/90:	Z	21,408.30				
					02/05/90:71.90.0042:34	JAM		15,173.86	02/05/90:	Z	19,178.24			01/05/90:2690.1.010:KLISE REPRO BASUKI	488,700.00
					03/05/90:71.90.0043:38	JAM		16,938.29	03/05/90:	Z	21,408.30				
					04/05/90:71.90.0044:30	JAM		13,762.02	04/05/90:	Z	17,393.82			03/05/90:2690.1.011:KLISE REPRO PRODUKSI	440,000.00
					05/05/90:71.90.0045:38	JAM		16,938.29	05/05/90:	Z	21,408.30			04/05/90:2690.1.009:KLISE BASUKI	374,000.00
					07/05/90:71.90.0046:38	JAM		14,844.29	07/05/90:	Z	18,761.70			05/05/90:2690.1.012:KLISE REPRO BASUKI	359,900.00
					08/05/90:71.90.0047:38	JAM		16,938.29	08/05/90:	Z	21,408.30			07/05/90:2690.1.013:KLISE REPRO BASUKI	488,600.00
					09/05/90:71.90.0048:38	JAM		15,288.27	09/05/90:	Z	19,322.84			07/05/90:2690.1.014:KLISE BASUKI	435,800.00
					10/05/90:71.90.0049:26	JAM		18,349.50	10/05/90:	Z	23,191.93				
					11/05/90:71.90.0050:26	JAM		11,292.43	11/05/90:	Z	14,272.50				
					12/05/90:71.90.0051:37	JAM		14,470.11	12/05/90:	Z	18,288.77				
					13/05/90:71.90.0052:19.5	JAM		14,423.50	13/05/90:	Z	18,229.86				
					14/05/90:71.90.0053:36	JAM		15,804.11	14/05/90:	Z	19,974.81			14/05/90:2690.1.015:KLISE BASUKI	449,300.00
					15/05/90:71.90.0054:42	JAM		18,350.00	15/05/90:	Z	23,192.57				
					16/05/90:71.90.0055:42	JAM		18,350.00	16/05/90:	Z	23,192.57				

KARTU HARGA FOMOK

NOMOR PESANAN : 91.90.00024

BIAYA BAHAN BAKU DAN PENRANTU				BIAYA TENAGA KERJA LANGSUNG			BIAYA OVERHEAD PABRIK		BIAYA P H A K K E T I I						
TANGGAL	NO. BRN/BRV	JENIS BAHAN	JUMLAH SAT.	JUMLAH RUPIAH	TANGGAL	NOMOR JKM	JUMLAH JAM	JUMLAH RUPIAH	TANGGAL	TARIP	JUMLAH RUPIAH	TANGGAL	NO. PP/BLO	NAMA PENGORONG	JUMLAH RUPIAH
					17/05/90	71.90.0056:42	JAM	18,350.11	17/05/90	2	23,192.70				
					17/05/90	71.90.0056:27	JAM	8,369.32	17/05/90	2	23,388.40				
17/05/90	50.1.00477	TINTA SP KUNING	11 KG	18,938.32											
17/05/90	50.1.00479	TINTA MERAH	1 KG	26,554.55											
17/05/90	50.1.00479	KENSURUK 90 GRAM 55 X 100	14 RIM	910,630.00											
17/05/90	50.1.00480	TINTA HITAM	1 KG	12,504.83											
17/05/90	60.1.00481	TC PROSES 6 CYAN	1 KG	20,690.91											
									17/05/90	8190.18520	BLO				5,000.00
									17/05/90	2990.1.016	KLISE BASUKI				418,200.00
					18/05/90	71.90.0057:40	JAM	19,054.52	18/05/90	2	9,466.29				
					18/05/90	71.90.0057:30	JAM	10,412.24	18/05/90	2	27,457.08				
					19/05/90	71.90.0058:33	JAM	10,990.37	19/05/90	2	28,981.67				
					20/05/90	71.90.0059:26	JAM	18,349.50	20/05/90	2	23,191.93				
					20/05/90	71.90.0059:21	JAM	10,794.00	20/05/90	2	28,463.78				
					21/05/90	71.90.0060:31.5	JAM	10,025.95	21/05/90	2	26,438.43				
					21/05/90	71.90.0060:42	JAM	18,350.13	21/05/90	2	23,192.72				
									21/05/90	2690.1.017	KLISE ASIA				371,000.00
					22/05/90	71.90.0061:26.5	JAM	9,467.69	22/05/90	2	24,966.30				
					22/05/90	71.90.0061:42	JAM	18,702.70	22/05/90	2	23,638.34				
					23/05/90	71.90.0062:33	JAM	13,058.29	23/05/90	2	16,504.37				
					23/05/90	71.90.0063:28.5	JAM	10,373.69	23/05/90	2	27,355.42				
									23/05/90	8190.18522	BLO				29,000.00
									23/05/90	2990.1.018	KLISE ASIA				382,500.00
									23/05/90	2990.1.021	PERCETAKAN OFFSET ANGKASA				470,000.00
					24/05/90	71.90.0063:19.5	JAM	11,238.50	24/05/90	2	29,635.92				
					25/05/90	71.90.0064:27	JAM	10,374.45	25/05/90	2	27,357.42				
									25/05/90	2990.1.019	BAYUATA PRINT				362,500.00
					26/05/90	71.90.0065:30	JAM	11,022.19	26/05/90	2	29,065.52				
									25/05/90	2990.1.022	PERCETAKAN OFFSET ANGKASA				470,000.00
25/05/90	50.1.00507	TINTA KUNING SP	11 KG	19,839.32											
25/05/90	50.1.00509	TINTA HITAM	1 KG	12,504.83											
25/05/90	60.1.00509	TINTA MERAH	1 KG	26,554.55											
26/05/90	50.1.00510	TINTA BIRU	1 KG	20,090.91											
26/05/90	60.1.00512	KENSURUK	175 LBR	33,777.75											
									26/05/90	2990.1.023	PERCETAKAN OFFSET ANGKASA				470,000.00
					27/05/90	71.90.0066:19.5	JAM	11,238.50	27/05/90	2	29,635.92				
					28/05/90	71.90.0067:28.5	JAM	10,373.69	28/05/90	2	27,355.42				
									28/05/90	2990.1.020	BAYUATA PRINT				362,500.00
					30/05/90	71.90.0068:25.5	JAM	9,508.54	30/05/90	2	25,074.02				
					30/05/90	71.90.0068:15	JAM	5,385.67	30/05/90	2	6,780.02				
									30/05/90	2990.1.024	PERCETAKAN OFFSET ANGKASA				470,000.00
					31/05/90	71.90.0069:25.5	JAM	9,293.10	31/05/90	2	24,505.90				
					31/05/90	71.90.0069:20	JAM	6,434.60	31/05/90	2	8,100.52				
31/05/90	60.1.00519	KENSURUK	1250 LBR	32,522.50											
31/05/90	60.1.00520	MHS 79 GRAM 55 X 100	112 LBR	9,120.16											

KARTU HARGA POKOK

NOMOR PESANAN : 91.90.00024

BIAYA BAHAN BAKU DAN PERBANTU			BIAYA TENAGA KERJA LANGSUNG			BIAYA OVERHEAD PARRIK			BIAYA PIHAK KE III						
TANGGAL	NO.BBM/BBK	JEMIS BAHAN	JUMLAH SAT.	JUMLAH RUPIAH	TANGGAL	NOMOR JKM	JUMLAH JAM	JUMLAH RUPIAH	TANGGAL	TARIP	JUMLAH RUPIAH	TANGGAL	NO.PP/BLO	NAMA PEMBORONG	JUMLAH RUPIAH
31/05/90	160.1.00521	MVS 70 GRAM	75 LBR	4,419.75											
					01/06/90	71.90.0070	18 JAM	5,507.97	01/06/90	%	6,933.98				
					01/06/90	71.90.0070	29 JAM	10,374.45	01/06/90	%	27,357.42				
					02/06/90	71.90.0071	22.5 JAM	6,090.26	02/06/90	%	7,667.03				
												02/06/90	8190.19827	BLO	15,396.00
02/06/90	150.1.00530	MVS 100 SRAM 55 X 100	80 LBR	8,240.00											
02/06/90	150.1.00521	PC VIETNAM 230 SR 79 X 109	64 LBR	4,125.00											
					04/06/90	71.90.0073	25 JAM	6,695.16	04/06/90	%	8,428.54				
					05/06/90	71.90.0073	65.5 JAM	17,907.32	05/06/90	%	22,543.53				
05/06/90	150.1.00537	MVS 100 SRAM 55 X 100	40 LBR	4,120.00											
05/06/90	150.1.00542	0005	17 LBR	16,533.65											
					06/06/90	71.90.0074	14 JAM	4,569.39	06/06/90	%	5,792.41				
												06/06/90	2590.2.052	PT PANCA PUJIBANGUN	2,485,862.50
												07/06/90	2690.2.053	PT PANCA PUJIBANGUN	1,388,750.00
												22/06/90	8190.19829	BLO	29,400.00
												28/06/90	8190.19831	BLO	42,400.00
30/06/90	161.1.00642	PLATE 730 X 510	104 LBR	587,574.00											
												02/07/90	8190.19532	BLO	7,100.00
												02/07/90	8190.19533	BLO	150,000.00
												07/07/90	8190.19534	BLO	9,650.00
												13/07/90	8190.19539	BLO	245,000.00
J U M L A H				1,775,887.03				594,789.56							948,308.01
															12,141,358.50

ANNEX 4

The following is a suggested wording for mail-shots or fliers which can be handed out by sales executives to show to clients the quality of AJP printing.

They are a useful marketing tool and should be generated whenever sales are falling. They stimulate interest.

Each will have a 4 colour illustration. Laminated or varnished to finish them off.

Page 65 Illustration showing strength. Weight lifter, sumo wrestlers, etc.

Page 66 Sun Rise, perhaps from Mount Bromo.

Page 67 Large Waves with surfers or wind surfers.

There is a new strength in the market.

We have been here for a very long time, serving the people of East Java, printing the requirements of local government and ministry.

Now that we have moved to new premises and have re-equipped with the latest in technology, it is time for us to offer you the chance to experience our strengths at first hand.

We have small and large offset printing machines capable of the finest quality work. From Brochures to Annual Reports, Business Forms to Continuous Stationery and Books to Boxes.

Our experienced tradesmen are factory trained to the highest quality and are fully conversant with every kind of work.

Whatever your printing needs, just call us and we will send an experienced executive to discuss them with you.

Our strengths can be yours for the price of a phone call.

The Sales and Marketing Director

Perusahaan Daerah Jawa Timur. Aneka Jasa Dan Permesinan Puri
Telephone. Telex. Fax.

It is not often that you can experience the dawning of a new era.

It is happening now.

After many years in Printing, serving the needs of the people of East Java, by printing for local government and ministries, we have recently re-equipped and moved to new premises.

You now have an opportunity to experience at first hand exactly what this new dawning means to you and your business.

1. Fast and efficient service.
2. Top quality for your reports, brochures and fliers.
3. Reasonable prices.
4. Fast results.

For a competitive price, call us anytime and we will send an experienced executive along to discuss your requirements.

The Sales and Marketing Director

Perusahaan Daerah Jawa Timur. Aneka Jasa Dan Permesinan Puri
Telephone. Telex. Fax.

There is a new force in the market that is synonymous with service, quality and value for your money.

Aneka Jasa Puri (AJP) has, until now concentrated its efforts in the service of the people in printing the requirements of local government and ministry.

We have recently modernised and have moved to new premises in Surabaya.

Now is your chance to join in the new wave and experience us at first hand.

We have small and large offset printing machines capable of the finest quality work.

From Brochures to Annual Reports, Business Forms to Continuous Stationery and Books to Boxes.

Whatever your needs call us and we will send an experienced executive to discuss them with you.

You have seen the rest now experience the best.

The Sales and Marketing Director

Perusahaan Daerah Jawa Timur. Aneka Jasa Dan Permesinan Puri
Telephone. Telex. Fax.

Introduction to Training Sessions

It has become increasingly obvious that there is no distinction between the various roles that people play in Puri.

Management is management, Period.

We must make a distinction between the various categories of work that each manager does. Overlapping of duties has lead to non-action. Someone thinking that his duties have already been performed by another. It also leads to people becoming "indispensable" in other areas.

Shared knowledge means that the factory is efficient and able to cope with any difficulty. And areas of authority means that people talk to one another to pass along vital information.

The areas of training are :

1. Factory Management.
2. Sales and Marketing.
3. Production Control.
4. Quality Control.
5. Product Knowledge.
6. Estimating.

The aim is for areas of responsibility with back-up in times of stress.

All sessions were participatory seminars and included staff from sales, production and management.

Training commenced 9.10.90 and continued for approximately 6 weeks.

SESSION ONE

Factory Manager.

Basically, the role of the Factory Manager is to see that his unit is running smoothly, efficiently and in profit.

He has overseers in :

1. Production Control.
2. Origination.
3. Machine Department.
4. Finishing Department.
5. Quality Control.
6. Accounting (cost control, etc.).

It is his duty to liaise between departments so that everything runs like a well oiled machine, and to see that the paperwork necessary to the running of the factory is adequate and used properly. -

He will report on a regular basis to his Managing Director, who is interested in profitability and growth.

Each morning before the working day begins, he will hold a production meeting during which he will explain in detail the new work which came into the factory the day before.

He will pass the work on to the origination overseer for the work cycle to begin.

He then goes through any problem that each department overseer has. Once he has their feed back, he must act on it.

If the factory is getting light on work he will talk to the Sales and Marketing Director, who then talks to his team and perhaps reduces profit margins in order to gain more work.

If the factory is getting full of work, he also passes that information back to Sales.

It is necessary to have a clear-cut distinction between Production and Sales functions so that work is constantly chased by the sales people who seek to satisfy their clients to gain more of his work.

SESSION TWO

Sales and Marketing.

Each year when the Directors meet, the sales target required for the forthcoming year is set.

It is the duty of the Sales and Marketing Director to at least achieve that target.

He is not interested in any production problems - that is the duty of the factory manager. He will have a budget so that he can adequately market the factory. And he will market it according to an agreed formula at Board Room level.

If he is falling behind target he will drive his sales people to greater efforts and also market the company by fliers, etc.

If the factory is full and he is over target he can raise profit margins and also send work out for completion.

He monitors his team's daily and weekly efforts and their progress in achieving their individual targets.

He sees that his own department is running smoothly.

He is responsible for :

1. Sales Targets.
2. Estimating.
3. Generating Job Orders. (Paperwork).
4. Purchasing.
5. Stock Control.

SESSION THREE**Production Control**

The Production Controller's duty is to assist the flow of work throughout the factory. He has to know where any particular job is, when it will move and where it will move to.

He is assisted in this work by the estimators' sheets which give him the estimated hours in each area.

He charts each job through the factory by use of progress boards and graphs.

Unexpected stoppages should be fed back to sales by use of "Information feedback" sheets. They must be told.

His work is simplified by his knowledge of the processes and the known number of operators and machines available balanced against the hours needed to process a job.

SESSION FOUR**Product knowledge**

Consisted of explaining various pieces of work. Calendars, brochures, fliers, invoice books, etc. Each piece of work has to be dissected in order to describe it on an estimating form.

Papers were also discussed and explained.

SESSION FIVE**Estimating**

The new estimating system was explained in detail.

Based upon the sales enquiry sheet, the estimator can build up a picture of the job and give an accurate prediction of cost.

This session will be tied to session two and four in explaining the whole system.

SALES ENQUIRY

Date _____ Customer _____
Call No. _____ Address _____
Name & Job Title _____

1. Description.
2. Contents.
3. Size.
4. Material.
5. Method of Printing.
6. Origination.
7. Binding.
8. Quantity.
9. Delivery.
10. Price Rp.

Run on 1000 Rp.

INFORMATION FEED-BACK

FROM _____

TO _____

DATE _____ No _____

COPIES

SALES
PURCHASING
MANAGER
PRODUCTION CONTROL
QUALITY CONTROL
ESTIMATING

ORIGINATOR
MACHINE ROOM
FINISHING
DISPATCH
COSTING
STORE

PERUSAHAAN DAERAH ANEKA JASA DAN PERMESINAN

PROOF

APPROVED

APPROVED WITH CORRECTIONS

REPROOF

CUSTOMER _____

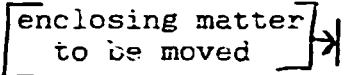


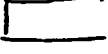






EXAMPLES OF PROOF READING MARKS

Instruction	Mark on text	Mark in margin
Correction is concluded	none	/
Delete	/through character(s) or — through words to be deleted	
Delete and close up	/through character or through characters	
Substitute character or substitute part of one or more word(s)	/through character or — through word(s)	new character or new word(s)
Change to lower case	/	l.c. /
Set in or change to italic	— under character(s) to be set or changed	ital /
Set in or change to capital letters	===== under character(s) to be set or changed	caps. /
Set in or change to bold type	~~~~~ under character(s) to be set or changed	bold /
Change italic to upright type	Encircle characters to be changed	rom. /
Substitute or insert character in 'superior' position	/through character or where required 	under character e.g.
Substitute or insert character in 'inferior' position	/through character or where required 	over character

PROOF READING MARKS

Instruction	Mark on text	Mark in margin
Substitute or insert full stop, decimal point colon or semi colon	/through character or where required h	o □ o o
Substitute or insert apostrophe, single quotes or double quotes	/through character or where required h	3 4 5 6 7 8
Substitute or insert hyphen	/through character or where required h	-/
Substitute or insert oblique	/through character or where required h	//
Start new paragraph	┌	n. p.
Run on (no new paragraph)	→	run on /
Transpose characters or words	┌┐ between characters or words, numbered when necessary	trs /
Transpose a number of characters or words	3 2 1 	1 2 3 /
Transpose lines	┌	trs /
Transpose a number of lines	≡ 3 ≡ 2 ≡ 1	1 2 3
Centre	[enclosing matter to be centred]	[Centre]
Indent	┌	□ □
Cancel indent	←┐	//

PROOF READING MARKS

Instruction	Mark on text	Mark in margin
Move matter specified distance to the right	 <p>enclosing matter to be moved</p>	
Take over characters words or line to next line, column or page		
Close up. Delete space between characters or words	 <p>corr  ection</p>	
Insert space		
Leave as printed	<p>..... under text</p>	

C/

By 1980. The Computer Revolution - or Data Processing Revolution - had begun to transform world communications almost as drastically as the invention of movable type and the printing press in 1454, the rotary press in 1844 and the linotype machine in 1886. Indeed Christopher Evans, in his book The Mighty Micro, flatly predicted that in the 1980's the printed word will slowly but steadily "slide into oblivion".

e/

Hall/

Dr. Evans, to be sure, based his predictions on devices still in the experimental stage: computer terminals the size of a book's page. Automatic "page turning" and ceiling screens for comfortable reading in bed. But he also notes that practical "electronic newspapers" are already in existence - such as England's Prestel, that in 1980 began to provide up-to-the-second news, airline and magazine schedules, articles for TV screens. And there is no denying that the introduction of computerised typesetting in the 1970's virtually eliminated the typewriter and the linotype machine from most American newspapers and publishing houses. To some in the publishing and printing industries, such changes were as shattering an experience as the introduction of printing must have been to the medieval scribe. Suddenly forced to swap their battered typewriters and clanking linotype machines for the futuristic keyboarding and green lettered television terminals of the Computer, aging reporters, veteran editors and trained printers often quailed and quit. As so often happens, the casualties of progress were high.

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(o)

But the trend is irreversible. Fast, silent and efficient, the computer saves time, reduces noise, cuts costs and promises a transformation in communications as significant as the effects of the two seminal inventions in the history of communications: paper and printing.

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Both paper and printing - which changed the worlds into which they were introduced - originated in the Far East; and paper at least was transmitted to Europe through the Islamic world. Like the invention of the alphabet itself, also of eastern origin, the ramifications of both inventions were far reaching. In today's print saturated world, Gutenberg's invention of movable type may not seem as remarkable as it actually was. But given the technology of 1454, making type faces was proportionately more difficult than making transistors - as J. Ben Lieberman makes clear in Type and Typefaces. Craftsmen had to cut out a mirror image of the shape of each letter on the end of a steel rod, hammer the outline of the steel "letter" into a flat piece of brass - to create a matrix - and carefully pour a molten mixture of lead, tin and antimony into a mould thus creating a one inch high piece of "type" with one letter on the end. This had to be done for each letter and one page of Gutenberg's Bible needed up to 5,000 individual pieces of type. The new printers therefore had to have up to 25,000 pieces of type on hand - plus another 25,000 spaces to separate the type if they wished to keep setting other pages while one was being printed.

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A ~~practical~~ advance, movable type, together with the printing press made books - and thus literacy and learning available to the masses, a development that was to have incalculable results. Had Columbus been born earlier, for example, he probably would not have had access to such works as the writings of Ptolemy, which spurred him towards the discovery of the New World. Movable type was introduced just one year after the fall of Constantinople sent Byzantine scholars streaming into Italy - with their precious collections of Greek manuscripts - where the printing press provided a channel for the circulation of Greek learning throughout Europe.

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By 1980, The Computer Revolution - or Data Processing Revolution - had begun to transform world communications almost as drastically as the invention of movable type and the printing press in 1454, the rotary press in 1844 and the linotype machine in 1886. Indeed Christopher Evans, in his book *The Mighty Micro*, flatly predicted that in the 1980's the printed word will slowly but steadily "slide into oblivion".

Dr. Evans, to be sure, based his predictions on devices still in the experimental stage: computer terminals the size of a book's page, automatic "page turning" and ceiling screens for comfortable reading in bed. But he also notes that practical "electronic newspapers" are already in existence - such as England's *Prestel*, that in 1980 began to provide up-to-the-second news, airline schedules and magazine articles for TV screens. And there is no denying that the introduction of computerised typesetting in the 1970's virtually eliminated the typewriter and the linotype machine from most American newspapers and publishing houses.

To some in the publishing and printing industries, such changes were as shattering an experience as the introduction of printing must have been to the medieval scribe. Suddenly forced to swap their battered typewriters and clanking linotype machines for the futuristic keyboarding and green lettered television terminals of the Computer, aging reporters, veteran editors and trained printers often quailed and quit. As so often happens, the casualties of progress were high.

But the trend is irreversible. Fast, silent and efficient, the computer saves time, reduces noise, cuts costs and promises a transformation in communications as significant as the effects of the two seminal inventions in the history of communications: paper and printing.

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