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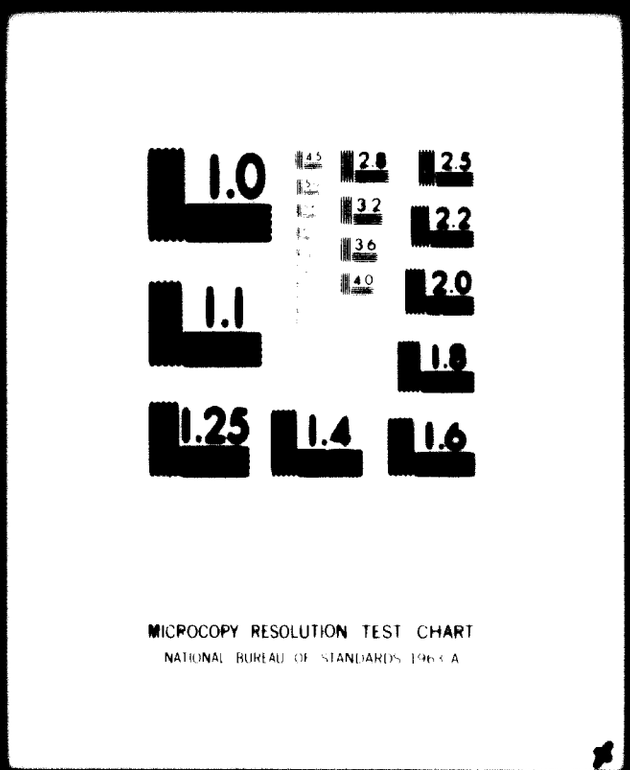

Assistance in Paper Mill Operation in Indonesia

Assistance in Paper Marketing in Indonesia

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UNIDO CONTRACT No. 70/67

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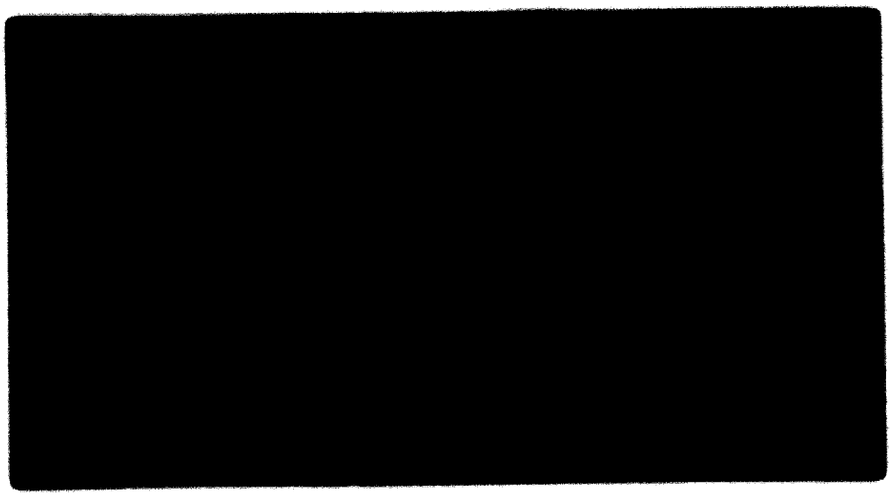

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MURNAU
MÜNCHEN
DÜSSELDORF

Assistance in Paper Mill Operation in Indonesia

Assistance in Paper Marketing in Indonesia

UNIDO CONTRACT No. 70/67

This Study was elaborated on behalf of UNITED NATIONS INDUSTRIAL DEVELOPMENT ORGANIZATION based on Contract No. 70/67 between UNIDO and GOLLWITZER INGENIEURPLANUNG & Co., by Diplom-Kaufmann and Paper Engineer Hans-Hermann Dittner in the months of June till September 1972.

Betrifft: Assistance in Paper Mill Operation in Indonesia
Assistance in Paper Marketing in Indonesia

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A. RESUME

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A. RESUME:

In view of the scope of the tasks assigned, namely to develop new objectives and to explain in their essential details new objectives for the Indonesian paper industry, it is not exactly easy to open with a brief abstract, and so the interested reader is asked to devote himself to a study of the report in detail. Nevertheless an attempt is to be made here to condense the essential results and the so-called topics of this report into a brief outline.

The decisive question facing the Indonesian Government is: "Can our relatively small paper mills, faced with the hard international competition, survive or not?" In the view of the report-writer they can survive and above all, and that is one of their most important tasks, can guarantee the smoothest possible transition to the phase of employing larger and more economic new plants. To do this, however, a number of measures are absolutely necessary, and on these the report-writer has made a number of proposals in this study. Some of these are:

- To merge all existing paper mills.

- To develop the existing paper mills until they have reached a level at which an economic return is secured and stable profits of five per cent and above have been attained, in place of the subsidies which have been paid so far for all paper mills together.

- To expand these profits by a number of measures proposed to increase productivity, such as for example, by adhering to uniform area weights and moisture contents, which will raise yields for all the works together by more than 5% and working within more favourable allowable variations, which will increase the net profits by altogether some 10%. This is a measure which could be carried out with a minimum of investment funds and in a very short period of time.

- Expanding and safeguarding these profits by systematically building up a sales organisation.

- Expanding and safeguarding these profits by a number of control measures, such as the direct costing system and the statistical quality and operational controls which are to be carried out continually.

- Safeguarding all these projects by developing and expanding a market-orientated management.

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The question then asked by the Indonesian Government "Has our Indonesian paper industry also a chance in the future in view of the international competition?" can be answered by the report-writer on the basis of these observations as follows. There is a chance on condition - and the conditions are dealt with in this report - that

- the preparations for the expansion and the expansion itself of the Indonesian paper industry are ensured by suitable direct and supporting measures of the Indonesian Government. Thus in the course of ten years one-third of all investment costs could be paid in cash by means of a special fund from a proposed and reasonable additional tax on all imported paper.

- Here it is assumed that in this way the production output so far achieved can be increased tenfold in this period of time.

- This measure will also allow the control of this growing industrial section by foreign capital to be avoided, and the choice of partners for co-operation will not be dictated by financial considerations.

Suggestions which are based on findingsconcerning the future paper market and, as far as was possible, which take the present possibilities of raw material supply into consideration, are deliberated for various types of paper in this report. Further important prerequisites for safeguarding the future of the Indonesian paper industry are seen in a propitious connection between the abundant resources of fibrous raw materials and their systematic development into useful paper pulp on the domestic paper market, to cultivate it and to expand with it. If foreign partners also want to participate in the Indonesian resources of raw materials, it should not be forgotten that a developing country like Indonesia in particular can handle co-operation of this kind to best advantage with a strong paper industry of its own.

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B. REPORT

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1. INTRODUCTION

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1.1 First Subject:
Assistance in Paper Mill Operation in Indonesia

The wording of the assignment which was recently given to the report-writer as a sub-contractor of Messrs. Gollwitzer Ingenieurplanung & Co. as adviser on management for the Indonesian paper mills in the UNIDO Headquarters on 7th and 8th July, 1971, in Vienna was

first: advising the management of 3 state-owned paper mills, selected by the Government, and management of all their activities

second: on the introduction of a production planning and control system

third: on methods to increase productivity, particularly in the finishing sections

fourth: on specialization of production between the mills and on products, which are no longer to be manufactured (in cooperation with another cost-expert).

Another request which the report-writer was also given by UNIDO was:

To give recommendations for the future planning of the Cellulose Institute of Bandung.

It was arranged to carry out the Commission in two visits to Indonesia lasting altogether five months. The purpose of the first visit was to collect material

- on the technical and organizational requirements of the Indonesian paper mills, the assignment being appropriately extended by the Indonesian counterparts to cover all Indonesian paper mills.
- on the market requirements which were necessary to carry out the tasks set.

It should be noted on this point that the costs expert, Mr. Cook, had already completed his work before Gollwitzer Ingenieurplanung had received their assignment; furthermore that when the report-writer had concluded his preliminary work at the end of the first visit to Indonesia he was confronted with the fact that another expert, Mr. van Doosselaere, who had at first not been envisaged for this task, was to be responsible for the technical part of his assignment.

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1.2 Second Subject:
Assistance in Paper Marketing in Indonesia

This above-mentioned fact resulted in, on the one hand, the other expert taking over the preliminary technical work of the report-writer, and, on the other hand, in the report-writer being asked by his Indonesian counterparts to work out, in addition to the tasks assigned to him,

first: to carry out a market survey of the whole of the Indonesian paper market,

second: to work out suggestions for the sectors of finance and marketing for the management of the Indonesian Government and the paper industry.

The report-writer was at the same time asked to make his report so complete that this material could be used for short, medium and - if possible - long-term planning. There was also an understanding, however, that in view of the change in and an expansion of the assignment the report could contain only the essential proposals.

The process of re-formulating the assignment took place mainly in two phases which covered the period from 14th October, 1971, to 25th April, 1972.

A confirmation of the new formulation and extension of the contract to be officially agreed upon due to the aforementioned facts has, hitherto, not yet been forwarded by UNIDO, Vienna, to Gollwitzer Ingenieurplanung & Co.

It was only confirmed in a letter dated 29th August, 1972, that the division of work agreed to on 5th April, 1972, and confirmed by the Department Kimia was in principle acceptable to UNIDO.

The report-writer points out that this agreement between the contracting parties still has to be made in a way acceptable to all parties concerned.

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1.3 Assistance in Formulating the Tragets of the Indonesian Paper Industry

The purpose of the request of the Indonesian Government for assistance in formulating its aims for the concerns of the state-owned paper industry is, as the General Manager of the Department for the Chemical Industry put it in a general discussion on 14th October, 1971,

> To receive acceptable proposals for its short, medium and - if possible - long-term planning projects.
>
> These proposals should be backed up by the market, the financial side and the organizational and technical aspects.

The report-writer was asked - especially after difficulties had unfortunately set in in the co-operation with the other expert - by the leader of the team of his Indonesian counterparts, Director I. R. Hartarto, to write the report in such a way that these intentions of the Indonesian Government might be largely taken into account.

The report-writer has endeavoured, in spite of a number of difficulties, to pay due consideration to this fact. This report, in line with the formulation of

- the first assignment:
  Assistance in Paper Mill Operation in Indonesia
- the second assignment:
  Assistance in Paper Marketing in Indonesia and
- the wishes of the Indonesian Government and the counterparts

is constructed in such a way that he has tried to do justice to all the tasks assigned to him. At this point it is a pleasant duty for the report-writer to express his gratitude to all those who have assisted in compiling this report.

Thanks are due to the General Manager, Mr. A g u s S u j o n o, and all the members of the Department of the Chemical Industry, especially the leader of the team of his counterparts, Director I. R. H a r t a r t o and the managers of the other departments, the engineers

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I. R. Sarudji, I. R. Salmon, I. R. Anwar Ibrahim and I. R. Wagiono, I. R. Afiat and I. R. Wattimena as well as Director Daulat and, last but not least, Mrs. Sri Dati Soebono. Thanks are also due to the managers of the paper mills and all their helpful staff, I. R. Satijatmo, Padalarang, I.R. Oetjok Notokoesoemo, Letjes, Mr. Soewarto, Blabak, I. R. Abubakar Soetikno, Banjuwangi, I. R. Sidharta, Gowa, and Mr. Tajib from Letjes, as well as Dr. Roehjati Joedodibroto and I. R. Gardjito Pringgo Sudirdjo from the Cellulose Institute in Bandung.

Thanks are also due to the counterparts from "The Management Institute of the University of Indonesia" and the many other state and private centres who were of assistance in obtaining information.

The report-writer would also like to express his gratitude to the ladies and gentlemen in the UNDP Office in Djakarta, who made a special effort to remove the organizational difficulties.

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1.4 Methodical Action

This report has been compiled along the lines laid down in section 3.31 on General Remarks about Strategic Conceptions of the Model Presented.

Within the framework of the investigation into the whole of the paper market undertaken the following were carried out:

I) A critical analysis of the sales market

II) Critical remarks about existing procurements

III) Discussions on conclusions and problems of the markets.

The findings of the paper consumption expected were broken down and presented for the individual, newly classified paper grades.

On the matter of forming a conception at first a discussion of the market aims took place with the strategic objectives

Concentration

Specialization and

Expansion.

Here a number of recommendations and proposals were worked out for each individual grade of paper and each existing paper mill. Finally the proposals were presented in a model which was set up for all grades of paper and markets in short, medium and long-term alternative planning. Proposals were also made for long-term planning projects including some advice on facilitating the financing of these projects. The individual proposals thought necessary were made by the report-writer in his capacity as an independent, advisory paper engineer and graduate in commerce on the basis of investigations into the quality of the products, on the basis of investigations into costs, on the basis of direct costing and on the basis of critical observations of the conditions as they were found to exist from the sectors of the paper market economy and the pulp and paper-making techniques and business economy.

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These conceptual proposals were supplemented by recommendations on the organizational structure of the management of the proposed new, merged Indonesian paper group and by recommendations for more market orientated objectives and secondary strategies, such as

production strategy,

distribution strategy,

communication strategy,

and by recommendations for direct and supporting measures in keeping with the market, with which the Indonesian Government should back up the proposed recommendations for developing and expanding the Indonesian paper industry.

The report-writer proposes that the recommended measures should be elaborated in a number of boards of experts and that after carrying out their own investigation into the realities and possibilities a production and sales plan be set up.

In a separate section and at various points in the report wherever it was necessary, the report-writer has presented his proposals for the Cellulose Research Institute of Bandung.

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1.5 Practical Execution

Based on an offer of December 15, 1969, UNIDO and Gollwitzer Ingenieurplanung signed a contract for performance of the consultancy services on April 27, 1971. The date of departure of the report-writer was fixed for the end of June and then took place on 27th July, 1971 after the briefing from 6th to 8th July in Vienna.

The first visit lasted from 27th July, 1971, to 20th October, 1971. All four paper mills on the island of Djawa

Padalarang,
Blabak,
Letjes and
Banjuwangi

were visited twice in two uninterrupted trips. The Cellulose Research Institute of Bandung was also visited and a number of talks were conducted with the partners at the Department of the Chemical Industry and other authorities and market partners of the Indonesian paper industry. At the conclusion of the first visit a report was made at a general discussion in Djakarta on 14th October. This Short Narrative Intermediate Report about the First Findings was presented to UNIDO by Gollwitzer Ingenieurplanung & Co. in its recently revised version, supplemented by the intermediate activity in Germany, in April 1972.

In the meantime the report-writer carried out from Germany a number of necessary investigations and preparations for the second visit to Indonesia. The return of the report-writer to Indonesia, which was to have been at the beginning of 1972, was delayed for reasons of health by about two months, and then a number of organizational difficulties at UNIDO beyond the control of the report-writer were the reason why the second visit to Indonesia did not take place until 26th March, 1972, after a previous visit to UNIDO in Vienna, on March 8, 1972.

The second visit to Indonesia lasted from 26th March to 24th May, 1972. During this trip all four paper mills on Djawa and the Cellulose Research Institute were visited, in some cases several times, as was the paper mill in Gowa. Further talks were held in the Department of the Chemical

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Industries in Djakarta and with other authorities, institutes and market partners of the Indonesian paper industry. In a final discussion in the headquarters of the Chemical Industry in Djakarta on 22nd May, 1972, the Indonesian counterparts were informed of the essential findings of the investigations and the basic proposals.

Here the report-writer feels bound to remark from his viewpoint that the scope of the new assignments and the very short period of time remaining to him in Indonesia has also resulted in an increase in the amount of work. His Indonesian counterparts acknowledged this fact and thus suggested that a report be finished in a rough version by October 1972 or earlier if possible. On this point the report-writer must note that the exhaustive work for a task of this scope, which is of some importance for the future objectives of the Indonesian paper industry, must be carried out carefully, and this needs time.

The report-writer hopes that this report will satisfy the expectations of his Indonesian counterparts.

The following remarks should please be regarded as a necessary supplement to the report:

At the above-mentioned general discussion on 14th October, 1971, Mr. v a n D o o s s e l l a e r e , who at that point had just arrived in Indonesia, was also commissioned, as was explained in the Short Narrative Intermediate Report of the report-writer, to carry out tasks more of a technological nature connected with production, the main purpose of which was to achieve, in a short time, the designed capacities of all Indonesian paper mills and to achieve an economic productivity. Due to the preliminary work done by the report-writer in this sector and because the problems involved are closely interconnected, both experts were asked to co-operate. The difficulties which unfortunately arose in this respect, which the report-writer must also set out in the appendix on the tasks of the Cellulose Institute, made it impossible to continue the work in the proper manner, so that the report-writer, after discussing the matter with his Indonesian counterparts and after approval had been given by the co-ordinator of the UNDP Office in Djakarta, was requested by them to present his report in a completed form.

MAP OF INDONESIA

LOCATION OF PAPERMILLS

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2. MARKET RESEARCH

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I. CRITICAL ANALYSIS OF THE SALES MARKET

2.1 Paper Market Research

2.11 Description of the Existing Paper Market and the Future Outlook

2.11.1 Paper Consumption

The consumption of paper in Indonesia is very low. Using corrected values, which are more accurate than the figures so far published, the consumption of paper and cardboard in 1971 can be expected to reach

about 180,000 tons.

With a population of about 120 million, this is a per capita consumption of

about 1.5 kg.

To ascertain consumption figures, the following critical annotations must be made:

- A statistical census of overall paper consumption (Biro Pusat Statistics) has not yet been carried out; the census required for this purpose is still incomplete. As an example, data on the production of paper and cardboard by private enterprises are still lacking. In addition, the classification presently used is not recommendable. Better proposals corresponding with international usage have been submitted (see Conclusions 2.12).

- The ascertainments carried out so far on consumption have led to different values, in addition to the fact that processing and printing products have not been covered. In the following Table 1 the results of our own investigations, which, above all, are based on detailed import data, including processing products, are compared with the values of other sources.

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2.11.2 General Remarks about the Long-term Paper Market

In order to be able to estimate Indonesia's future long-term consumption of paper, a comparison with the development in other countries appears to be appropriate. By exemplifying the German per capita consumption of paper, Table 2 shows the model of a long-term development of the consumption of paper.

According to that Table , the consumption of paper in Indonesia is at present passing through a transitional phase from the development period to the initial stage of industrialization. See also paragraph 2.11.3.

This calls for the following comments:-

- The life curves of products in development countries generally take a steeper and, possibly, more short-lived course than those of earlier industrialized countries. The Indonesian per capita consumption of paper is believed to follow, by and large, roughly the course of the broken-line curve.
- Thus the possible future Indonesian per capita consumption of paper is believed to increase

from about	1.4 kg	in 1970
to about	3.5 kg	in 1980
to about	9.0 kg	in 1990
to about	17.5 - 22.5 kg	in 2000

This assumption is based on comparisons with Daeves's product life curves and on the prerequisite of a normal macro-economic state of development.

The values assumed here are largely dependent, among other things, on the future behaviour of a number of additional characteristics and can thus be used only with the necessary care and reservation. Nevertheless, there is an interest in principle to form an idea of the order of magnitude of the future consumption of paper in Indonesia.

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Table 1	The Various Reports on Paper Consumption in thousands of metric tons; 1966 - 1971			
Year	MIUI [1]	IPPA [2]	WB [3]	Own Investigations
1966	49,4	.	54,6	52,8
1967	75,6 [4]	70,8	76,3	76,9
1968	105,7	85,2	99,2	90,3
1969	96,1	103,2	104,3	110,5
1970	148,7	122,5	134,5	164,2
1971 u	156,9	137,9	.	177,0

Sources:
1) The Management Institute, University of Indonesia
2) Indonesian Sources of Indonesian Pulp and Paper Association
3) World Bank
4) Corrected Value
u = Upgraded

- **The following quantities of consumption can be assumed, including the conservatively estimated domestic production of paper and cardboard, consisting mostly of rice straw and waste paper, and the imported paper processing products:**

Year	Consumption of paper in 1,000 tons p. a.
1966	54
1967	78
1968	98
1969	111
1970	161
1971 •	179

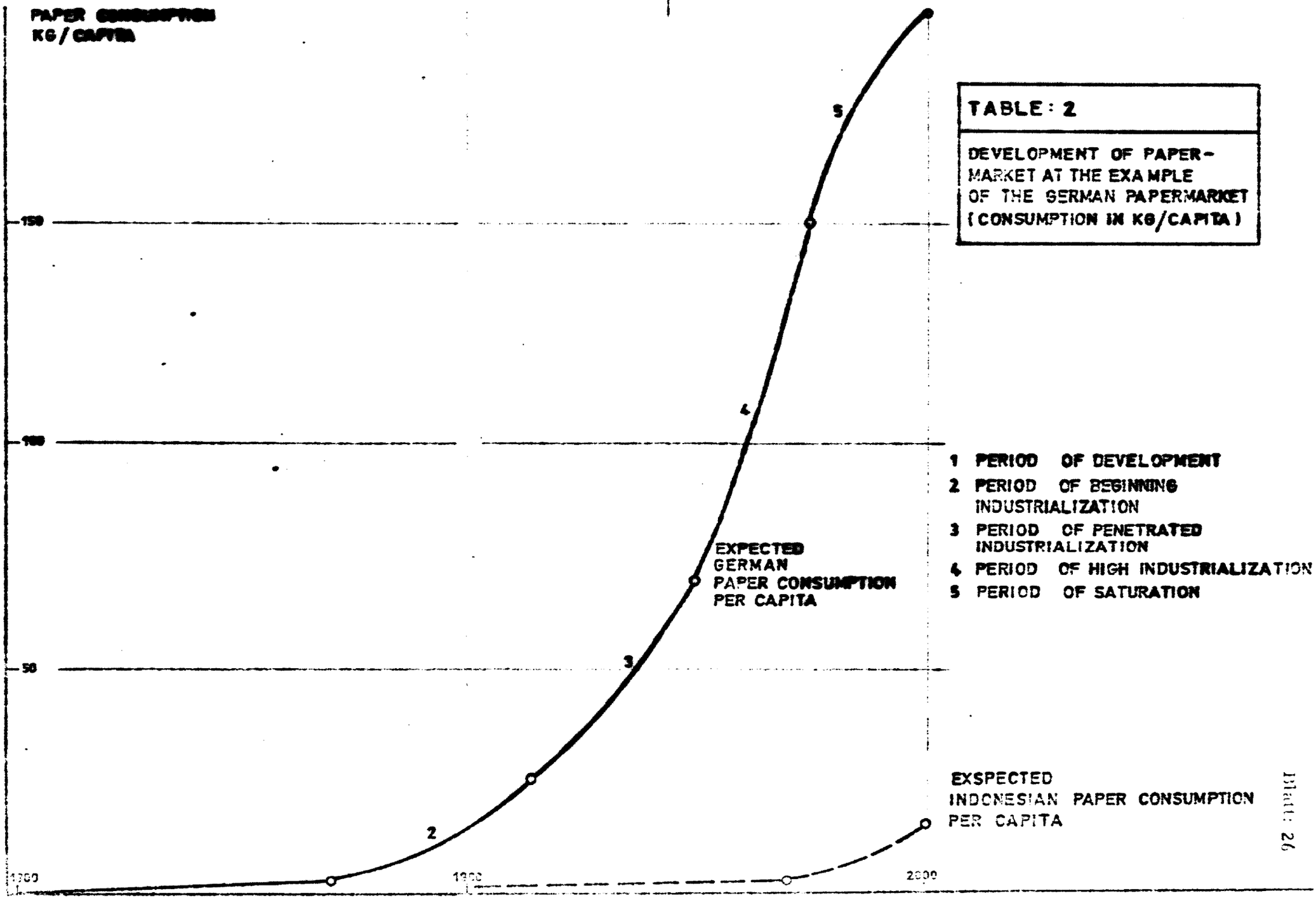

TABLE : 2

DEVELOPMENT OF PAPER-MARKET AT THE EXAMPLE OF THE GERMAN PAPERMARKET (CONSUMPTION IN KG/CAPITA)

1 PERIOD OF DEVELOPMENT
2 PERIOD OF BEGINNING INDUSTRIALIZATION
3 PERIOD OF PENETRATED INDUSTRIALIZATION
4 PERIOD OF HIGH INDUSTRIALIZATION
5 PERIOD OF SATURATION

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- When assuming a slow reduction in the increase in population, the increase in paper consumption shown in the following Table 3 can be assessed.

Table 3	Estimate of the Future Paper Consumption of Indonesia in Approximate Figures.				
Period	Increase Population %	Population at the End of the Period (in millions of inhabitants)			Estimated Paper Consumption at the End of the Period (in millions of tons) p. a.
		Djawa	other Islands	Total	
1970	-	76	41	117	0,160
1970 - 1980	2,25	92	49	141	0,5
1980 - 1990	2,5	100	59	169	1,5
1990 - 2000	2,75	130	70	200	3,5 - 4,5
Source: Own estimation					

As pointed out previously, these figures reflect only rough estimates. They should be co-ordinated with other macro-economic forecasts, if required.

- In a comparison with the international development of paper manufacture and consumption, the development of the Indonesian consumption may be assessed as being noticeably expansive, as shown in Table 4.

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Table 4 — Comparison of the Future Paper and Board Consumption in Indonesia.

	1970	1975	1980	1985
World [1]	100	129	170	219
Developing Countries [1] [2]	100	124	182	235
Indonesia [3]	100	160,5	337	770

Sources:

1) FAO-estimation
2) do.: Africa, Asia (without Japan and P.R. of China), Oceania
3) own estimation

With respect to the present Study the value of such long-term investigations into the paper consumption in Indonesia lies, above all, in the fact that even today and for all medium-term considerations the proper decisions can be taken, decisions that are co-ordinated with the long-term development. Among others these are above all:

- Plans for meeting the requirements of fibrous raw material of future projects on which initial action is to be taken now. Concerning the fibre timbers available in Indonesia, the cycle until beating maturity is reached takes 15 or more years.
- Plans for supplying the existing pulp and paper mills with better fibrous raw material than those used heretofore, so as to achieve paper qualities comparable to international standards. Anticipation of such projects should be considered after examination.
- The same applies to considerations about the build-up of an improved transport and supply system.

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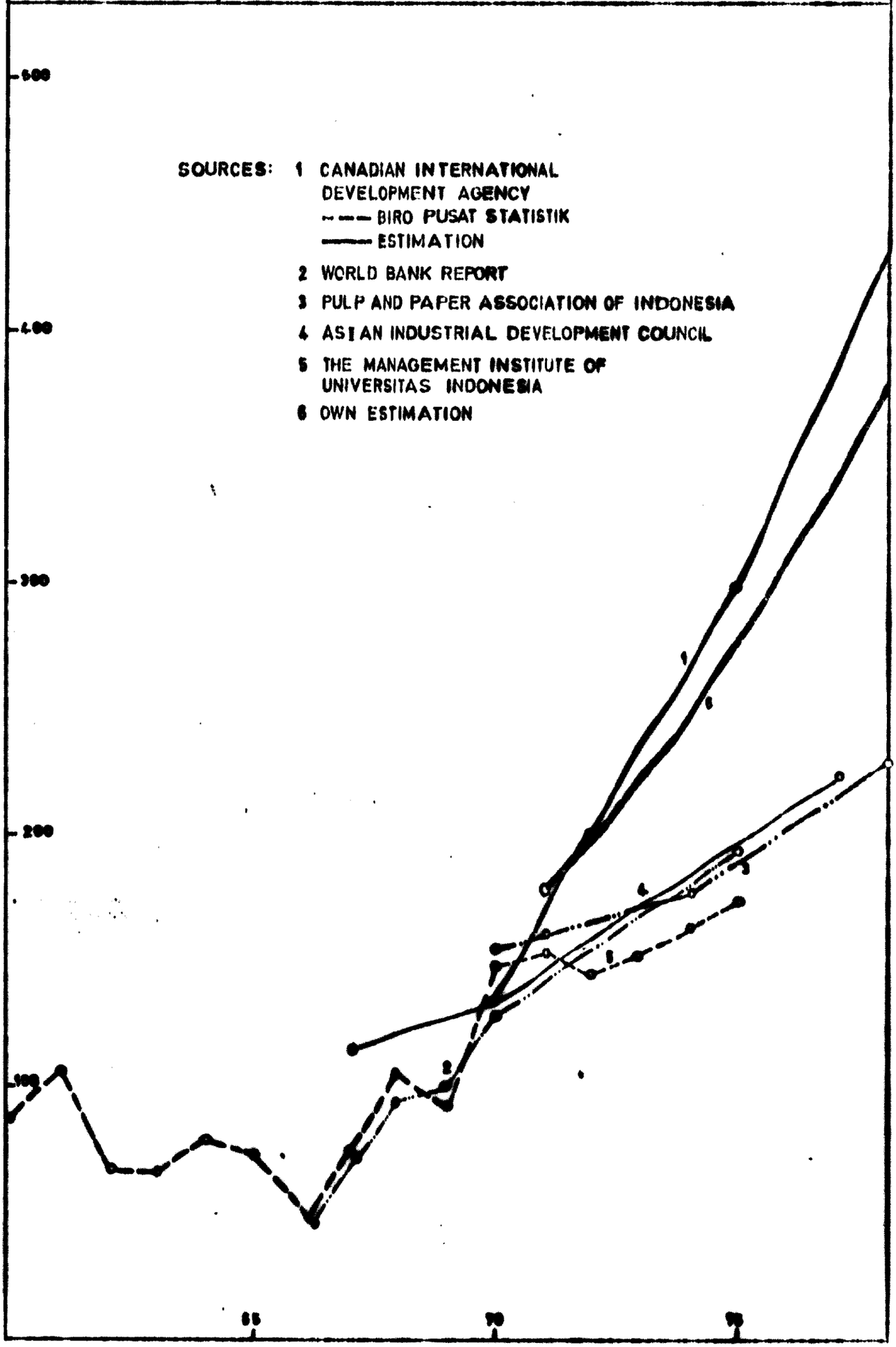
- By giving due consideration to the long life of pulp and paper manufacturing plants, computatations of rentability are to be established as soon as possible with reference to the overall effective period, which rent ability can be compared with the status of the present facilities and will allow a plan to be set up on the efficient integration of these facilities into long-term planning.
- Having regard to the appropriation of very substantial amounts of capital, which are most probably not taken into account in present Indonesian considerations, there is a necessity to develop and prepare new economic alternatives to this end.
- Last but not least, there is a necessity to work out general objectives with regard to sales policies on the home and export markets.

TABLE: 5	PAPER CONSUMPTION OF INDONESIA COMPARISON OF DIFFERENT ESTIMATIONS	Blatt: 30



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2.11.3 Medium-term Prognosis of the Paper Consumption

The development of Indonesian paper consumption so far is shown in Table 1. The various estimates on the future development of the paper consumption in Indonesia are depicted in a diagrammatic comparison in Table 5.

For the period from 1970 to 1975 the various reporting experts have applied the following average growth rates to the consumption of paper (cf. Table 6)

Table 6 Comparison of Several Forecastings

Reporter	Increase p. a. 1970 - 1975
The Management Institute University of Indonesia	4%
Paper Association of Indonesia	about 11%
Asian Industrial Development Council	
World Bank Report	
Canadian International Development Agency	16,5%
GNP at equal prices	6 - 7%

Sources:

BAPPENAS and other Sources

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For a medium-term estimation of the overall paper consumption there are thus the following mean values which are rounded off:

Table 7	Estimate of the Future Total Consumption of Paper and Board in Indonesia from 1970 to 1975
Year	Total Consumption in Tons/Year
1970	166 000
1971 e	179 000
1972 e	199 000
1973 e	222 000
1974 e	246 000
1975 e	273 000

Sources:

Own estimation

- **As shown in Table 8 (seepage 33), the time around 1971 ushers in a development that marks the advent of initial industrialization (cf. Table 2).**

  It is a prerequisite, however, that the development of the GNP, as estimated by the Planning Authority BAPPENAS, can be further maintained.

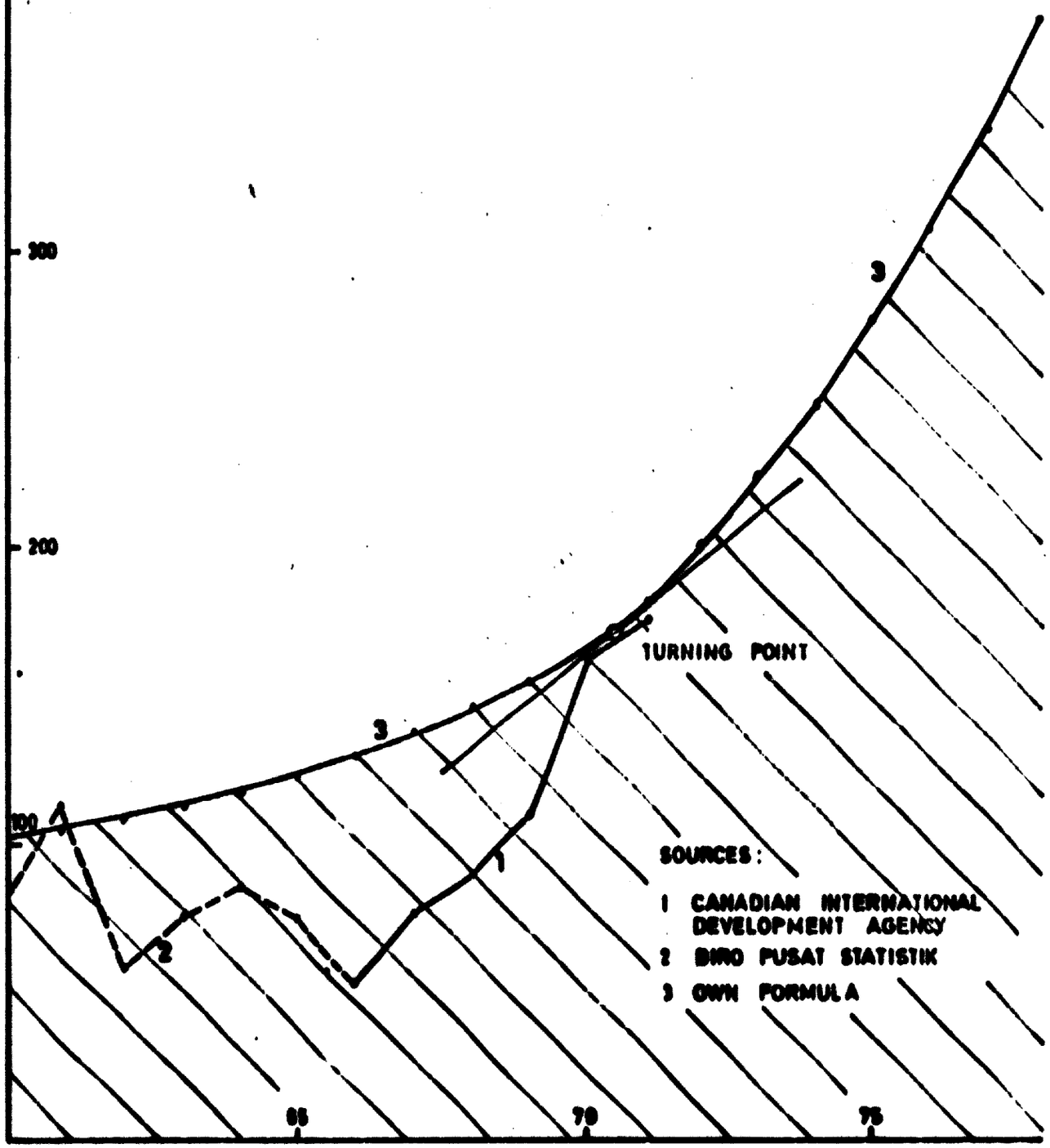
  In detail it can be seen that after the reduction in paper consumption up to 1966, caused by economic policies, a gradual adaptation of the paper consumption curve takesplace.

TABLE: 8

PAPER CONSUMPTION ESTIMATED FIGURES
FOR 1972 – 1973

500 IN 1000 t

BASED ON THE DESCRIPTIONS,
SEE PAGE 23



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Based on the graph, the various estimates can be assessed as follows:-

The estimates of the Management Institute are far too low; they fall short of the annual growth rates estimated for the GNP. Moreover, corresponding with the applied formula, a lower consumption of paper was estimated for 1972.

The estimates of the Pulp and Paper Association, of the World Bank, and of the Asian Industrial Development Council lie close together with regard to their growth trend; their starting points, however, are fixes on too low a level.

The estimates of the Canadian team, on the contrary, are considerably more optimistic. They also correspond with the assumption that the phase of industrialization has begun. It is true, though, that the influence of a slight backlog demand should not be underestimated and that the development to be expected might proceed along a line somewhat beneath the forecast of the Canadian team.

In order to provide a fairly realistic estimate of the paper consumption in Indonesia, it is requested that the following simplified procedure be used:-

Observation of the Development of the GNP on the same price levels.

Here the data available are different, as is so often the case. The sources are: 1) The Management Institute, 2) BAPPENAS. In this Study, use was made of conservative and normalised estimates, chiefly from BAPPENAS:

1960 - 65 in corrected average	+ 2.5%	per year 2)
1965 - 69 in corrected average	+ 3.5%	per year 2)
1969 - 70	+ 14/18%	per year 1)2)
1970 - 71	+ 6/7%	per year 2)
1972 - 75 e on average	+ 6/7%	per year 2)

The greater increase in the GNP in 1969 is substantiated with the appropriation of larger amounts of capital in that period. If one leaves this out of the considerations

and sets out from a paper consumption of 100,000 tons of paper per year in 1969 to be regarded as normal, the rise of a normalised demand curve for Indonesia can be determined according to the following simplified formula:

$$Gpc = GNP + (a_{pc} \times GNP) \text{ in } (\%)$$
$$= GNP + \left(\frac{70 \times GNP}{100}\right) \text{ in } (\%)$$

Gpc, Growth of paper consumption in % per year
GNP, Gross National Product in equal prices in % per year
a_{pc}, factor of our proportional increase of paper consumption, now $\frac{70}{100}$

It will be necessary to check each year the ratio between the growth rate of paper consumption and the GNP and to correct it for the future if changes to the fundamental conditions should become apparent.

For medium-term planning, this means that with an annual increase in the GNP of between 6 and 7% the consumption of paper will rise from about 10 to 12%. With increasing confidence of the investor countries in the Indonesian development and with the influence of planning measures taken by the Indonesian Government gaining in strength, this may result for the next REPELITA from 1974 to 1978 in a change in the growth rate of paper consumption towards 12%, but there are certainly negative influences too. Provided that all the responsible macro-economic factors are continuously taken into account, the application of this method of estimation is believed to be sufficiently exact for the consumption of paper in Indonesia during the next period, above all since the statistical data available in Indonesia are not quite as precise as those available in other, more developed countries.

At this point, it should also be mentioned that the factor "a" in this formula can be influenced positively by taking marketing measures with specific aims. Further reference to this is made later in this Study.

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2.12 Domestic Paper Production

The present production rates of Indonesian paper mills are shown in Table 9 (see page 37).

The two paper mills existing at that time were nationalised in 1958 and became state property in 1960. While for the first three years no comparable figures are available, the development of the paper production in Indonesia was as follows:-

Table 10	Production of the State-Owned Paper Mills in Indonesia	
Year	Gross Production	Net Production
1967	8,6	-
1968	11,3	-
1969	15,9	-
1970	21,7	18,4
1971	27,1	23,2
1972 p.	34,1	30,2

p = planned

Sources:

Indonesian Pulp and Paper Association

TABLE 9 PAPER PRODUCTION IN INDONESIA (1971)

Nr.	Paper Mill	Island	Start of operation		Average designed capacity in t		Target	Production in 1971 in		Sales in 1971		Remarks: present daily 6)
			PM I	PM II	daily	yearly	1971	Gross 4)	Net 5)	in t	in Mio. RP	gross-production
1	P.N.P.K. PADALARANG	West Djawa	1923	1929	12	3.600	3.600	4.477	3.249	3264	459,9	about 14
2	P.N.P.K. LETJES	East Djawa	1940	1970	30	9.000	8.240	8.940	7.818	c7183	1001,0	30
3	P.N.P.K. BLABAK	Central Djawa	1961	—	24	7.200	3.600	4.113	3.351	3321	444,1	13
4	P.K. Buntil Rachmat Bunjuwangi	East Djawa	1969	---	30	9.000	6.650	7.608	7.022	7111	855,0	30
5	P.K. GOWA	Sulawesi	67/72 1)	---	30	9.000	3.800	2.000	1.791	c 590	54,0	30
6	P.K. MARTAPURA	Kalimantan	1972	----	10	3.000	---	---	---	---	--	3 2)
7	P.K. PERMANTAN SIANTAR	North Sumatra	closed 1970	---	--3)	---	----	---	---	---	--	-----
	State-own Indonesian Paper Mill in 1971 :				136	40.500	25.890	27.138	23.231	21499	2814,9	120

Source : Pulp and Paper Association

1) In full operation 1. 1. 1972
2) Run-in at beginning of 1972
3) Designed capacity 15 t/day
4) after PM
5) after finishing
6) mid. 1972

Sources: Corrected values of IPPA.

c) It must be noted that some different values were given by the companies.

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The state-owned Indonesian paper industry, which in 1971 supplied and covered only about 17.5% of the quantities required and of the value proportion of the paper consumption, is now faced with a number of difficult problems:

- Compared with the development in the industrial countries and in the neighbouring states, all Indonesian paper mills are too small.

- Average production rates of paper mills in some Asian countries in 1970 or (1972):-

People's Republic of China	185 tons/day	
Philippines	70 "	(1972)
Singapore	60 "	(1972)
India	50 "	
Pakistan	40 "	
Taiwan	35 "	(1972)
Ceylon	35 "	
Thailand	30 "	
Malaysia	20 "	
Indonesia	20 "	(1972)

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- The new small-scale facilities have to carry the burden of relatively high costs of capital and maintenance. In addition, the overall profitability has to carry the load of extremely high start-up costs, due to the lengthy start-up difficulties of several plants.

- Based on the predominant use of rice straw and bamboo fibre stuff, the papers that are now producible are necessarily of a lower quality standard, so that their competitiveness against imported papers is limited. In production, moreover, a number of difficulties which are closely connected with the nature of these types of fibre must be put up with.

- There is hence an absolute necessity for immediate mobilization of higher quality fibre raw materials from domestic sources.

- In view of the excellent goodwill, above all of the technical management personnel of Indonesian paper mills, it is regrettable that the level of practical skill hampers further intensification of the potential capabilities. It is further regrettable that so far it has been the lack of financial means which prevented this very important task of continued education and training of management staffs and skilled workers from being carried out. The same holds true for the commercial management, above all in the fields of controlling and marketing.

- Early improvement in this respect could be achieved, above all through suitable ways and means of co-operation with paper mills of other countries both competent and prepared for such co-operation.

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These are the ways leading to a better future of the domestic pulp and paper industry which are marked out. Efficient large-capacity plants are in imperative necessity. Indeed, however, such a position cannot be reached in a single leap but only with continuous build-up work. If this build-up is to be carried out largely on their own initiative, this will call for the consequential increase in productivity of the existing and expandable paper mills. Increase in overall profitability and improvement of the education and training level of all employees are additional important demands and, while in some fields the domestic market demand is not yet ready for large-capacity plants, it would be recommendable to take into more serious consideration than heretofore also those potential partners who are in a position to provide know-how and education and training potentials in addition to renewed second-hand plant that can be operated economically and in line with market conditions. Examination of Indonesia's previous standpoint in these matters may open up new and better aspects of this subject.

Apart from these basic problems of the state-owned Indonesian paper industry, there are other questions of the production programme of a more market-political nature that are to be dealt with. Without prejudice to the more detailed treatment of individual market areas in the following Section, it is intended at this point to discuss some basic ascertainments and interrelations with other economic areas.

First, Table 11 provides a survey of the whole production programme of the state-owned paper mills. From this it can be seen that, roughly, the following percentages of paper are marketed:-

on the fine paper sector:	
writing and printing papers	
within the normal weight range	80%
light-weight fine papers	1%
heavy-weight papers	14%
on the kraft/packaging paper sector:	5%
totally:	100%

The focal points are here the areas of administration (office) and education.

The fact that all state-owned paper mills offered the same types of paper on the Indonesian market turned out to be disadvantageous during the past years, especially in the field of wood-free writing and printing papers. What followed was a ruinous price competition, especially in the field of the simple and cheaper and, thus, not very profitable paper grades. From a market policy point of view it was therefore not possible to play a

dominating role in this sector in which the Indonesian papers at present hold a market share of between 35 and 40 per cent.

By way of improved co-operation between state-owned paper mills, efforts have been made lately toward simplifying and shifting the range of paper grades. As has become apparent through analysis of this work, the resulting advantage is not so much one of reduced costs - as originally expected - but rather one of an improved market political basis from which to start, and of the possibility to achieve better results with respect to quality and, thus, economy by making better use of the plants from the viewpoint of industrial processing and development engineering. A greater effort should now be made, however, to develop these advantages within the framework of systematic marketing measures.

The grade designations and paper classifications used by the Indonesian paper industry are considered to be another disadvantage. The grade designations, which in most cases are remnants from colonial days and are now gradually being replaced even in The Netherlands with designations conforming to market trends, should be replaced without delay by new designations of international usage. In this connection, moreover, another market-psychological factor should be considered. Domestic paper does not enjoy a good image in Indonesia. Clever merchandizers often resort to foreign designations and trade marks to promote the sale of Indonesian paper. In connection with the proposed measures of re-organization it is recommended to make every effort towards a basic renewal of the domestic paper assortment with respect to designation, presentation and packaging, as well as quality and price.

A new internationally used classification that can be applied to the arrangement of assortments, to standardization and statistics has already been proposed and is shown once again in the following Table 12. During re-organization it will be necessary to ensure that also in the existing paper mills the grade designations are used uniformly, which today is not always the case.

Basically, it can be said that the Indonesian pulp and paper industry is chiefly production oriented. This was mainly the task to which the industry had been assigned by the Indonesian state. This opinion, in accordance with the present attitude towards economic policy, is gradually being replaced by more market-oriented thinking. A change in this basic attitude is imperative for the Indonesian pulp and paper industry, including all necessary consequences regarding the present factual and employment status.

TABLE 11	PAPER PRODUCTION PROGRAMME IN 1971 (metr. t)														
	P.N. P.K. Padalarang		P.N. P.K. Letjes		P.N. P.K. Blabak		P.K. Letjes	P.N. P.K. Blabak		P.K. Basuki Rachmat Banjuwangi		P.K. Gowa[1]		Total	
	Product.	Sales	P.	S.	P.	S.	S.	P.	S.	P.	S.	P.	S.	Product.	Sales
Cigarette fine paper :	178	200	--	---	---	---	---	---	---	---	----	---	--	178	200
light weight	93	94	--	---	---	---	---	---	---	---	----	---	--	93	94
normal	1.854	1.862	7079	6532	1840	1726	6532	2840	1726	6873	6896	800	347	18.446	17.363
heavy weight	288	297	129	170	---	---	170	---	---	---	---	---	--	417	467
Cover:	836	811	375	264	1320	1461	264	1320	1461	---	---	---	---	2.531	2.536
Kraft-packaging	---	---	235	217	c 191	135	217	c 191	135	148	215	c 991	c 243	1.565	810
	3.249	3.264	7818	7183	3351	3322	183	3351	3322	7021	7111	1791	590	23.230	21.470

Remarks: 1) not in full production, testingstart Sept. 1971

sources: corrected values of IPPA.

c) It must be noted that some different values were given by the companies.

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Table 12

Proposal for Use of a New Paper Classification

This proposal is derived from international, especially American and German, paper classifications and has been simplified for Indonesian purposes.

1. Printing, writing and other related fine paper and cardboard
   - 1.1 Newsprint
   - 1.2 Main and special printing and publication paper, such as writing and other related paper, e.g. fine paper
     - 1.21 Normal grades
     - 1.22 Thin grades
     - 1.23 Heavy grades
     - 1.24 Special technical grades
   - 1.3 Coated printing and converting paper
     - 1.31 Machine or prime coated bodystock for further coating
     - 1.32 Finished coating
2. Kraft and other packaging paper and paperboard, including solid board (bleached, semibleached, unbleached)
   - 2.1 Kraft paper and heavy paperboard
     - 2.11 for bags and sacks
     - 2.12 for other industrial converting
     - 2.13 for wrapping, also miscellaneous grades
     - 2.14 light-weight paperboard for corrugated grades, including medium-weight, also for other industrial purposes
   - 2.2 Other packaging paper; almost coarse grades
     - 2.21 for industrial converting
     - 2.22 for wrapping
     - 2.23 light-weight paperboard for corrugated grades, including medium-weight, also for other industrial purposes
   - 2.3 Glassine, grease-proof and similar grades
   - 2.4 Special industrial paper
   - 2.5 Solid machine board grades
   - 2.6 Wet machine board grades
3. Household and sanitary paper and paper products (Crepe and tissue types)
4. Construction paper and board

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The declared economic goal of the Indonesian paper industry for the next five to ten years should be:

gaining a dominating share of the market, first in the decisive market sectors of

- **Cultural papers**
  - **writing papers**
  - **printing papers**
- **Data processing papers**
  - **office papers**
- **Special types of paper**
  - **cigarette paper made of the finest types of paper**
- **Packaging papers**
  - **coated paper and cardboard**
  - **kraft, fluting and cardboard**

All measures related to production technique should be co-ordinated to reach this objective.

Another basic ascertainment has been made with respect to the extensive and, thus, almost one-sided orientation of the Indonesian paper industry towards base materials (pulp and chemicals) and half-stuff materials (paper and cardboard). The finishing, coating, and converting areas should be more thoroughly integrated into the production programme of the Indonesian paper mills. The communication and co-operation with other economic areas, such as forestry, agriculture, sugar industry and processing industry, especially in the fields of packaging requirements and the production of plastic packaging and wrapping, is, incidentally, either completely absent or very imperfect. Here, however, the industry is confronted with very important points from which the planning and improvement of new and existing production plants and programmes, respectively, should set out.

As shown in Table 13, the production of paper by the state-owned mills increased

by 4,800 tons (25%) from 1970 to 1971,

and is scheduled to increase

by 7,000 tons (30.5%) from 1971 to 1972.

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With respect to the following three-year period, development of the existing facilities should take precedence. In this period, new facilities - even if becoming operational as early as in 1974 - are expected not to have any considerable influence on the increase of domestic production which has been proposed for economic reasons. While in this proposal it is at first assumed that the present production rate of existing facilities can be just about doubled by 1975, this means, in simplified terms, that the average increase in the annual production rate will amount to about 7,000 tons, with annual increases rating at 23%, 19% and 16%. Corresponding advice on possible expansion programmes of the respective paper mills is given in Section 3, where it is explained that conditional on a corresponding effort, the production of all existing facilities together can be nearly doubled by 1975.

Table 13 Preliminary Medium-term Forecasting of the Paper Production in Indonesia, 1970 - 1975 (State-Owned Paper Mills [1])

	Year	Total Paper Consumption - 1000 t -	Possible Net Production [2] - 1000 t -	Share - % -
1. Repelita	1970	161	18,4	11,4
	1971	179	23,2	13
	1972	e 199	p 30,2	15,2
	1973	e 222	e 37,2	16,7
	1974	e 246	e 44,2	18
2. Repelita	1975	e 273	e 51,2	18,7
	.			
	.			
	.			
	1980	ee 500		

Source: Own estimation

[1] shares of smaller private board and paper mills are not included; these make up about 1 % of total paper consumption

[2] the possible net production is considered in the recommendation of this study. The Pulp and Paper Association of Indonesia expects about 20 % less net production of the existing paper mills until 1974.

2. 13 Imported Paper

Our own investigations into the quantities of paper differ in some cases very widely from those of other reporters. The Indonesian counterparts have already been informed of a number of obvious mistakes of some reporters. Possible further causes may be attributable to an incomplete census and to the fact that even the data available from the Statistical Office are at variance. Various cross-checks carried out with the aid of export statistics of some countries exporting to Indonesia resulted in additional inconsistencies, above all in paper classification. The results of these checks are believed to substantiate the presumptions expressed by the Indonesian side, namely that false customs declarations are often made in order to save on customs duties. In how far this practice would constitute more or less organized unfair trade, cannot be examined within the framework of this Study. At least, however, the still young Indonesian paper industry can be jeopardized by such unfair trade, which should be prevented. At any rate, it must be mentioned at this point that the details of Indonesian import statistics must be regarded with caution.

From Table 14 it can be seen that the present share of imported paper - without converted and printed paper products - figures at about 81 % of the overall paper consumption. When considering the production increases proposed in this Report, the import share is believed to decrease to only about 77 % by 1975. Paper produced by newly projected facilities is not taken into account in these figures.

Compared with other Asian developing countries, Indonesia, by actual import figures, ranks among the top group of all countries importing paper. India, the two Chinas, and most recently the Philippines are pursuing a largely self-sufficient paper market policy with import restrictions and the build-up of large-capacity plants.

The first place of all countries exporting paper is held by Japan. Its share, by quantity, has increased by about 35 % in 1968/1969 to about 50% in 1970/1971. Japan is followed by the People's Republic of China and the USA with 10 % each. The trade markets of Singapore, Hongkong and Taiwan with a combined total of about another 10% are also of some importance; here, however, the Chinese trade and family connections play a certain part. Ranking next are the EEC with about 7,5%, Scandinavia with 5%, and Australia with about 2%.

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Table 14		Imported Paper 1966 - 1971 and Estimation of Future Imports until 1975		
Year		Total Paper Consumption - 1000 t -	Imported Paper x - 1000 t -	Approx. Share - % -
Period of Recovery	1966	54	40.1	74
	1967	78	67.9	87
	1968	92	79.6	87
	1969	111	94.1	85
1. Repelita	1970	166	140.9	85
	1971 u	179	d 148	83
	1972 e	199	d 161	81
	1973 e	222	d 176	79
	1974 e	246	d 192	78
	1975 e	273	211	77
2. Repelita	.			
	.			
	.			
	.			
	1980 ee	500		

Source: Own investigations in PUSAT STATISTICS

x not including imported converted products; their share in total paper consumption, on average, is about 3%.
u estimated
e estimated
d difference between estimated production and estimated consumption, regarding the shares of private paper production

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A detailed assessment of the important types of imported paper is given in Section 2.2. A vast collection of individual data items and documents resulting from the investigations remained in Indonesia; total publication of these data within the scope of this Study is therefore dispensed with.

With respect to value, the following papers and paper products were imported: (in millions of rupiahs)

Year	Papers	Paper Products	Total (in millions of US $)
1970	11,685	1,653	34.5
1971	13,000	1,370	approx. 36.6
until August 1971 : 1 US $ = 385 rupiahs after August 1971 : 1 US $ = 415 rupiahs			

2.14 Market Price Situation and Policy

The share of 81% of imported papers in the Indonesian market results in prices by which the pricing of domestic papers is set at a disadvantage. Here the following factors cause rather negative influences on the situation:-

a) The domestic wholesale and the import trade are in a position to influence prices, sales quantities, and the qualities of the paper, with the result that domestic paper is classified as inferior quality type and is priced at about 12 to 15 % below actual market prices.

b) The published list prices of imported paper, which at present are some per cent higher than those of the Indonesian papers, are frequently lowered by special discounts of the manufacturers or importers and are fixed at a level of between 10% and 20% below the published list prices of equivalent Indonesian types of paper (see Table 15). + As an example, the list price of imported HVS/HVO paper (wood-free writing and offset printing) in 1971 amounted to 276.95 US $ per metric ton. The actual price asked from wholesalers or importers, however, figured at 240,-- US $ / metric ton.

c) Moreover, from Table 15 it can be seen that the prices of domestic paper are fixed according to the price behaviour of imported paper.

d) Hence, cyclical or other production surpluses of the major importing countries can have the effect of severe price pressures on the domestic market by temporary price cuts in the form of special offers.

e) A so-called "grey market" of imported paper is continually dodging the government's protective customs measures by means of false declarations or other illegal manipulations. As an example, HVS types of paper, for which customs duties of 10% are to be paid, can be declared as newsprint for which no customs duty has to be paid.

f) The example of the main paper type HVS/HVO 60 g/m^2 is cited to explain that in spite of the relatively high protective customs duties, the trade taxation of imported papers is ultimately much lower than that of the papers produced in Indonesia.

+ see page 52

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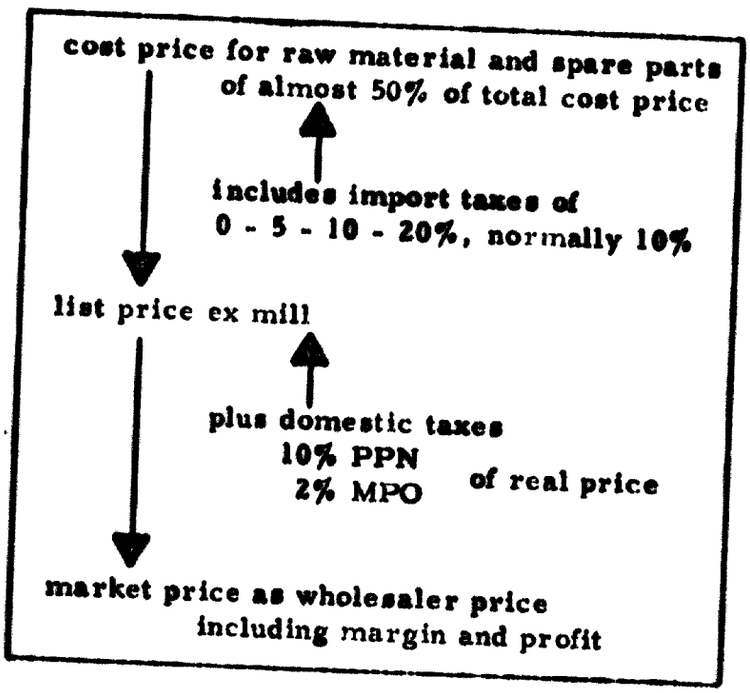
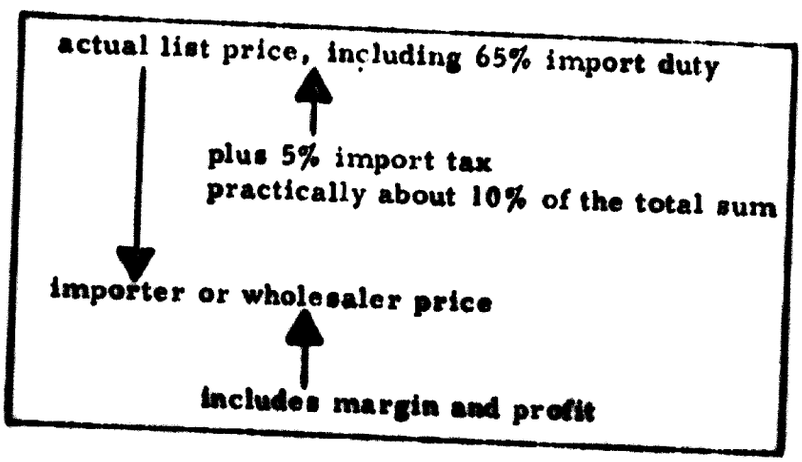
In addition, there is the fact that the state-owned factories are urged in every way to pay taxes, while the wholesalers, retailers and private processors can evade the tax laws, which indeed they often do.

Overall taxation of the papers produced in Indonesia is arranged in the following way:-



Taxes on imported paper are levied in the following way:-



g) For these reasons, the state-owned Indonesian paper mills have over many years allowed themselves to be pushed into reciprocal ruinous price competition, and this even on the level of second-grade types of paper for which the profit prospects are less favourable.

h) As a result, the profit prospects of the Indonesian paper mills have taken a considerable change for the worse. Liquidity difficulties and unfulfilled expectations of yield resulted in serious damage which, to a considerable extent, was caused by the aggressive price policy in the competition, i. e. largely by non-operational factors. Proposals as to how these disadvantages of the Indonesian paper industry can be avoided are contained in Section 4 (Alternative Proposals to Protect the Development of the Indonesian Paper Industry).

The price trend for the main paper type with effect from 1970 is shown in Table 16. [+] The following rates of price increases are thus to be considered:

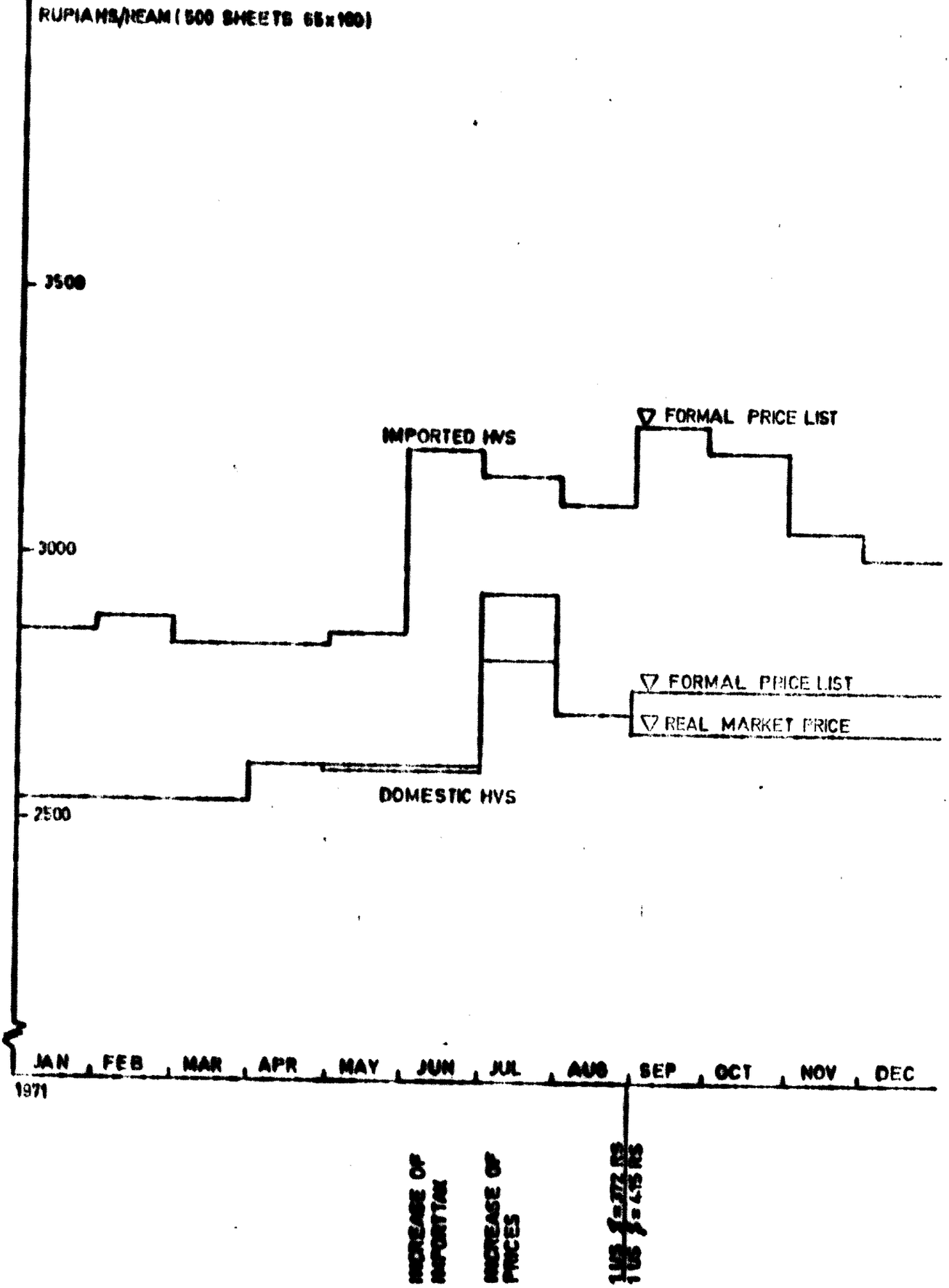
Year	General Cost of Living
1970	+ about 8%
1971	+ about 3% - 4%

From this it is clear that the prices reached a low in the second half of 1971, but with differences in the price level, in the sequential order, and with respect to time. From the price trends up to May 1972 it can be seen to what extent the Indonesian paper prices were dependent on import prices, but also on paper wholesalers, a danger which at present is still imminent.

+ see page 53

TABLE 15

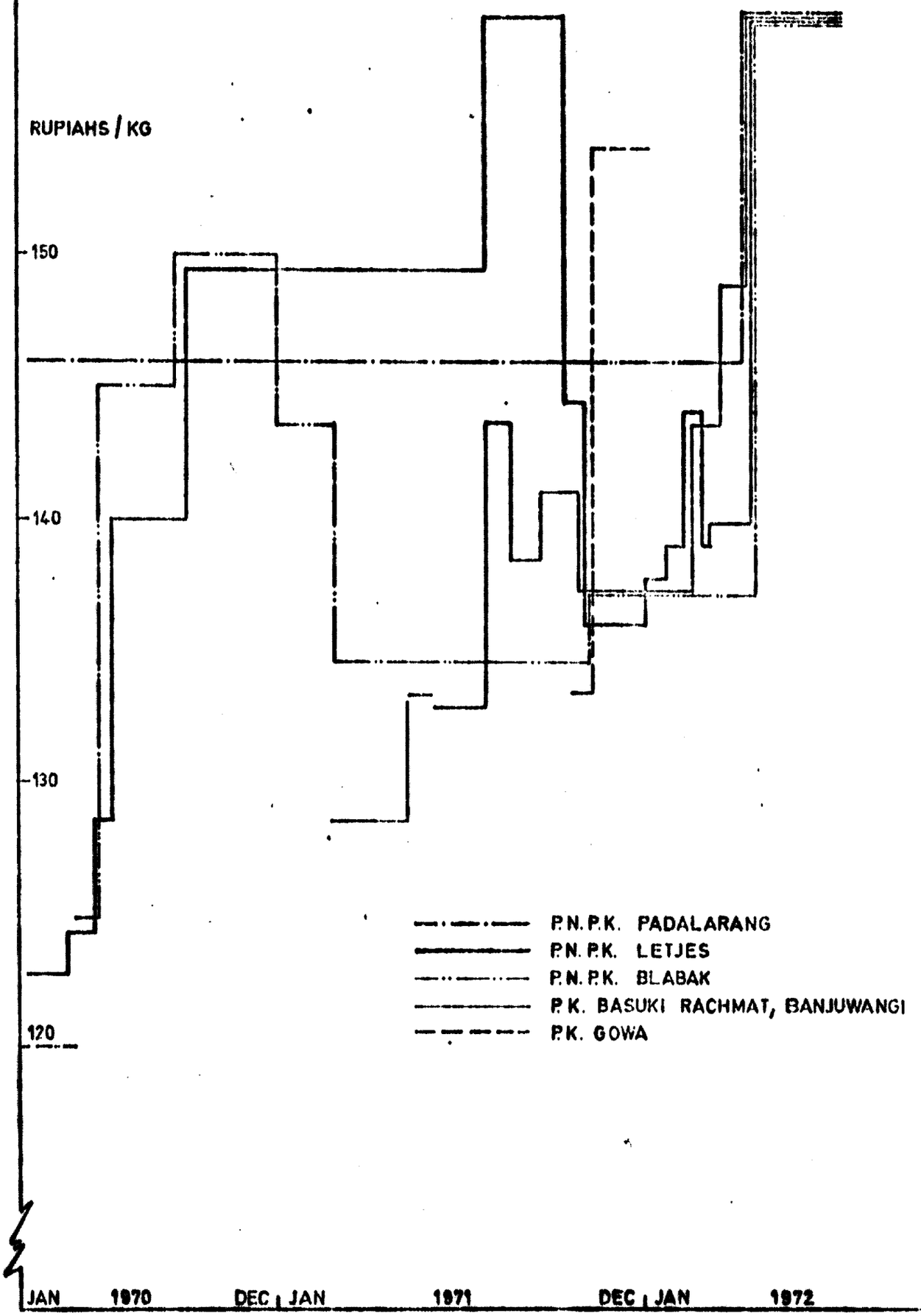
DIFFERENCE OF MARKET PRICES
BETWEEN IMPORTED AND DOMESTIC HVS 60g /m²



SOURCES: THE MANAGEMENT INSTITUTE UNIVERSITY OF INDONESIA - BASUKI - RACHMAT

TABLE : 16

PRICES OF INDONESIAN
HVS/HVO 60 g/m² 1970-1972



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2.15 The Problems of Distribution

The distribution of imported paper, which accounts for about 80 % of the Indonesian market, is handled via import firms or via manufacturer - owned branches or agencies. Imported paper is sold to the wholesale trade, with very few exceptions, e.g. security and banknote paper and special paper, which is bought directly from the manufacturer. The same holds true, by the way, in the case of raw materials, such as pulp, etc., which are sold by agencies in Indonesia. The result is increased prices which contain a number of incidental expenses, such as profits and commissions of the export companies, agencies and representatives.

Approximately 91% of the entire paper sales of the state-owned paper industry went into the paper trade, with the bulk of it going into the wholesale trade (cf. Table 17). The remainder of about 9%, mostly special paper, goes directly into the industry or to the government. This lays bare one of the weakest points of the Indonesian paper industry, namely the industry's complete dependence on the paper wholesale trade.

The paper wholesale trade of the state-owned paper mills is in the hands of a small number of wholesalers, who have a sales network of dealers and agents at their disposal. These dealers and agents, while being dependent on their respective major wholesalers, are in turn spread nation-wide over the whole of Djawa and the islands, so that here again the result is side-by-side competition. The wholesale trade itself or the distributor supplies the processors and/or paper shops. In most cases the wholesaler has his own processing facilities with which the paper is processed or cut to folio format size.

From the approximately 10 existing paper wholesale companies, the following three take a special position:

BHAKTI, DJAJA, Djakarta
P.D. MASA DJAJA, Surakasta
U.D. BIMA, Surabaja

Apart from their trade with Indonesian paper, these wholesalers also import paper, above all from Japan and Chinese sources, or special types of paper which are not produced in Indonesia, also from other countries.

Table : 17	Dealers and Consumers of the State-Owned Paper Mills in 1000 tons, 1971											
Customers:	P.N.P.K. Padalarang		P.N.P.K. Letjes		P.N.P.K. Blabak		P.K. Basuki Rachmat Banjuwangi		P.K. Gowa		All State-Owned Paper Mills	
	1000t	%	1000t	%	1000t	%	1000t	%	1000t	%	1000t	%
Dealers:					3,0	90	6,75	95	0,6	100	19,25	91
Wholesalers	2,3	71	5,0	69								
Retailers	0,4	12	1,2	17								
Direct Consumers:												
Industry and Government	0,55	17	1,0	14	0,3	10	0,35	5	--	--	2,2	9
Total	3,25	100	7,2	100	3,3	100	7,1	100	0,6	100	21,45	100

Sources: The Paper Mills

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Historically, the Indonesian paper mills - after taking over the former Dutch positions which handled the paper trade in Indonesia via three quite large wholesale companies - had at first supplied the market directly. It was primarily the payment difficulties of the clients that led to an engagement of the wholesale trade - mostly consisting of Chinese firms - which, among other things, also dealt with the problem of financing.

It is relatively difficult to form any clear impression of the pricing in this trade. A large portion of their receipts, especially the profitable ones, are admitted by the paper dealers to be received via business transactions that can be ascribed to the "grey", or semi-legal, area of marketing. Table 18 shows a price survey giving a general idea of the profit margins of the Indonesian paper trade.

Table 18	Survey of Trade Margins of the Wholesalers for HVS-Plano-Paper [1]				
Kinds of Paper	g/m^2	Ream	Price based on Price List P.K.G.	Real Price ex Mill	Real Price for Retailer
HVS	55	65x100	2 700	2 600	2 650
HVS	60	65x100	2 900	2 700	2 750
Bungkus/Kraft	50	90x120	3 400	3 000	3 100
Bungkus/Kraft	70	90x120	4 760	4 600	4 700
Bunghus/Kraft	90	90x120	6 000	5 600	5 700

Source: THE MANAGEMENT INSTITUTE, UNIVERSITY OF INDONESIA

1) - including discount from 8% to 10%
- including PPM from 10% to 5%
- not including MPO 2%

For these margins the paper trade takes care of the distribution, often in the form of direct goods supply, and it bears the financing risk which previously was not insignificant to the paper mills and which, in turn, means additional business to the trade in the case of financing the businesses with processors, government agencies, etc. As reported by the state-owned paper mills, payment in respect of supplies to government agencies is often delayed for periods from between two and five months. Considering the tight liquidity position of the Indonesian paper industry, such a long payment period is intolerable. Hence the wholesalers take over the business, effect payment within about two weeks, and debit the government agencies with the respective amount. With the official Indonesian interest rates of 20, 30 and more per cent per annum, it is then customary to ask considerably excessive prices. In these transactions, moreover, the paper dealers are incurring other incidental expenses of a private nature which are likewise covered by these excessive prices but on which no further information can be supplied within this Study. Since, however, the trade maintains good direct connections with bankers in Singapore, Hongkong, etc., it is in a position to handle such business with additional profit, provided that more favourable interest rates are agreed. The fact that the Indonesian paper mills do not come off very well in these transactions, in which, as reported earlier in this Study, they are often compelled to grant special discounts to the wholesalers, need certainly not be further discussed.

While it is not easy to analyse these and similar trade practices, above all in foreign countries, and since such an analysis cannot reasonably be expected from the expert, it is obvious that with the prevailing conditions, any market analysis will necessarily fall short of providing complete information on all the various aspects of those practices. Nevertheless, these explanations, which are based on information gained in personal discussions with the Indonesian counterparts and interlocutors, may be considered important circumstantial evidence to characterize the conditions prevailing on the Indonesian paper market.

Another important question of distribution refers to the regional distribution of the papers produced in Indonesia. At first, on this subject, mention must be made that in the first place there are the trade markets of the paper import harbours which are the traditional centres of the paper trade, and it is largely from there that the distribution of domestic types of papers is controlled.

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Whether this will continue on into the future in all cases should be made subject of a detailed examination. The most important trade places are:

Island:	1. Category:	2. Category:
Djawa:	Djakarta Surabaja Semarang	
		Surakarta Tjirebon
Sumatra:		Medan
Sulawesi:		Udjung Pandang

All of the above places are ports, except for Surakarta.

Concerning regional distribution (see Table 19),[x] consideration must be given to the fact that in the reports of the paper mills only the wholesaler's trading places are specified as areas of delivery. As far as further distribution is concerned, which may also include the distribution to other areas, the paper mills have hardly any information; neither is the trade in a position or prepared to give any such information. The data must be reported here as rough percentage values only, since the data supplied by the Indonesian paper mills show inconsistencies which could not be clarified in detail in the short period available to the writer.

In assessing these values the following, among other things, must be taken into account. Delivery from the ports of Djakarta and Surabaja concentrates chiefly on Sumatra, Kalimantan and on the eastern islands, which do not appear in this list. It is probable, though, that a considerably larger portion of paper from the imported quantities is supplied to the other islands. Djawa itself is believed to account for morethan about 90% of the domestic paper production and probably for more than about 80% of all paper required. This assumption is considered to result roughly in the following distribution picture for 1971:

Area	Population (in millions)	Share %	Consumption of paper	Share %
			(in 1000 t)	
Djawa	77	64	145 - 150	80
Other islands	43	36	30 - 35	20
Indonesia	120	100	179	100

For Djawa this represents a per capita consumption of about 2.3 kg, and of about 0.75 kg for the other islands.

x see page 60

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Also within Djawa there is believed to be a west-east downward trend. Another such downward trend is believed to exist between the urban regions and the rural areas. Leaving the surrounding regions out of consideration, the following population figures apply to the most important cities:-

Djawa:	Djakarta	4.5	million	inhabitants
	Surabaja	3.0	"	"
	Bandung	2.8	"	"
	Semarang	0.6	"	"
	Surakarta	0.4	"	"
	Malang	0.35	"	"
	Jogjakarta	0.35	"	"
Sumatra:	Medan	0.5	"	"
	Palembang	0.5	"	"
Sulawesi:	Udjung Pandang	0.4	"	"
Kalimantan:				
	Bandjermasin	0.25	"	"

A roughly similar number of people, although with a considerably lower consumption of paper, is believed to live in the surrounding areas of concentration. With respect to the roughly 20% of the population living in about 285 towns, an average per capita consumption of nearly 4 kg of paper - within the meaning of paper used and, thus, produced in that location - can be assumed, with a per capita consumption of about 7.5 kg in Djakarta being considered not very unrealistic. In the country, however, the average per capita consumption is believed to amount to about 1 kg, and in the other islands below that figure.

Table : 19	Regional Distribution of the Domestic Paper Production 1971						
Area [1]	P.N.P.K. Padalarang %	P.N.P.K. Letjes %	P.N.P.K. Blabak %	P.K. Basuki Rachmat Banjuwangi %	P.K. Gowa %	Total State-Owned Paper Mills 1000t	%
Djawa: [3]							
Djakarta	78	--	--	--	74	--	--
West-Djawa	18	36	35	28	--	9,3	43,5
Middle-Djawa	4	22	25	24	--	4,3	20
East-Djawa	--	42	40	48 [2]	--	7,7	36
Celebes:	--	--	--	--	26	0,15	0,5
Total:	100	100	100	100	100	21,45	100

Source: The Paper Mills

1) See explanations in the report

2) and other islands

3) Population in Djawa (1971):

DCI Djakarta Raya	4,5 Mio.
West Djawa	22,0 "
Central Djawa, DI Jogjakarta	23,5 "
East Djawa	27,0 "
Djawa	77,0 Mio.

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2.2 Detailed Data on Market Sections and Prognosis of their Paper Demand

2.21 New Classification

A new classification that is adapted to the existing international and Indonesian facts has been suggested under Paragraph 2.12. The subsequent description of the development of the various market sections follows this classification and explains it to the extent required.

Since apart from taking reference to statistics used internationally an attempt has been made within the framework of this new classification to arrive at a more appropriate assignment to market sections and production conditions, it is recommended to introduce and use in Indonesia a modified version of this new classification if required.

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2.22 Summary of the Existing Paper Demand of the Particular Market Sections

Fine paper accounts for half of the quantities of paper required in Indonesia, as shown in Table 20. Newsprint and packaging types of paper account for another 20% each. While the total consumption of newsprint, household papers and paper products, as well as special construction papers and cardboards must be covered through imports, approximately 25% of all fine paper required is produced at home, with the percentage in the sub-group of normal-weight fine paper even exceeding 30%. If one adds the packaging paper and cardboards from the production of domestic private companies, the quantity of all packaging paper produced in Indonesia does not even reach 10 per cent.

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Table 20	Kinds of Paper Regarding the New Classification of the Sales of the State-Owned Paper Mills, the Imported Paper and the Total Demand of Paper in 1971			
Kinds of Paper	Sales of State-Owned Paper Mills 1000t	Imported Paper [1] 1000t	Total Paper Demand 1000t	%
Newsprint	--	34.5	34.5	19.3
Other printing paper	20.7	64.4	85.1	47.5
Thin fine paper	0.1			
Normal fine paper	17.4	40.6 [2]	58.1	32.5
Heavy-weight fine paper	3.0	19.1	22.1	12.3
Cigarette paper	0.2	4.7	4.9	2.7
Packaging paper and board, kraft and others	0.8 [3]	40.9	43.6 [4]	24.3
Household paper and paper products		5.4	5.4	3.0
Construction paper and board (also other board)		10.5	10.5	5.9
Total	21.5	147.1	179.1	100%

Sources: Paper Mills and own research and PUSAT STATISTICS

1) summarized figures of PUSAT STATISTICS

2) including about 5000 t of thin fine paper

3) not included are privately produced domestic paper and imported converted products

4) based on figures of PUSAT STATISTICS, the figures of the PULP AND PAPER ASSOCIATION for this kind of paper are 20% lower.

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2.23 The Market of Cultural and Communication Paper: printing, writing and related paper and cardboard

2.23.1 Newsprint

Newsprint is no longer produced in Indonesia since attempts at Pemantang Siantar, Sumatra, to build up much too small a capacity of 5,000 tons p.a. have been discontinued.

The present total consumption of about 35,000 to 40,000 tons p.a. is covered by imports for which foreign currencies of nearly 3,000 million rupiahs (about 7 million US $) must be spent. As shown in the graph of Table 21, the development of the consumption has taken a very abrupt course. Newsprint is a so-called "political paper", and considerable influence on its consumption is brought to bear also by the Indonesian authorities which grant licences to publishers. These may be some of the reasons explaining the rather irregular development of consumption. Another limitation or simplification of the range of newsprint actually used is believed to be attributable to the fact that part of the imported newsprint, estimated at more than 40%, is used for purposes other than newsprint, e.g. for

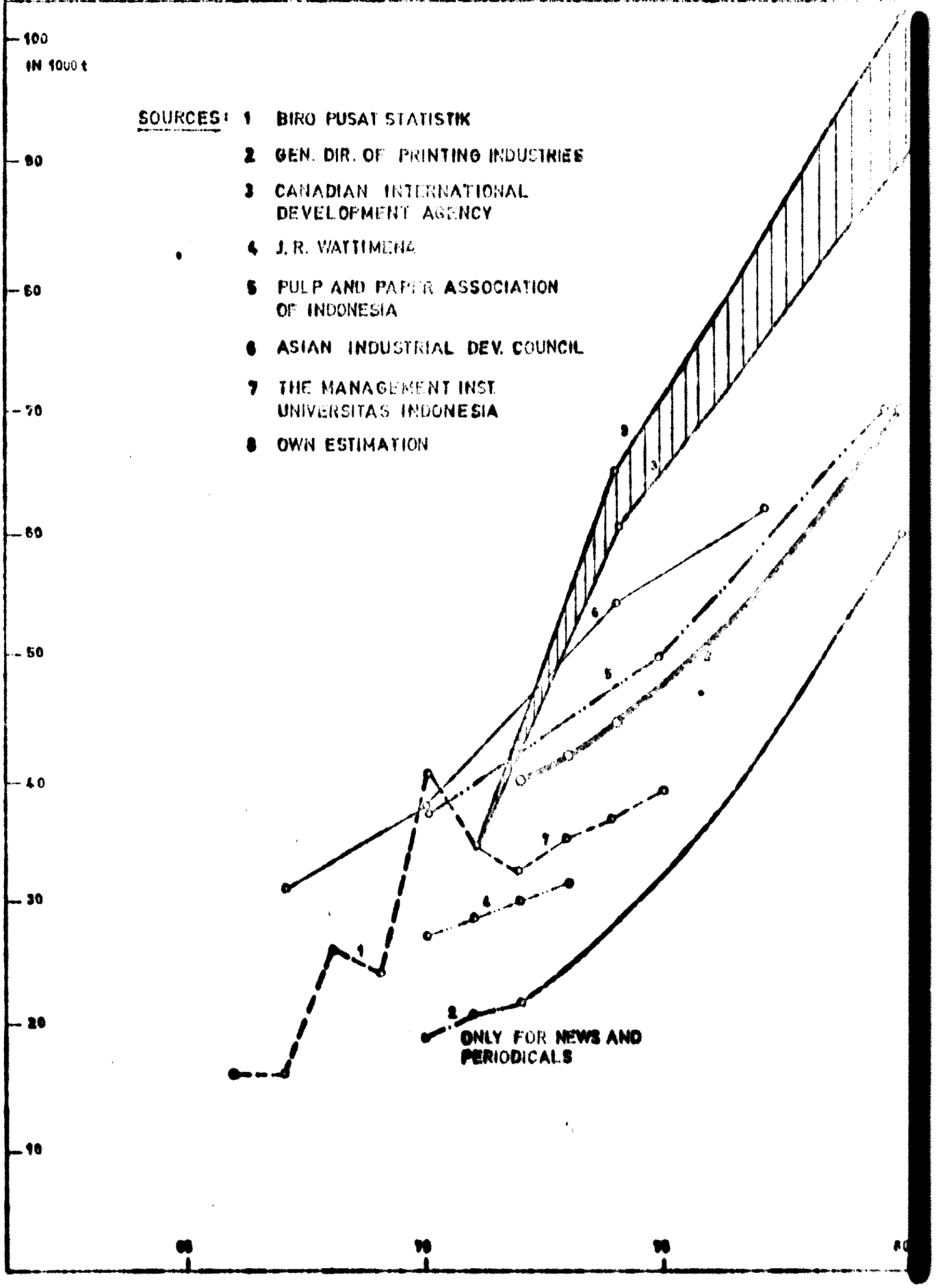
printed matter
brochures
telephone directories
copy-books
cigarette wrapping paper, etc.

A large portion of these quantities is delivered in reams. Part of these quantities are also believed to result from the false declarations described under Para. 2.13. Computed from previous statistics, the following quantities can be expected to be consumed in 1971:

Consumption of Newsprint	in reels	in plano	Total
Newspapers and magazines	19 685	2 244	21 929
General printing, converting and false declaration	mostly in plano 12 571		12 571
Total consumption	<60%	>40%	34 500

TABLE : 21

NEWSPRINT CONSUMPTION
COMPARISON OF DIFFERENT ESTIMATIONS



GOLLWITZER INGENIEURPLANUNG Murnau · München · Düsseldorf

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The roller widths of the machines on which newspapers and periodicals are printed are as follows:

Roller TW	Share
90 cm	86%
84 cm	11%
60 cm	3%
-	100%

The format sizes in per cent are about 82% (61 cm x 92 cm) and about 18% (55 cm x 75 cm).

According to Grafica Nasional, the development of the consumption of paper for newspapers and periodicals in Indonesia can be computed as follows:-

Year	Consumption of Paper for Newspapers and Periodicals
1970	19,410 tons p.a. -
1971	20,430 tons p.a. + 9.4%
1972 p	21,930 tons p.a. + 4.8%

p = planned

Another favourable influence on the consumption of newsprint is expected to result from a marked increase in advertisements in Indonesia, which in the past years has led to an increased volume of advertising newspapers and periodicals, as can be seen from a comparison of the following figures:

Year	Number of Publishing Houses	Total Number of Copies (in 1,000 units)	Copy/Year (in kg)
1970	316	3,597	5.3
1971	296	2,968	7.05
1972	306	2,962	7.4

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Predominantly, the qualities of imported newsprint correspond with international standards, although some of it has a simpler quality and darker colour than the newsprint used in industrialized countries. The printing quality of almost all daily newspapers must be considered not very satisfactory. From a technical point of view, this is attributable to the relatively simple production conditions prevailing in the printing and engraving shops. For the rest, it appears that there is often a lack of understanding and interest in better-quality work, such as the handling of paper, as could be observed during a number of visits paid to Indonesian printing shops in Djawa and Sulawesi.

For the rest, most of the weekly, bi-weekly and monthly periodicals are produced on newsprint containing ground wood pulp; in some cases it is assorted paper that is used or paper suitable for cutwork printing, as could be observed on the market. A statistical breakdown could not be ascertained. The following Tables 22 to 24[x] give a survey of the publishing houses which have been licensed for 1972 by the authorities, of their numbers of copies, as well of their paper requirements, subdivided into the various Indonesian regions. The survey contained in Table 25[xx] affords to the reader a possibility to compare the population and the consumption of newsprint of the respective islands. From this and the following regional surveys it is possible, among other things, to gain a clear view of the development of the markets of the main island Djawa and the rest of the islands. In this reflection, however, consideration must be given to the fact that Djakarta supplies

41 % of the daily newspapers
46.6% of the weekly magazines and
67 % of the bi-weekly and monthly periodicals

to areas outside Djakarta. These figures refer to 1970.

x see page 69 till 71
x x see page 72

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All in all, the following quantities of paper are expected to be required in 1972:

Publications	Total Quantities (tons)	in Reels (tons)	in Plano (tons)
Daily newspapers	17,585.0	16,095.0	1,490.0
Weeklies	3,967.5	3,330.0	637.5
Bi-weekly and monthly periodicals	376.6	260.0	116.6
Newspapers and Periodicals, total	21,929.1	19,685.0	2,244.1

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Table 22 — **Daily Newspapers in Indonesia, Issue and Newsprint Consumption: 1-1-1972**

Area Island District	Number of Publications	Issues in 1000	Newsprint Consumption tons	Share of Newsprint Consumption %
Djawa	49	994.3	14 590	83.0
Djakarta	29	730.5	12 000	
West Djawa	5	92.3	700	
Central Djawa	3	57.5	680	
Jogjakarta	3	19.5	210	
East Djawa	9	94.5	1 000	
Sumatra	30	186.5	2 343	13.3
Medan	7	78	970	
Banda Atjeh	5	22	115	
Padang	3	19.5	230	
Djambi	4	15	20	
Palembang	10	47	1 000	
Riau	1	5	8	
Kalimantan	10	55	180	1.0
Pontoinak	4	25	50	
Bandjermasin	6	30	130	
Sulawesi	29	48.8	243	1.4
Menado	14	19.1	29	
Palu	9	7.1	4	
Udjung Pandang	6	22.6	210	
Maluku	6	34	12	0.1
Ambon	--	--	--	
Bali	2	12.5	215	1.2
Denpasar	--	--	--	
Nusa Tenggara	--	--	--	--
West Irian	1	5	8	low
Total for Indonesia	127	1336.1	17 585	100%

Source: GRAFICA NASIONAL

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Table 23 Weeklies in Indonesia, Issue and Newsprint Consumption: 1-1-1972

Area Island	District	Number of Publications	Issues in 1000	Newsprint Consumption tons	Share of Newsprint Consumption %
Djawa		60	1020.5	3 650	92.0
	Djakarta	30	703	3 000	
	West Djawa	3	28	5	
	Central Djawa	12	131	245	
	Jogjakarta	5	42.5	80	
	East Djawa	10	116	320	
Sumatra		30	162.5	206	5.2
	Medan	8	49.5	100	
	Banda Atjeh	3	15	16	
	Padang	1	15	25	
	Djambi	--	--	--	
	Palembang	18	83	65	
	Riau	--	--	--	
Kalimantan		10	37.5	43	1.1
	Pontianak	8	25	27	
	Bandjermasin	2	12.5	16	
Sulawesi		19	43.8	64.5	1.6
	Menado	8	9.8	2.5	
	Palu	--	--	--	
	Udjung Pandang	11	34	62	
Maluku		--	--	--	--
	Ambon	--	--	--	
Bali		--	--	--	--
	Denpasar	--	--	--	
Nusa Tenggara		--	--	--	--
West Irian		1	8	4	0.1
Total for Indonesia		120	1264.3	3 967.5	100%

Source: **GRAFICA NASIONAL**

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Table 24 Bi-weeklies and Monthlies in Indonesia, Issue and Newsprint Consumption: 1-1-1972

Area Island	District	Number of Publications	Issues in 1000	Newsprint Consumption tons	Share of Newsprint Consumption %
Djawa		33	349.4	366	72.3
	Djakarta	13	202	290	
	West Djawa	7	52.5	10	
	Central Djawa	--	--	--	
	Jogjakarta	8	56.9	28	
	East Djawa	5	38	38	
Sumatra		3	6.5	3.2	26.2
	Medan	2	5.5	1.2	
	Banda Atjeh	--	--	--	
	Padang	--	--	--	
	Djambi	--	--	--	
	Palembang	--	--	--	
	Riau	1	1	2	
Kalimantan		--	--	--	--
	Pontiomak	--	--	--	
	Bandjermasin	--	--	--	
Sulawesi		2	2	0.6	0.1
	Menado	2	2	0.6	
	Palu	--	--	--	
	Udjung Pandang	--	--	--	
Maluku		6	3.2	3	0.6
	Ambon				
Bali		--	--	--	--
	Denpasar				
Nusa Tenggara		--	--	--	--
West Irian		2	0.6	3.8	0.8
Total for Indonesia		46	361.7	376.6	100%

Source: GRAFICA NASIONAL

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Table 25 Population of Indonesia in 1971

Area Island District	Inhabitants %	Share %	Share of Industrial Employees %
Djawa	77	64.2	88
Djakarta	4.5		
West Djawa	22		
Central Djawa	21		
Jogjakarta	2.5		
East Djawa	27		
Sumatra	21	17.5	8.5
Medan Banda Atjeh Padang Djambi Palembang Riau			
Kalimantan	5.5	4.6	1.1
Pontiomak Bandjermasin			
Sulawesi	8	6.7	1.4
Menado Palu Udjung Pandang			
Maluku	1	0.8	
Ambon			
Bali	2	1.7	
Denpasar			1.0
Nusa Tenggara	4.5	3.7	
West Irian	1	0.8	
Total for Indonesia	120	100%	100%

Source: PUSAT STATISTICS

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As shown in Table 26, Indonesian imports of newsprint have changed in accordance with the shifts that have occurred on the world market. Today, the dominating position is no longer held by imports from Latin America but by those from Japan. While the imports from the People's Republic of China and the USSR have remained on relatively the same level, the imports from Canada and from Scandinavian countries have declined.

Table 26 The Shares of the Important Newsprint Exporting Countries 1968 - 1971

Exporting Country	Shares of Imports in % 1968	1969	1970	1971
Japan	8.2	0.8	62	51
South America	66	55	11	22
P.R. China	7.4	7	10	7.5
USSR	3.5	2.5	2.5	.
Canada	1.5	15	8.5	4
Scandinavia	10	15	3.7	3.5
Austria	--	--	--	5.7
Other Countries	9.4	4.7	2.3	6.3
Total	100%	100%	100%	100%

Source: Calculation based on information of PUSAT STATISTICS

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The development of the future Indonesian newsprint requirement is interpreted differently by various reporters, as shown in Table 27. Before analysing these values, reference is first to be made once again to the use of newsprint for other purposes as well. Conditional on a liberal press policy in Indonesia one may reckon with a stronger upsurge in development in the next few years, despite the competition of the other mass media, i.e. radio - chiefly in the country - and television. The question of the extent, however, to which these rising trends can possibly continue in Indonesia at the same pace during the second half of this decade is dependent on a number of additional influences that cannot as yet be estimated with certainty. Among other things, these are:-

- the question of in how far one may reckon with a self-supply of newsprint and improved quality paper for periodicals; in other words, the present means of regulating the market by way of limited rationing would then have to yield to the systematic marketing of such paper. In this case the possible export of newsprint, e.g. to Singapore or other countries in south-east Asia, cannot be ruled out;
- the question of making a good newspaper is closely linked with the prevalent socio-political situation and to a climate of economic upswing and this, in turn, is connected with the question of using more favourably priced newsprint for other purposes;
- at present, newspapers or periodicals are not yet confronted with questions of taste or quality by the majority of users. These questions are still to be interpreted for most of the users for the time being.

These and other questions make it difficult to establish any fairly substantiated prognosis of a relatively long-term demand of newsprint. For these reasons, in this Study it is possible to provide a projected estimate of the paper demand for newspapers and periodicals only in the form of a certain band-width, much like the one that has been graphically developed in Table 21.

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Hence the development up to 1975 is believed to proceed above the trend lines established by the Association of the Indonesian Pulp and Paper Industry and by FAO/Jaakko Pöyry. The further development up to 1980 and 1985 is believed to be largely dependent on the question of in how far systematic marketing on the part of Indonesia will be successful in this market section. In all probability, it is then expected that a possible upswing will take place, above all with the aid of improved types of paper (LWC or similar).

Any analysis of future market alternatives for newsprint and similar paper in Indonesia must be accompanied by a study of the supply conditions of this market section in all of south-east Asia. On this subject, two studies for a medium-term and long-term period are available which are introduced in Table 27.

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Table 27	Prognosis of the Possible Demand for Newsprint in S.E.A. Countries. 1970 - 1985										
Country	1970			1975			1977	1980		1985	
	1) ASIAN	2) FAO	3) CAN	ASIAN	FAO	CAN	ASIAN	FAO	CAN	FAO	CAN
Indonesia	38	37	39.9	54	50	60/65	62	70	90/105	100	130/165
Singapore	15.5	17	--	23	25	--	26.5	35	--	90	--
Malaysia	17	25	--	25	40	--	30	60	--	90	--
Thailand	48	48	--	70	70	--	84	105	--	160	--
Philippines	71	70	--	102	95	--	118	130	--	180	--
Total for S.E.A. Countries	196.5	194	--	274	280	--	320.5	400	--	580	--

Sources: Own estimation, see Table 44.

1) ASIAN INDUSTRIAL DEVELOPMENT COUNCIL, 2-12-1967

2) FAO / JAAKKO PÖYRY REPORT 1971

3) CANADIAN TEAM, SANDWELL REPORT 1972

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As a preliminary résumé, the following can be stated on this point:

- **Estimated requirements of south-east Asian markets**

1970	194,000 - 196,000 tons p. a.
1975 e	274,000 - 280,000 tons p. a.
1980 e	320,000 - 400,000 tons p. a.
1985 e	about 580,000 tons p. a.

- **Apart from the Philippine project with 80,000 tons p. a. there are two fairly large projects in Malaysia and in Indonesia that are under discussion. While smaller projects - for lack of profitability - are not believed to be very successful for the majority of countries up to 1980, except perhaps as reasonable interim solutions, it is considered that the demand to be expected from this extensive market can be satisfied by three or four large-capacity projects.**

In view of the conditions of international competition existing among the brands dominant in this market, it goes without saying that only a large-capacity plant capable of economical operation will be in a position to export newsprint to other south-east Asian countries. Thus closer economic ties among these countries are another prerequisite. In this connection the question of raw materials must not be overlooked. Pinus, eucalyptus, and other sorts that are already being newly planted for such purposes, or which must be included in an infrastructure to be newly established, are under discussion, apart from tropical woods and bagasse, whose suitability for newsprint should be examined without delay.

In this connection, the question as to whether there are any alternatives to the domestic production of newsprint and, if so, their value as an interim solution, can also be examined.

Compare the relevant proposals in Section 3.

[illegible] Assistance in Paper Mill Operation in Indonesia
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3.33.3 Fine paper, e.g.
Main and special printing,
publication and writing

Low Classification and Finishing

The paper summarized in this grade are woody and woodfree writing and printing paper according to their kind, mostly main or also special grades, such as cyclostyle, gummed printing paper, a.o.

The following Table 30 gives an outlook of the most essential grades.

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Table 28

Survey of main and special printing, publication and fine paper. A new classification regarding their characteristics of conversion and market.

I. Main and special printing and publication paper for office printing, book printing and publishing. Quality may rank between common, medium and high types.

a)	**LETTERPRESS-PRINTING**	**in reels and sheets, also calendered as for printed matter, business forms (also HVO), book printing, poster printing, thin and volume printing, cover paper and cardboard**
b)	**OFFSET-PRINTING**	**in reels and sheets, also machine-sized as offset-printing (HVO), litho-printing, photographic printing, chromo-, label-paper and cardboard**
c)	**GRAVURE-PRINTING**	**publication grades (HIII) (in Indonesia not yet available, only for packaging printing)**
d)	**SPECIAL-PRINTING**	**in sheets as cyclostyle, gummed paper, etc.**

In the printing shop, there are also other types of paper for special technical use in the printing process.

II. Main and special fine paper used for writing, drawing, typing and printing and other related fine paper. Quality ranges between common, medium and high types, also with regard to the kinds of wood content, woodfree and rag content.

a) **normal fine paper in reels or sheets, also coloured:**

common type -	**writing and typing paper, exercise bookpaper, stationery, wedding, converting and envelope paper, tablet paper, business form paper, bond paper, xerox paper.**

	medium type -	bond, ledger, watermark paper, hard and bank paper, drawing paper, technical and construction, opaque, circular, cover and book-binding
	high type -	finest paper, security paper for cheques, stamps, money, etc., optical reading paper
b)	thin fine paper in reels and sheets of different grades, also coloured:	
	(see also c)	manifold, onion skin and airmail, carbonizing, industrial and wrapping thin paper
	other thin finest paper	cigarette paper, technical paper
c)	Bristol mostly in sheets of different grades, using also waste, groundwood and pulp and also coloured:	
		Index and carthoteek printing postcard, greeting and visiting card. Cover and files, also cardboard for converting industrial and food packaging
d)	special fine paper and related paper not classified elsewhere:	
		Gelatine and spirit, direct line and diazostock, reproduction stock, copy stock, basestock for other coating
		other technical paper

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In principle, there are two ways of possible classification.

First possibility:

according to characteristics of production technique.

Second possibility:

according to processing technique and, in a way, market characteristics.

The classification according to production technique follows the characteristics of raw material development, either groundwood content or woodfree, and the more production-oriented characteristics, i.e. weight per unit area, such as light-, normal-, heavy-weight, or the quality characteristics conditional on processing technique, e.g. common, medium, bond, finest. While only very limited quantities of domestic groundwood are at present available in Indonesia, the woodfree types of paper are of greater importance for domestic paper production. The use of the shorter domestic fibrous raw materials has a greater, if less favourable, effect, and from this relatively unfavourable basis the Indonesian paper industry is faced with the task of catching up with international standards of quality. Based on this fact it is recommended that with respect to establishing new classifications and new production programmes, the industry should set out from the following groups of paper types:-

I:	**Printing paper,**	**subdivided into groups of different qualities according to characteristics of processing technique;**
II:	**Fine paper,**	**subdivided into groups of different qualities according to specific uses.**

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This would allow a meaningful combination of the following applications:-

- **Classification of printing paper according to processing technique provides the incentive to develop better types of printing paper. This is important for the Indonesian paper mills, above all with a view to developing domestic offset printing paper. Marketing of this paper will offer better starting possibilities, and the development of improved printing qualities may be expected.**
- **Both optically and psychologically, the generic term "fine paper" is preferable to "writing paper". In the marketing field the results are likewise greater variations which, ultimately, may also result in greater price chances.**
- **A subdivision of the fine paper into normal, thin, and heavy-weight grades meets with a new redirection of the paper grades, above all for the areas of special types of paper, bearing in mind the proposed specialization of the Indonesian paper mills' production programmes.**
- **Finally, better market transparency can be achieved, from which the paper industry will benefit more than the trade.**

Further advice on the specification of new quality standards is given in the section dealing with the Alternatives for the Cellulose Research Institute, and is contained in the Annex to this Report.

The most important characteristics of these types of paper are:-

Office paper	for administration, industry, trade, banks, postal and transport requirements, etc., business paper, forms, ledgers, notebooks and writing pads, reels, etc.
School paper	for instructional material, text-books, exercise-books, sketch blocks, etc.
Communication and information	for books, brochures and periodicals
Advertising	for catalogues, prospectuses, posters, calendars
Industry	for printed packaging materials, labels, etc.
Private consumption	for stationery, greetings-cards, etc.
Art paper	

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The some 45,000 tons p.a. of paper used in 1970/71 in the printing section for printed matter, books and such like can be roughly broken down as follows:

25%	newsprint
65 - 70%	simple fine paper qualities
5 - 10%	special and better quality printing paper.

The some 45,000 tons p.a. of paper used in paper processing in the same period can be roughly broken down as follows:

10%	newsprint
80%	simple fine paper qualities
10%	better fine paper qualities (including the thinner fine paper)

Seen overall, printing and fine paper are responsible for approximately two-thirds of Indonesia's paper consumption. The consumption of this kind of paper, broken down into the major production sectors, can be taken for the past years from Table 29, x and the potential requirements broken down into the major market sectors for the last two years and for the coming years from Table 30. xx

About 42% of the printing and fine paper is used in the office sector of

Office Sector	Approx. Share
Administration	12.00%
Industry and trade	57.50%
Banks and state printing works	5.75%
Post and transport	5.75%
Other consumers	15.00%

Some 25% in the fields of communication and information, approximately the same amount in the school sector, however with a falling trend, only 1% in the private consumption and the rest is spread over the sections of industrial requirements, advertising and art printing.

By comparison with international conditions, the consumption in Indonesia should be capable of very considerable expansion:

Country	Consumption in kg/capita (1970)	
	printing and fine paper	total paper
USA	55	252
Federal Republic of Germany	48	185
Indonesia	1	1.4

x see page 85
xx see page 86

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Surveys of printing and fine paper:

The processors of these products are, above all,

printing shops
bookbinding shops and
paper processing shops

which, however, do not process only the main and special grade writing and printing paper, i.e. the types dealt with in this section, but also newsprint. In Indonesia, as pointed out in the preceding section, newsprint is used also for other printed matter. Newspapers and periodicals are likewise produced in the printing shops described below. In Indonesia, though, the printing shops are often connected with the publishing houses. Another special feature is the combination of many fairly large printing shops with trade establishments. They often appear as retailers and frequently run book or stationery shops, chiefly combined with the sale of office commodities.

In addition, a number of printing shops also manufacture other office commodities, such as rapid binders, files, writing pads and notebooks, envelopes, as well as school commodities, such as exercise books, sketch blocks, etc. Kraft paper, various types of cardboard and paperboard are also used for these products.

In analysing the following statistics from the printing shop area, consideration must therefore be given to the fact that other types of paper and cardboard may be contained therein. Nevertheless, the statistics of the Direktorat Djeneral Perindustrian Ringgan dan Keradjinan Rakjak, which are now in the process of being established, provide a good survey of the situation of the Indonesian printing and paper processing shops. Closer co-operation with that Administration - not just for establishing jointly elaborated better market surveys - cannot be but strongly recommended to the Indonesian paper industry.

Concerning the importance to the market and the influences of other market areas, such as advertisement, processing for other industrial purposes, private consumption and art printing on the consumption of book and fine paper, only a few figures can be named, such as have been roughly estimated and included in Table 30. The following comments on some important market sectors are therefore intended, in a relatively fragmentary way, to throw some light on these market sections on which more energetic efforts should be made by the Indonesian paper industry.

Table 31 (see page 88) shows the expected fine paper consumption in Thin Fine and Finest, Normal Fine and Heavy Fine.

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Table : 29	Consumption of Printing and Fine Paper in 1 000 t/year: 1966 - 1971						
Kinds of paper	1966	1967	1968	1969	1970	u 1971	
Imports							
Newsprint	16,2	16,1	26,1	24,0	40,6	34,5	
Publication paper	0,1	0,2	0,2	0,2	0,3	0,4	
Fine Paper	9,6	25,1	27,0	33,8	42,4	40,5	
Bristol and Cover	0,1	2,6	3,6	5,3	15,8 2)	19,1	
Domestic Production							
Fine paper 1) (including bristol and cover)	9,0	6,9	9,2	13,0	15,7	20,4	
Consumption							
Total fine paper (including bristol and cover)	18,7	34,6	39,4	52,1	73,9	80,0	
Total Printing and Fine Paper	35,0	50,9	65,7	76,3	114,8	124,9	

Sources: PUSAT STATISTIK, INDONESIAN PULP AND PAPER ASSOCIATION

1) evaluated figures until 1970

2) this step seems to come from the new entrance of cardboards in the statistics of PUSAT STATISTIK

u) estimated; these figures also can be higher

Table : 30	The Demand of the Market Sections for Printing and Fine Paper in 1 000 t/year: 1970 until 1975						
Market Sections	**1970**	**1971**	**1972**	**1973**	**1974**	**1975**	•
1. Office market	47,5	52,1	57,3	63,0	69,3	76,2	
2. Industrial market	1,0	1,2	1,4	1,5	1,8	2,0	
3. School-market	30,0	32,0	35,5	39,0	44,0	50,0	
4. Communication and information							
a) brochures magazines comics	10,0	11,0	12,0	13,0	14,0	15,0	•
b) newsprint weeklies monthlies	19,1	20,9	21,9	25,0	28,0	32,0	
5. Advertising	1,0	1,1	1,2	1,3	1,4	1,5	
6. Private consumers	5,9	5,5	6,0	6,5	7,0	7,5	
7. Art printing	1,0	1,0	1,0	1,0	1,0	1,0	
Total	114,5	124,8	135,8	150,4	166,30	185,2	

Sources: Own researches and information of the Administration
Remarks:

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Remarks concerning Table 30:

1. Summarising for 1971 by several enquiries. The conclusions of the Management Institute University Indonesia are 51.000 t for 1971.

2. Increase of 100 % from 1970 until 1971

3. Arising increase from 7 % to 9 % per year includes the demand for school administration, the teachers and private procurements.

4.a Increase of 50 % from 1970 until 1971

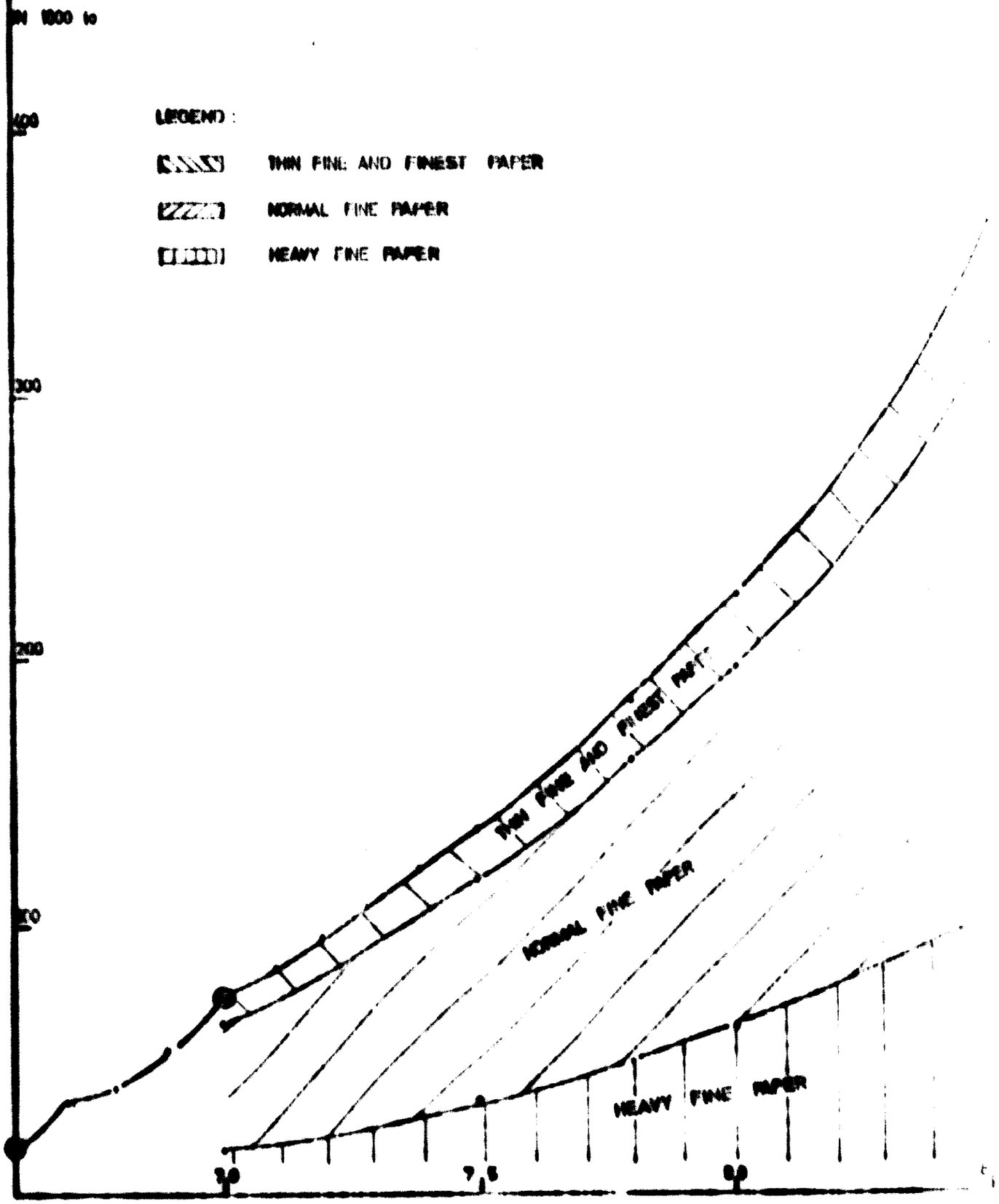
4.b Planning of the administration and also information about future demand.

5. Increase of 50 % from 1970 until 1971

6. Norm

7. Stagnation

TABLE : 31 | THE EXPECTED FINE PAPER CONSUMPTION OF INDONESIA



SOURCE: OWN ESTIMATION AND OWN RESEARCHES

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The proportion of normal printing and fine paper produced by the state-owned paper industry has, as the following summary of Table 39 shows, risen from 19.3 (1967) to 30.1 (1971). In the case of the heavy-weight fine and cover paper, on the other hand, it has sunk from about 25.7% to 13.6%. Over 30% of the imports come from East Asia, about 70% from Japan, 10% from the People's Republic of China and just under 10% from Taiwan, Hongkong and Singapore. Imports from European countries amount to some 7%.

Table 32 — Production and Imports of Printing and Fine Paper, Bristols and Covers at 1967 to 1971

Printing and Fine Paper	1967		1968		1969		1970		1971	
	1000t	%	1000t	%	1000t	%	1000t	%	1000t	%
Domestic Production	6.0	19.3	7.8	22.3	11.3	25.1	13.2	24.8	17.4	[illegible]
Imports	25.1	80.7	27.0	77.7	33.8	74.9	42.4	75.2	40.5	[illegible]
Total	31.1	100	34.8	100	45.1	100	55.6	100	57.9	[illegible]
Bristol and Cover										
Domestic Production	1) 0.9	25.7	1) 1.4	28	1) 1.7	24.3	2.5	13.6	3.0	13.6
Imports	2.6	74.3	3.6	72	5.3	75.7	15.8	86.7	19.1	[illegible]
Total	3.5	100	5	100	7	100	18.3	100	22.1	[illegible]

Source: INDONESIAN PULP AND PAPER ASSOCIATION, PUSAT STATISTICS

Remarks: No exports

1) approx. values

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As the reference in the statistics to printing and writing paper gives no reliable indication as to which market sector this paper actually goes, estimates have to be relied upon. It can be said with some degree of certainty that approximately a good third (about 35%) of the fine writing paper which goes into paper processing is covered by domestic production. In the case of printing and fine paper it is not even as much as 10% (about 8%). From these facts it is possible to deduce the necessary market and investment policies.

First Market Aim: for fine paper which goes into the paper processing sector attaining a dominant share of the market of over 50%;

Second Market Aim: for fine paper which goes into the printing sector developing the manufacturing potential for printing paper, especially offset printing paper, and attaining the same dominant share of the market.

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The Market section of Printing Papers

According to the statistical data contained in the "Grafika" survey, the quantities of paper required by the printing shops of all five regions of the island of Djawa in 1970 can be assessed at more than 60,000 tons (see Table 33).

Table 33 Findings on Capacity and Paper Demand of the Printing Shops of Djawa: 1970

Area	Printing Shops	Possible Capacity 1000 t/year	Real Paper Demand 1000 t/year	Shares %
Djawa	103,5	140	60,7	43
Djakarta	305	80	32	40
West Djawa	251	18,7	10,6	57
Central Djawa	283	31,3	12,5	40-50
Jogjakarta	25	n.a.	n.a.	n.a.
West Djawa	171	10	5,6	55

Source: DIR. GEN. OF PRINTING INDUSTRIES

1) excluding 50 closed printing shops

Accordingly the total quantities of paper required by all printing shops in Indonesia in 1970 can be estimated at

roughly 70,000 - 75,000 tons.

In line with the present data, a breakdown by individual types of paper would look as follows: (cf. Table 34).

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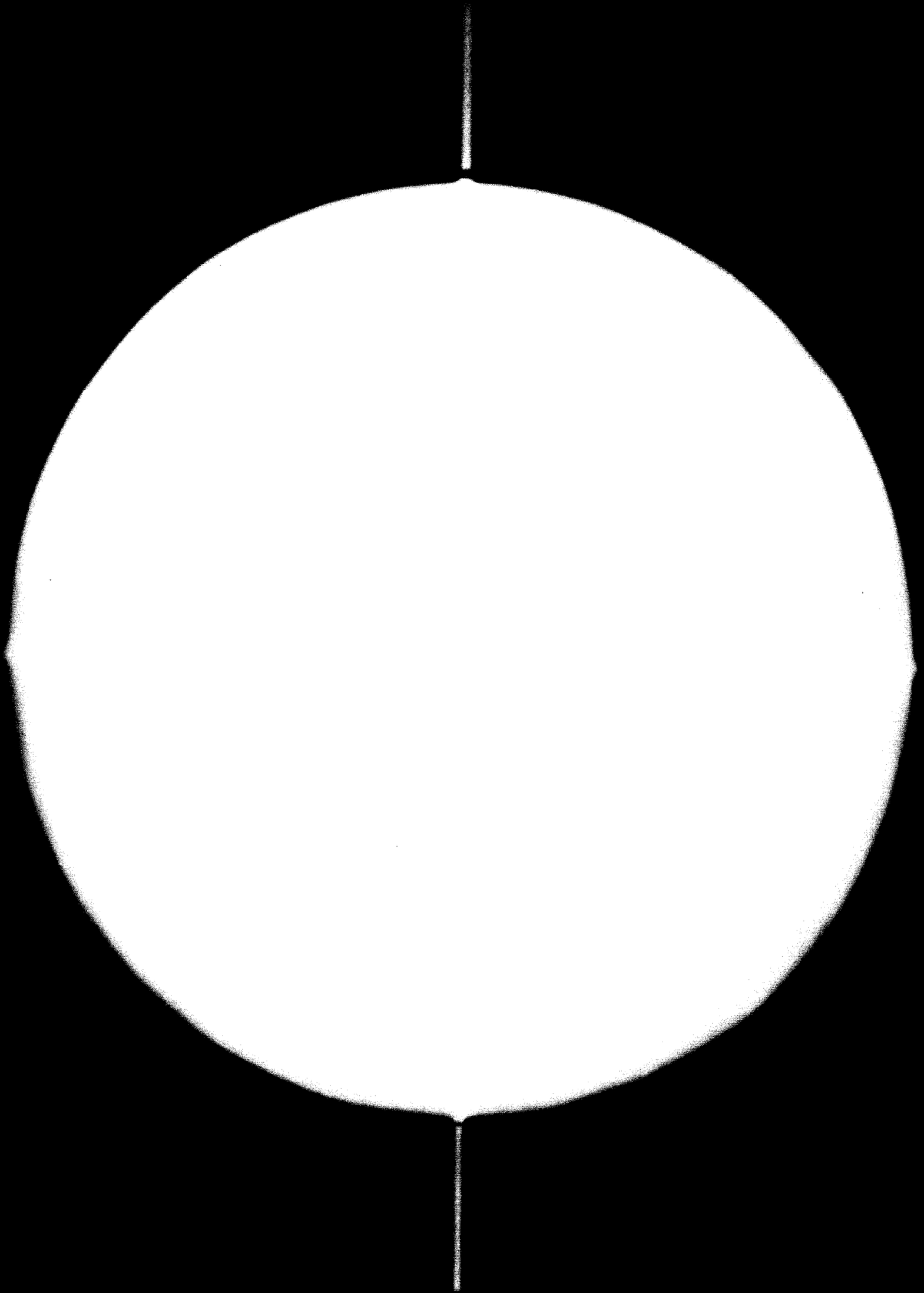

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Table 34	The Paper Demand of the Printing Shops in Indonesia 1970		
Kind of Paper	Application	Quantity in 1000 tons	Shares approx. %
Newsprint	News Magazines Printed Papers Brochures Telephone Directories and similar	19.1 14.3 [1]	27 20.5
Publication		0.35	0.5
Fine Paper	Printed Matter	33.75	4.6
Art Printing	Art Prints	0.75	1
Others	Various other products	3.5	5 [2]
Total		70	100%

Source: Statistics and enquiries

1) in 1970 Newsprint 40,600 tons
including 21,500 tons (53%) other printing paper (2/3) and converting (1/3)

in 1971 Newsprint 34,500 tons
including 13,800 tons (40%) other printed paper and converting

2) estimate based on enquiries

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Hence about half of the types of paper required by the Indonesian printing shops is fine paper. The use of newsprint for other kinds of printed matter is likewise considerable. At the end of 1971, the book-printing shops in Indonesia working chiefly by the letterpress printing method accounted for roughly 84%, while those working chiefly by the offset printing method made up about 16%, as shown in Table 35. x The increase in offset printing machines during the past one and a half years, however, is shown even more clearly in Table 36 xx, according to which the number of offset printing facilities has increased by roughly 40% in this period. While for the production of offset printing paper the Indonesian paper mills, at present, do not have sufficient equipment at their disposal, immediate steps should be taken so that offset printing paper can be produced for the quickly growing market in Indonesia.

x see page 94
xx see page 95

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Table 35 Printing Shops in Indonesia: December, 1971

Area Island	District	Letterpress Printing	Offset Printing	Total
Djawa		739	162	901
	Djakarta	202	97	299
	West Djawa	93	21	114
	Central Djawa	208	16	224
	Jogjakarta			
	East Djawa	236	28	264
Sumatra		124	8	132
	Medan			
	Banda Atjeh			
	Padang			
	Djambi			
	Palembang			
	Riau			
Kalimantan				
	Pontiomak			
	Bandjermasin			
Sulawesi				
	Menado			
	Palu			
	Udjung Pandang			
Maluku		55	5	60
	Ambon			
Bali				
	Denpasar			
Nusa Tenggara				
West Irian				
Printing shops in Indonesia		918	175	1,093
Shares		84%	16%	100%

Source: EAST ASIATIC TRADING CO. and own investigations

Remarks: In Indonesia there are about 60 engraving shops

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Table 36 Offset Printing Machines in Indonesia

Area Island / District	Installed prior to 1-1-70 Number	%	Installed after 1-1-70 Number	%	Total =100%
Djawa	287	58.2	206	41.8	493
Djakarta	169		127		296
West Djawa	17		19		36
Central Djawa / Jogjakarta	54		32		86
East Djawa	47		28		75
Sumatra	22	78.6	6	21.4	28
Medan					
Banda Atjeh					
Padang					
Djambi					
Palembang					
Riau					
Kalimantan					
Pontiomak					
Bandjermasin					
Sulawesi					
Menado					
Palu					
Udjung Pandang	4	66.6	2	33.4	6
Maluku					
Ambon					
Bali					
Denpaser					
Nusa Tenggara					
West Irian					
Total Indonesia	313	59.5	214	40.5	527

Source: **EAST ASIATIC TRADING CO.**
This List was closed in summer 1972.

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For the rest, the development of the capacity of the Indonesian printing shops is being greatly boosted, and this development is expected for the first three years of this decade to figure at around 50%. Thus most of the printing machines available will be new and more efficient.

Consequently, higher demands will be also made on the quality of printed matter, which, not least, will have repercussions on the quality of the printing paper in demand.

The production of books plays an essential role, and here, in particular, the production of text-books in the field of education. Table 37 gives a survey of the past and planned future production of school-books. Even when taking into account that school-books are still relatively scarcely used on the other islands, and considering that the books will be used over a number of years, the present projection of the demand in future years is believed to be too low.

Generally speaking, the production of printed matter in Indonesia is very low, in 1970, for instance, only about 2 million new books were published in the Djakarta region. Hence the requests put forward by Indonesian experts are:-

- above all, a better make-up of books, an improved layout, better contents;
- an improved printing quality;
- the furtherance of these aims with the aid of government institutions, including the erection of considerably more libraries and, moreover, improved marketing and better promotion and distribution.

The Indonesian paper industry must not overlook that marketing measures are also being propagated by other market partners, which fully correspond with their own market intentions. So far, however, closer contacts with the printing industry have not yet been established.

Table : 37 **Forecast of the Demand of Printed School Books 1969 - 1979**

Year	Total pages in Mio	± Paper Demand in t for Printing paper	Cover	total	Pupils in Mio	Consumption/pupil pages	kg of total
1969 - 70	335,8	492	39	531	15,5	21,6	0,034
70 - 71	1 246,7	1 732	138,5	1 770,5	16,1	77,5	0,110
71 - 72p	1 348,1	2 500	250	2 750	16,7	81	0,164
72 - 73p	1 644,0	2 700	270	2 970	17,4	95	0,170
73 - 74p	1 643,5	2 700	270	2 970	18,1	91	0,164
1974					18,8		
e	9 757,5 in average per year	15 500	1 550	17 050			
- 79	(±1 950)	(3 100)	(310)	(3 410)	22	(96)	(0,167)

Sources: DEPARTMEN PENDIKAN DAN KEBUDAJAN, via THE MANAGEMENT INSTITUTE UNIVERSTY OF INDONESIA and PUSAT STATISTIK

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The Market Section of Converted Paper:

Apart from the printing shops there are book-binding and paper processing shops which, by way of a second working operation, process a large portion of printing paper and, above all, fine paper, as shown in Table 38.

Table : 38	Possible Capacity and Real Paper Demand of Book-binding and Paper Converting Shops of Djawa 1970			
Area	paper converting shops	possible capacity 1000/t /year	real paper demand 1000 t	shares %
Djawa	115	69,8	36,3	52
Djakarta	34	11	4,4	40
West-Djawa	22	14	12,7	90
Central-Djawa	23	37,8	15,2	41
Jogjakarta	3			
East-Djawa 1)	33	7	4	50-60

Source: Direktorat Djenderal Perindustrian Ringan dan Keradjinan Rakjat

1) East-Djawa supplies Nusa Tenggara and the other east-Indonesian islands

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With the relatively safe assumption that not all paper processing works, especially those which are affiliated with wholesalers, have been registered, and that, in addition, no exact delimitations are believed to be available, and while it is considered that the quantities which are here recorded as book-binding work have, for the greater part, already been included in Table 29, the quantity of paper actually required in 1970 for the entire paper processing sector, including book-binding shops and the finishing plants operated by the paper wholesalers, can be assumed to figure at between

about 40,000 and 45,000 tons p. a.

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Thin fine paper:

The requirement of thin fine paper and finest paper, such as onion skin, airmail, manifold, carbonizing and other kinds of thin paper, which is not exactly determined in the statistics, is believed to actually amount to about 6,500 tons p.a. Rate increments are believed to follow a line somewhat above the average growth rate of fine paper, since the use of manifold is very widespread in Indonesia to obtain as many copies as possible. In 1975, it is expected that the consumption of this type of paper will be in excess of 10,000 tons p.a. It is believed that the share of special technical and better-quality types of paper, such as airmail, carbonizing, etc., will then account for 20%. At present, the import share of thin fine paper is in excess of 75%.

These are the starting points for the Indonesian paper industry to re-arrange its production programme, especially for the higher-quality types of paper and in connection with the production of cigarette paper. Since onion skin paper has a good and promising market in Indonesia, it is recommended that such a converting production should be started.

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Normal Fine Paper
School Paper Market

The bulk of fine paper processed by these concerns goes into the school sector. Enquiries in Djawa and on some of the islands have shown that the following requirements, broken down into the different kinds of schools and worked out from the normal exercise book of 16 pages, can be considered. See Table 39. On average the requirements of school paper per pupil in 1970 were:

about 1.5 kg
of this for exercise books: 1.3 kg
new books: 0.167 kg
(leaving out of consideration private purchases)

Thus the young people are in the highest group of paper consumers, a fact of which the marketing of the Indonesian paper industry should make more use.

School exercise books are made up in the old-fashioned, classical way with lilac or blue coloured covers. The manufacturers' supreme principle is the cheapest production, as the manufacturing margin between the costs of the materials and the selling price often amounts to hardly 30%. In Indonesia the school children or their parents have to pay for the exercise books themselves. Instructional material is available free of charge only to a very limited extent. Recently international organisations have made donations for Indonesian school books to be distributed free of charge.

There is some attraction for the Indonesian state in printing teaching instructions, information on the country and its people and other information to be completed and continued later on the covers and on the two outside pages in return for accepting the costs. Under circumstances other ways of distributing school exercise books cheaply or free of charge should be taken into consideration. This is the practice in other countries, including developing countries. Some specimens of exercise books made up in the way mentioned from other countries were handed over to the Indonesian authorities. In this way the Indonesian paper industry can have a greater influence on the domestic production of school exercise books, the market will become more transparent and the hitherto disadvantageous effect of seasonal imbalance with the main emphasis on the beginning of school can be considerably mitigated.

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Table : 39	Estimated Demand of Exercise Books in Indonesia 1970						
Kind of School	Pupils	Demand of Exercise Books per capita year 1)	total in Mio. pieces	Demand of Paper approx. in t total	Fine Paper	Covers	kg/capita
Primary School	13 395						
SD. Djawa	8 146	35	285	11 400	9 975	1 425	1,4
SD. other islands	5 249	20	105	4 200	3 675	525	0,8
Secondary School S.L.P.	1 292	40	52	2 080	1 820	260	1,6
High School S.L.A.	629	80	50	2 000	1 750	250	3,2
Universities	133	150	20	800	700	100	6,0
Courses	456	10	5	200	175	25	0,4
Total	15 905	325	517	20 680	18 095	2 585	1,3

Source: PROJEK PENILAIAN NASIONAL, PENDIDIKAN-DEPARTMEN P.and K. and own enquiries

1) The average of the enquired informations was for primary schools in Djawa about 40, in the islands about 20 in average; but in more desolated areas no enqiries were made, there is a discount of about 10%.
The future trend is the consumption of 40 until 50 exercise books in average for total Indonesia.

2) One exercise book has 35 g fine paper and 5 g cover, in total 40 g.
The future trend is to lower the paper weights.

Paper Used by the Authorities:

Enquiries made at some of the head offices of Indonesian ministries in Djakarta and a simple estimate show that the

government authorities' requirements of paper amount to

3,000 tons p. a.

Of this

about 80% is fine paper
about 10% printed matter
about 10% products made of bristol or cardboard.

The requirements of the other administrative authorities and outside the capital will probably amount to about another 5,000 tons p. a.

As already mentioned in Section 1.15 under the problems of paper distribution, the direct supply of the state authorities by the paper mills involves certain difficulties. In public tenders and in normal purchasing the private lobby, especially for the import industry, exercises an influence which is often not advantageous for the Indonesian paper industry. In addition, the authorities usually have to pay higher costs, especially in the matter of crediting.

In order to provide better sales chances for the Indonesian paper industry, it is suggested that the following measures should be adopted.

- Paper for the authorities should, as far as possible, be chiefly supplied by the domestic industry.
- Supplying and financing should be carried out by means of factoring.
- For security reasons all paper used by the authorities should carry a legally protected water mark bearing the state coat-of-arms of the eagle (Garunda). For this paper quality standards will be set up as part of a new system of standards for Indonesian paper. See Appendix.
- The seasonal demand, which because of the budget planning reaches a peak between December and March, can be better controlled by suitable terms of delivery.

For P.N.P.K. Padalarang this would be an alternative which can ensure the profitability of this relatively small-scale plant for a somewhat longer period.

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Computer Paper:

At present there are 14 larger computers in Indonesia; medium-sized computers are at present making a more rapid advance. Continuous business forms for computer output are imported or printed on two printing machines in Indonesia. Tests with paper from the P. N. P. K. Padalarang have given good results. The rise in the increase in the paper required for computers is described by Indonesian experts as extremely high; a similar development can be observed in this paper sector in other countries.

Xerox Copying Paper:

This copying paper which works indirectly is produced out of calendered fine paper. In the first year of sales, 1971, some 150 copying machines were sold in Indonesia. Suppliers estimate that for the time being about 20 tons p. a. will be required. Thus supplies of this kind can be quite attractive for the Indonesian paper industry because they are continually supplied as contract paper by system suppliers and are purchased direct from the paper manufacturers. At present Xerox paper is obtained from Fuji-Xerox in Japan.

Envelopes:

In this connection it must first be stated that irregularities in the Indonesian post have had a detrimental effect on the development of postal communication and thus also on the use of envelopes. In the last three years letter post in Indonesia has declined by about 50%. In many cases the post is delivered by personal messenger or by private services. Mostly only registered letters reach their destination.

HVS, HHS and kraft paper are used to manufacture envelopes, and mainly kraft paper for despatch bags. Over half of the paper used for envelopes, estimated roughly at 3,000 tons p. a., is HVS - mostly with kraft pulp contents. About 8 envelopes are estimated per head of the population. Roughly 75% of the envelope paper required (about 1,000 tons p. a. in 1971) is imported at present, as a sampling market analysis from East Java has shown. In addition, some 50 tons of ready-made envelopes are imported each year. As chiefly paper containing kraft pulp is used for manufacturing envelopes and despatch bags this is an attractive market, especially for P. K. Basuki Rachmat in Banjuwangi.

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Stationery, Greetings Cards, etc.:

Promoting this branch of paper processing also appears to hold promising prospects for the Indonesian paper industry. For the rapidly growing tourist industry too - in Indonesia more than half a million foreign tourists a year are expected in the coming years - more and, in particular, typical paper goods which are "made in Indonesia" should be produced. Embossed paper and cardboard should be included forthwith in the manufacturing range of the Indonesian paper mills.

Bristol and Cardboard:

The consumption of bleached bristol, index, white and coloured cardboard and covers has risen considerably in the last few years.

1967	about 3,500 tons per year
1968	about 5,000 tons per year
1969	about 7,000 tons per year
1970	18,300 tons per year
1971	12,100 tons per year

About 80% are white or chiefly coloured index or cover qualities. To what extent clay-coated or dispersion coated cardboards and other coated products for packaging requirements are included in these figures cannot be ascertained from the statistical records available. On the basis of the market information, however, this must be assumed. About 80% of the total consumption is imported. The consumption of heavy weight fine and cover paper or cardboard is likely to roughly double by 1975 compared with 1972, taking as a basis the quantities from other market sections covered by these statistics. The proportion of white bristol probably amounts to some 7,000 tons per year. In discussing the P.N.P.K. Blabak this matter will be brought up again.

Other related fine paper

In addition to the fine paper mentioned later, the multipurpose bond, especially the paper used for reproduction purposes, can be included in the group of related fine paper not everywhere classified. To these can be added the body stock for communication and copying and the special index cardboards for punch, computer and accounting cards and security and banknote paper. In the P.N.P.K. Padalarang diazo paper is manufactured in OCE licence, while all other paper and cardboard is imported.

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Copying Paper, Reproduction Paper and Computer Paper:

In a possible cooperation with the system producers who import their products into Indonesia, agreements between Indonesian paper manufacturers and other interested parties with respect to the manufacture, the conversion or the processing and the distribution of this paper can be made, the advantage of which would first be to save foreign exchange or to share in the know-how of the suppliers. Although the products involved are in the higher quality range, the quantities are small and not particularly economic. Chances of making a profit are therefore more in the processing of imported special paper and, in some cases, in distributing them. At a rough estimate the following consumption quantities can be given for the chief sorts in this sector and for this year.

- self-copying paper	starting
- diazo paper,	25 t/year
- other sensitive reprografic paper,	50 t/year
- punchtape,	starting
- punchcards,	100 t/year
- special computer / accounting cards	starting

Their import value is likely to be around 200 million Rupiahs, or 500,000 US $. With growth rates on average of over 25%, imports worth some 800 million Rupiahs, or 2 million US $, can be expected for 1975.

Security and Banknote Paper:

On average over the years requirements of such paper in Indonesia are over 1,200 tons p. a. About 300 tons p. a. of banderole paper are manufactured in Indonesia, the rest, mostly banknote paper and cheque paper, being obtained from abroad. The state printing works are still pursuing the project which was cancelled in 1965 to set up a production plant of its own, chiefly because the quality of the paper so far produced in existing plant is not satisfactory. Should a change take place in Indonesian banking practices so that the use of cheques becomes more commonplace, it would be advisable to set up a special paper machine of this kind.

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2.23.3 Coated Printing and Converted Grades

Apart from a fairly old conversion plant for producing diazo paper in the P.N.P.K. Padalarang there are no converters in Indonesia. There is no mention of them in the statistical material available.

A study of the market carried out in 1970 by P.N.P.K. Letjes shows that 14 major printing works and paper processing plants require

clay-coated paper	4,750 tons per year
clay-coated cardboard	1,260 tons per year
total	6,010 tons per year

chiefly for soft packaging for cigarettes and other packaging. It can be assumed with certainty that in the event of domestic production of good coated paper being produced in Indonesia further markets for products such as book and exercise book covers, cigarette boxes, food packaging, gummed paper, etc. can be opened up. Indications will be given in Part 3 of this Study.

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2.24 Cigarette Paper

There are some difficulties in ascertaining the exact requirements for cigarette Paper, because the production and import statistics for cigarette paper do not agree with those of the cigarette production. Compare Tables 40 and 41.

The Ministry for Light Industry gives the capacity of all cigarette paper factories as

43,200 million pieces.

Table : 40	Consumption of Cigarettes 1964 - 1971							
Cigarette-Production in billion pieces	1964	1965	1966	1967	1968	1969	1970	1971
industrially made cigarettes (white cigarettes)	23	16	11,1	12,7	14,8	10,9	10,7	13,3
clove cigarettes (Kretek) and Klambakcigarettes	22,4	18,6	18,7	23,2	24,0	18,8	19,2	16,9
Import [1] of cigarettes	.	.	.	.	0,025	0,009	.	.
Consumption of total fabricated cigarettes	45,4	34,6	29,8	35,9	38,8	29,7	29,9	38,2

Sources: **Handbook of Indonesia 1970**
PUSAT STATISTIK

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Table : 41	Input of Cigarette Paper 1966 - 1971					
Cigarette Paper in 1000 t	1966	1967	1968	1969	1970	1971
Import	3,9	4,0	6,0	3,9	5,5	6,3
Domestic Production	e0,2	e0,2	e0,2	e0,2	0,2	0,2
Other Paper Grades like Newsprint for Handmade Cigarettes	.	.	.	0,2	0,2	0,3
Total	4,1	4,2	6,2	4,3	5,9	6,8

Source: PUSAT STATISTIK, P.N.P.K. Padalarang, own researches

For 1970 the following paper consumption can be worked out from the cigarette production (including 10% waste) for

produced cigarettes	cigarette paper demand
white cigarettes	660 t finest cigarette paper
clove cigarettes	1.510 t common cigarette paper
hand made cigarettes	300 t newsprint and other paper
total cigarettes	2.470 t -

This calculated quantity contrasts with an imported quantity about three times larger.

A comparison of the Indonesian cigarette consumption with other countries gives the following results (1970):

USA	4,000 cigarettes per capita and year for men and women over 17 years
Fed. Rep. Germany	2,000 cigarettes idem
Indonesia	1,400 cigarettes per capita and year only for men over 17 years

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So far it has not been possible to find any precise explanation for the purpose for which this paper given in the statistics is actually consumed, especially since the consumption of filter cigarettes in Indonesia is very low. It can be regarded as certain that it must be a matter of high-quality fine paper as the average price is around 225 rupiahs per kg.

With the resultant consumption - taking a 10% growth rate as a basis starting from 1970 - it can be worked out that

about 9,000 tons p.a.

of high-quality finest paper will be required in 1975.

The following suggestions can be given for establishing a new projected plant for cigarette paper on the basis of the market investigations:

- An immediate clarification of which kinds of finest paper are actually imported.
- An investigation into the present and the future requirements of thin fine paper results in the following findings:

Thin fine paper	1970 t	1975 t
finest paper including cigarette paper (1970 ca. 2200 t)	5.700	9.000
fine paper including airmail, carbonizing, manifold, a.s.o.	6.500	10.000
total thin fine paper	12.200	19.000 to 20.000

- Provided that a more precise clarification of the above-mentioned finest paper qualities can be given, it seems advisable to set up a paper machine with a daily capacity of 15 tons, particularly because grades of paper with higher prices are involved here. The present value of imports amounts to about 2,300 million rupiahs, or about 5.5 million US $.

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2.25 The Market of Packaging Paper and Paper Products
Statistical Survey of packaging paper and board

A new classification of packaging paper and cardboard is suggested under Section 2.21. This should make it possible to begin to make the packaging market more transparent.

The domestic purchasing of packaging paper (kraft and packing paper) amounted in the state-owned paper mills to

810 tons in 1971.

That is a little over 2% of the total consumption. To this can be added the same quantity from the purchases of small private paper mills, so that to date only about 5% of the requirements of packaging paper has been covered by domestic production. A production of 3,247 tons of kraft paper is planned for 1971. Certainly there is no shortage of plans to put more unbleached kraft paper of the two domestic kraft pulp paper mills in Banjuwangi and Gowa on the market. The quality and price of imported kraft paper have, for the time being, repeatedly thwarted any such attempts.

In accordance with the values ascertained additionally by the Indonesian Pulp and Paper Association, the results of which, however, for the years 1970 and 1971 should be checked off against those of Pusat Statistics, there is seen to be an annual average growth rate of 30% for the consumption of this packaging paper; compare Table 42. Thus packaging paper altogether has the highest expansion of all kinds of paper.

Table: 42 — **Consumption, Production and Import of packaging paper and board: 1966 - 1971**

packaging paper and board in 1 000 t	1966	1967	1968	1969	1970	1971
domestic production of kraft paper and board of the state-owned paper mills	e 2,1	e 2,1	e 2,1	e 2,1	e 2,7	e 2,7
Import						
a) of kraftpaper and wrapping 1)	7,4	15,7	13,9	22,4	23,3	25,3 3)
b) of paperboard 2)	n. a.	2,0	2,2	4,0	13,5	e 15,6
Consumption 4)	ca. 11	19,8	18,2	28,5	39,5	43,6

Sources:
1) Pusat Statistik
2) Indonesian pulp and paper Association
3) 1971 import-survey until Sept. 1971
4) used newsprint-bags are not included

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The Market Section for Sacks and Paper Bags:

While in the trading sector of wrapping paper, bags made of hand-stuck newsprint (imports of used newsprint in 1971 about 2,000 tons), plastic bags in the town and bags woven from local plants in the country, industrially manufactured paper bags and carrying bags made of kraft paper are competing for the market, industrial large-scale consumers are promoting the consumption of kraft paper, which will continue to grow rapidly in the future.

The Pulp and Paper Association of Indonesia has had the annual consumption of kraft paper for larger projects from the sectors cement and fertiliser industry, and the radio industry investigated and ascertained for this and the future repelita. Accordingly the following consumption of kraft sack paper has been worked out to be:

1967 to 1970	to 1974	to 1978
consumption unchanged	32,600 tons	74,500 tons

To what extent the newly set up plastic sack factories represent a competition in certain fields of application should be examined before further plans are made.

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The Market Section for Corrugated Boxes

In Indonesia there is one major corrugated paper factory on an international scale and four smaller ones. In addition, another eleven small works are mentioned as potential processors of corrugated paper. Their production capacity at present can be estimated at about 15,000 to 20,000 tons per annum, the capacity of the processors is given as 15,000 tons a year. As a result of the research undertaken by the Pulp and Paper Association of Indonesia, in the coming years the following consumption of corrugated paper can be expected with a projected rate of increase of 15%:

Consumption of corrugated paper	in 1000 tons per year	
1970	13.5	
1971	15.6	
1974	22.0	End of I REPELITA
1978	35.2	End of II REPELITA

After making enquiries with the corrugated paper manufacturers the demand for corrugated boxes made of simple kinds of paper is, for understandable reasons, increasing rapidly and, on the basis of a realistic assessment of the Indonesian market, is likely to be responsible for the greater proportion some time later. At present corrugated boxes are chiefly manufactured in the Indonesian factories from kraft paper and semi-chemical fluting.

Supposing possible demand of 25.000 t / year - with appropriate market conditions consumption could be approx. 10% higher - the following quantities may be assumed:

Corrugated coverpaper: (60%) Kraftliner and similar (one third) Topliner and coarse paper (two thirds)	15.000 t
medium (40%) semichemical fluting (one third) mixed fluting (two thirds)	10.000 t

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With a possible wastage of about 33% from manufacturing waste and market deliveries of used corrugated cardboard boxes it is expected that some 9,000 tons of raw materials can be provided each year, thus making the immediate setting up of a machine to produce topliner and mixed fluting an attractive proposition. In keeping with the idea expressed above, the plant could be put into operation initially with a capacity of 70 to 80 tons per day. A possible expansion to 140 to 180 tons per day should be envisaged. Thus a plant of this kind, which could be equipped with a rebuilt paper machine without any difficulty, is by present-day comparisons economically viable for Indonesia and is economically secure for the near future by the possible expansion.

This plant should be located in the vicinity of the processing centres in Djawa. It could also be operated with participation of the processors, in order to ensure that the sales are guaranteed to a large extent. Bagasse or rice straw, which are pulped by a simplified semi-chemical process, could be taken into consideration as other raw materials. Two-thirds of the production could be used in the corrugated cardboard sector, while the remaining quantities can be used for

industrial wrappings,
industrial packaging crepe, also impregnated,
tube, can and drum wrapping paper,
cover paper,
laminated filler-liner for small boxes and container chipboard,
liner for big envelopes, etc.

To some extent, at the same time new converting facilities should be set up for the further conversion or processing of this paper.

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The Market Section for Wrapping and Industrial Converting:

There is no production in Indonesia of strong light-weight wrapping paper. The market, and particularly the trade, therefore, resorts more and more to new and old newsprint and more and more to plastic bags. Roughly 1,000 tons p. a. of corrugated kraft paper are imported mainly for industrial packaging purposes. If all the potential uses for cheap packing paper of this quality are weighed up and if there is a good marketing policy for putting this paper on the market, a market of about

3,000 to 4,000 tons p. a.

of machine-glazed wrapping paper on the basis of pure and mixed packing paper could be expected in Indonesia in the years 1974-75. It should be assumed that this paper should not be made on the paper machine of a kraft sack paper plant so that this machine-glazed paper can enjoy more favourable sales prospects because of the better possibilities of variation. Setting up a rebuilt MF paper machine should thus be considered. If it is remembered that good letter envelopes and several sorts of coated industrial paper can be manufactured from this machine-glazed paper the potential market is even larger. Here it should be borne in mind that flexible packaging is readily used in developing countries to cut packaging costs in low income mass markets. It is therefore suggested that setting up a plant for the machine-glazed paper of at first 10 and later 15 tons a day should be investigated. Conditions which appear necessary in order to improve the profitability of this plant are

- incorporating this machine in a kraft pulp paper mill which already exists;
- purchase of a second-hand plant still in operation which will have to be reconditioned with guarantee, including know-how and training;
- incorporation of a dispersion and possibly a wax-coating machine for industrial coated paper.

It is debatable to what extent a project of this kind is likely to be suitable for Martapura. One of the things that would have to be done there is to build a glazing cylinder.

There seems to be a better chance for Banjuwangi. Here there are suitable raw materials, additional cellulose digester capacity and the combination for also coating other raw paper well suited as to quality.

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The sales chances for coated wrapping paper justify setting up another coating plant, first for dispersion coating. To what extent an extrusion coating plant for later on should also be taken into consideration would have to be borne in mind when examining this proposal.

Possible requirements of coated wrapping papers (1972):	Quantities
gummed tapes	3 - 400 t
packaging paper for soap	400 t
packagings for bisquits, crackers, sweets and confections	2 - 400 t
innerliner for sacks	later on several hundred tons
flexible wrappings for: industrially fabricated ice-cream snacks, food, meat, fish, cosmetics	starting
exercise books and blocks from coloured and gummed paper	starting

The consumption of glassine, greaseproof and parchment, which amounts to 4,000 - 5,000 tons p. a. in Indonesia, is likely to decrease in the years to come in favour of cellophane and plastic foil.

Special industrial paper, such as electrotechnical paper, battery paper, filter paper and the like are either used in relatively small quantities, or their production is so difficult or because of the difficulties in procuring the raw materials so expensive or technically not possible on the existing plant that this matter is not dealt with further within the framework of this Study.

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The Market Sectors for Solid Machine Board and Wet-Machine Board:

The statistical data for the various sorts of cardboard are not very accurate; especially with regard to their intended use. The available figures can include box cardboard, book binding paper, technical cardboard and building cardboard. In presenting the import figures, therefore, the varying margins from all available sources are given.

Imports of cardboard (for various purposes)	in 1,000 tons
1966	1.5 - 1.7
1967	4.1 - 6.2
1968	2.7 - 6.9
1969	4.0 - 9.4
1970	7.4 - 10.7
1971 e[1)]	10.5

Sources: PUSAT STATISTICS

1) estimated

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Remarks on the Private Paper and Pulp Mills in Indonesia:

To these must be added the quantities which reach the market from the small private paper mills.

According to the figures given by the Ministry of Light Industry there are in West Djawa

21 small board mills
5 small paper mills

which with one probable exception work in wet-machine processing. They produce boards or sheets made of rice-straw and a mixture of rice-straw and waste paper. After making some visits to these small works it could be ascertained that a large number either do not work at all or only from time to time. The mills which were in operation worked from 4 to 6 hours a day. Thus a capacity utilization of only 5% is likely to result from the stated capacity of 29,000 tons p.a. (in three shifts). Other sources mention a total yield of this kind of packaging paper and cardboard of about

2,000 tons p.a.

In order to improve the market supply and in an effort to develop alternatives for the state-owned paper mills for better co-operation with these small mills, it appears necessary to make some points on this subject:

- In order to improve the general economic development, including the sector of paper supply, the further development particularly of special kinds of cardboard has a certain importance.
- A starting point may be providing help in the form of information and know-how to improve the technical facilities, techniques and working methods.
- Further possibilities of co-operation are seen in procuring raw materials and promoting the development of processing facilities. Here new possibilities of production can also be suggested and thus new customers can be obtained.
- For overall economic reasons the following special products should be regarded as deserving promotion.

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Boards	Possible Requirements
Bookbinding board	cover for big exercise books text books, a. s. o., blocks and letter files 4. 000 - 5. 000 tons
Friction board	for printing shops, paperconverting and other shops smaller amounts
Wet machine boxboards	multiple uses in cooperation with corrugating-mills several 100 tons
Different kinds of shoe-hardboard and leatherboard	Consumption in the Indonesian shoe industry will, at first, have to be boosted, for the time being. several 100 tons
Motor car boards and trunk boards	about 50 t or more
white board	for beer mags and food packaging in converted products about 100 tons
Boardsand plates for construction units, insulating boards	in the first phase, see there

Summing up, the outcome is that an efficient solid board factory in Indonesia can find good sales for its products.

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2.26 Household and Sanitary Paper and Paper Products

The imports of tissue and similar products run at present on average at

about 500 tons p. a.

In addition, there are some 200 to 300 tons per year of fancy paper products, which are very often used in Indonesia to wrap up presents. The total value of these imports is about 250 million rupiahs, a little over 500,000 US $.

There are a number of difficulties connected with the use of sanitary paper in Indonesia, and even intensive marketing for this paper promises little chance of success.

Toilet paper is used almost exclusively by foreigners; it can be found in hotels and probably less than 5% of the top group of purchasers (some 100,000 families) use it more or less regularly. More chances are seen for paper handkerchiefs, as cleaning one's hands is more in keeping with the importance attached by the Islamic faith to hygiene. Printed paper serviettes, for the most part on normal fine paper, are also a marketable article. The sale of cellulose wadding, especially for hospital use, is likely to have greater chances. All in all it is likely to be too costly if the state paper industry had to undertake expensive pioneer work in this sector of the market. The field of tissue products should first be left to other interested parties until a later date, that is until suitable cellulose is available in Indonesia. The use of thin fine paper instead of tissue paper for serviettes, fancy paper goods and similar articles opens up additional possibilities on this market.

As tourism increases a total market for sanitary paper products made of tissue, cellulose, crepe paper, tissue paper and fine paper amounting to about

1,500 - 2,000 tons

can be expected for 1975.

In addition to the tissue paper and products, processed paper products of a wide variety, for example printing products such as playing cards, games, picture books, greetings cards and other products especially those for the stationery trade are imported. For these in 1971

about 4,600 tons

can be estimated, valued at 1,250 million rupiahs, equal to 3 million US $.

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2.27 Construction Paper and Board

Construction paper comprises in particular

wall coverings,
roofing felts,
floor coverings (felt base),
decoration and core paper.

Apart from some isolated uses, this paper does not have a large market in Indonesia. Only the systematic expansion of housebuilding programmes can make the use of larger quantities and the establishment of a production base for this kind of paper an attractive proposition.

Of greater interest is the use of construction board for which there are already some plants in Indonesia, although not very efficient ones. The market for wet-processed building board, wall board, insulating board and for particle board was not examined in more detail within the scope of this Study. Nevertheless, a co-operation with this branch should be sought by the Indonesian paper industry within the framework of publicly sponsored measures for housebuilding programmes.

On the basis of the information on the market which is available, it must be said, however, that for the present no prospects in this market sector can be seen for the Martapura project.

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2.3 The Procurement Market

II. Critical Remarks about Existing Procurements

This Section contains some fundamental remarks about a number of findings with regard to the procurement market. Their aim is to make it easier to understand the special situation of the Indonesian paper industry and at the same time the suggestions described later.

2.31 The Raw Material and Chemical Market

For 1972 roughly the following requirements of fibrous material for all the state-owned Indonesian paper mills with an expected net production of about 27,000 tons, are anticipated:

Used fibrous raw materials (1972)	approx. t	%
imported chemical woodpulp	1,400	5,4
foreign wastepaper	100	0,4
domestic rice-straw-pulp	13,300	50,2
domestic bamboo pulp	12,500	46,3
domestic wood pulp (hardwood pulp, mostly short fibred and also small amounts of groundwood)	2,880	10,4
Total fibrous raw material	30,100 t	112,7 %

For imported pulp the cost price paid by the paper mills is between 92,65 and 115,00 rupiahs per kg and on average about 85% dearer than the weighed average price for domestic straw pulp and about 70% dearer than domestic bamboo pulp. While there is an advantage in this and in the use of domestic raw materials which is of economic importance for the agricultural areas, the decisive disadvantages are a decrease in quality,

- which as a result lowers the profits through lower market prices,
- greatly impairs the productivity of the paper machine and
- entails higher losses of material and paper.

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If these advantages and disadvantages are carefully weighed up one is forced to the conclusion that a better marketability of this paper and an improved profitability above all for the existing plants in competition with the considerable quantity of imported paper are higher aims to achieve.

It is particularly these considerations for the better chances of survival for the existing and relatively small paper mills which have given rise to the suggestion

> to anticipate an increase in the use of domestic wood pulp as far as possible, in other words, not to wait until new and larger pulp and paper mills put onto the Indonesian market both better grades of paper and market pulp in later years.

As far as possible the better wood fibre materials should be used in the new mills that are built. Rice-straw, bagasse, bamboo, etc., and other agricultural raw materials should only be taken into consideration with very well founded arguments and with due regard to all the market and commercial advantages and disadvantages.

The following alternatives for a qualitative and economic improvement of the fibre material balance forthwith are available:

- Pooling the purchasing of imported pulp for all Indonesian paper mills. This would make it possible to pay more favourable prices and to obtain better contract terms. Storage in duty-free warehouses is desirable. The preparation of the pulp for blending the cellulose fibre should be improved. Studies on this should be undertaken by the Cellulose Research Institute, under circumstances with the support of the pulp suppliers.

- Expanding P. K. Martapura to enable it to supply the other paper mills with market pulp and market groundwood.

  Should it be possible to expand the daily production capacity of pulp and groundwood to 15 tons or more it can be expected that in any event the loss in capacity of the undersized paper machine in Martapura (with 10 tons a day and a working width of 1,860 mm) will be compensated for by improved productivity of the paper machines in Padalarang, Letjes and Blabak and of the Indonesian paper mills by the use of better pulp.

  The paper machine in Martapura can still, as planned, be available to the Cellulose Research Institute of Bandung and the paper industry for the necessary test series for new fibre materials.

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- The procurement and use of wood chips from pulp wood should be considered especially for the P. K. Basuki Rachmat in Banjuwangi and for P. K. Gowa. To do this there would be no necessity to make any structural alterations to the two paper mills. All that would have to be provided for is setting up a wood chip plant with the necessary transport facilities, if need be at a port on the island of Kalimantan. In order to keep the amount of capital invested to an absolute minimum at first, a foreign investor should be made interested also in procuring wood chips. He could then bring these wood chips to Banjuwangi (2 km to the port) and to Gowa (18 km to the port) by means of special bulk carrier ships, such as are at present used to transport wood chips from Tasmania between Australia and Japan. Moreover a higher-grade product, the wood chips, could be exported out of Kalimantan instead of logs. Above all, additional use could be made of the logs, which previously were not treated. The chip plant could be available on the spot as the preliminary stage for a pulp factory to be erected later. There are already a number of contracts with persons interested in Kalimantan wood conditional on building further processing plants. The Indonesian paper industry should avail itself of this fact and as far as possible advance its most urgent requirements.

- An immediate procurement of logs, especially for the P. K. Gowa, should be considered. Here a suitable chip plant is already available; in Banjuwangi it would first have to be built.

It should not be overlooked in these proposals that the Cellulose Research Institute must first carry out studies on the potential uses of existing grades of wood and economic investigations into the stocks and transport facilities in Kalimantan.

In comparison with European calculations, the proportion of the initial costs for the basic chemicals for producing bleached pulp is considerably higher in Indonesia than in Europe - 17% as against 7 - 8%. It will not be easy to lower this relatively high proportion of the costs to any extent. The argument for pooling purchasing, of skilful price negotiations at the state-owned soda factory at Waru and the installation of small state-owned production plants of a provisional kind are alternatives which will have to be examined in the light of the individual case.

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2.32 The Market of Machines and Spare Parts

With regard to the imports of fibrous materials, chemicals, wires and felts, spare parts as well as the costs based on calculation for the machines and plant obtained from abroad, about 25 to 30% of the costs of the selling price without taxes are dependent on foreign exchange. For the last year, 1971, this would have been, worked out in the above-mentioned way, a sum amounting to approximately ± 800 million rupiahs, or almost 2 million US $. This fact should result in an intense effort to save foreign exchange.

The key to this lies in building plant and machines in Indonesia, whether direct for the pulp and paper plants or the transportation and treating of fibrous raw materials or of chemicals, because experience has shown that in the history of the papermaking building one's own, even small, machines and plant parts results in a considerable reduction of costs. The same critical remarks must be directed towards the statement that, at any rate so far, no changes or extensions to increase output have been made to the existing paper machines in the P.N.P.K. Padalarang for over 40 years. On the continent of Europe basic improvements or expansion of the capacity are normally carried out on a paper machine in a cycle of about every seven years. This is the case simply for reasons of technical progress and profitability.

The first extensions of this kind are now planned for the two older paper machines in Padalarang and for the new paper machine in Letjes. In a critical analysis of the plans and projects submitted, however, the following remarks must be made:

- The sum appropriated for rehabilitating the P.N.P.K. Padalarang of about 250 to 300 million rupiahs, whose efficiency at the real bottleneck of the production line was given as being 6 - 8%, must be regarded as far too high for the projected raising of the capacity. It is advisable that, before the technical planning for expansion, rationalisation studies which include the finishing should first be carried out. In the case of the P.N.P.K. Padalarang, for example, this would have resulted in the

return of considerably higher profits from productivity out of the same rehabilitation sum than can be expected with the measures planned at present. Advice to this effect with detailed technical proposals was submitted during the first visit to Padalarang. As, however, plans and promises of credit had already been submitted by the institutions providing the technical assistance it was no longer possible to bring about any radical changes in the rehabilitation project.

- The intended plans which were first submitted for the rehabilitation of Letjes I, but which have since been improved, for pulp and paper production were also disproportionate to the funds invested to improve the profitability. The proposals to set up a clay coating plant, on the other hand, meet with full approval.

In summing up this critical assessment, it must be stated that it has turned out to be advantageous and correct for the management of the P.N.P.K. Letjes to have the plans submitted by the suppliers carefully examined by calling in independent experts and above all by personally studying alternative solutions in the light of paper machines in Europe of a similar age. As a result of these more intensive preliminary studies it has been shown, inter alia, that

- the output of the PM II is capable of being raised without difficulty from the 30 tons a day at first envisaged to 50 tons and more a day and, in a later phase, even to 100 tons under circumstances;
- plant from Europe can be obtained considerably cheaper than was pointed out in the first plans;
- there are chances of support from foreign experts and paper mills or paper processors by way of practical personnel training and know-how and that they could reduce the very high initial running costs of plants in Indonesia.

On the basis of this experience it is proposed that the Indonesian paper industry should build up its own planning department.

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There are competent engineers within the Indonesian paper mills who can be given further training. The help of foreign advisory and design offices could be obtained for setting up a department of this kind. For a country which is located far away from the suppliers it is absolutely necessary to have a planning office on the spot and this is a first step towards building up domestic production capacity for machines and plant spares.

At this point some thoughts on the problem of "new or second-hand and reconditioned plant" are appropriate. According to the regulations of the Indonesian Government investment funds are to be made available only for new plant. In principle there is every justification for this, especially in the matters of technical progress, guarantees and the necessary prestige. In weighing up the relatively low market requirements, also dealt with in this Study, for a number of paper grades and the interim solution, acceptable for several years, of a plant of a size which is profitable under the circumstances prevailing in Indonesia and which is justified by marketing, it would seem appropriate to employ second-hand and reconditioned paper machines and finishing machines in the finishing sector. It must be pointed out very clearly at this point that all paper mills so far built in Indonesia, in relation to their excessively low capacity, are weighed down by excessive costs for plant and the resultant costs of financing the necessary capital, compared with international competitors. For a developing country of Indonesia's considerable size small sulphate pulp and paper mills with a daily capacity of 10 to 30 tons are actually an anachronism. For reasons of profitability as well as for other very cogent reasons, stronger consideration should be given to the use of second-hand and reconditioned paper machines with a far lower burden of capital. In this connection the following requirements should not be ignored either:

- From the technical point of view the machines should be on the most modern level or brought up to this level before they are accepted.
- It must be sufficiently certain that the return of investment within a few years is ensured, the plants can be expanded or adapted to a different kind of production and can be operated for at least ten years or longer.

- They must be supplied with a guarantee, in particular with regard to their operational performance.
- This can be backed up by co-operation with the paper mill selling the machine through previously training Indonesian personnel, engaging a machine factory or advisory office, assistance with making the plant operational, etc. In this way the time and costs involved in the starting operations can be considerably reduced.
- While the use of second-hand and reconditioned plants can be considered for machines or power units, this does not apply to the same extent to plants for chemical apparatus.

Bearing in mind these basic marketing, commercial and technical requirements, the idea of taking the second-hand and reconditioned machines into consideration in the planning is fully justified. At present, there are good opportunities for getting hold of useful machines in Western Europe because of the situation which prevails there in the paper industry. Eastern Europe and other developing countries or countries in the phase of initial or of penetrated industrialization are at present showing great interest in purchasing paper machines which can still be used.

A remark on the matter of maintenance is also appropriate at this point. Within the framework of preventive measures it is of advantage to set up a maintenance plan for all the plants. This should show, among other things, how long the plants can be expected to run, what investments for replacements and what repair costs can be expected in the coming years. A balance sheet of this kind can help to make provision in good time for reducing the employment of further investment funds and foreign exchange. Thus, among other things, the necessary advice was given on the spot on how to avoid further damage from corrosion in the sulphate factories which are especially threatened.

As another first step, the state paper industry should immediately set up its own purchasing agency for all technical requirements. The advantages are, above all, that in the international competition of the suppliers one's bargaining position can be improved. Up to now the contacts have in most cases been with the representatives or the second position people of the suppliers. Moreover, it is easier and quicker for the Indonesian paper industry to come into contact with interesting developments in technical progress when its own engineers are looking around in the world than when only outside sales representatives of the supplier firms visit Indonesia.

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2.33 The Financial Means Market

The means, like the long-term planning projects, will call for considerable financial means for the Indonesian pulp and paper industry, in particular for investment purposes. In addition to this, some of the projects cannot be carried out without mounting new afforestation measures and changes to the infrastructure. These more economic projects, which will also require considerable funds, are, however, absolutely essential for carrying out the economic aspects of the pulp and paper projects. Their economic outcome will, in its turn, influence the outcome of the economic measures for the surrounding areas.

Apart from these problems of financing future projects there are a number of far more acute financial problems, above all in the area of financing sales. The lack of money, which is detrimental because of the still tight monetary situation, and consequently the readiness to pay are some of the reasons why the financial situation of the pulp and paper mills is at present weighed down not by inconsiderable burdens. Serious liquidity difficulties in the state-owned paper mills were the consequences and they weigh heavily on the capital structure of the small, undercapitalized works, which were weak to start with.

The situation on the Indonesian capital market is extremely difficult for an industrial concern, as the interest on capital is, with a few exceptions, from 24% to 36% per annum. The sums which have been withdrawn from the economy to repay foreign debts certainly contribute towards up-valuing the solvency of the Indonesian borrowers of capital, on the other hand, however, in the end they help to considerably impair international competitiveness. As foreign loans are granted on far more favourable conditions in connection with supplies, and as far more favourable credit facilities are also available to paper wholesalers to finance their sales (see Section 3.15 - The Problems of Distribution), it would only be fair to make credit available at much lower rates of interest to the Indonesian paper industry. This is an essential prerequisite for the investment projects and for building up a better sales organisation.

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It must also be remarked on this point that the Indonesian pulp and paper mills like other state-owned industrial concerns - in comparison with international standards - have to bear disproportionately high social burdens for all manner of environmental benefits. After all, they are the only industrial concerns far and wide in their area and the high number of persons they employ can be explained not only from the point of view of the low wages and salaries but also from a certain feeling of social responsibility. Extreme consequences of this view also lead, as, for example, in the case of the Martapura project, to total funds amounting to some hundreds of millions of rupiahs being provided to keep relatively uneconomically operating concerns running for which there are very few future prospects. It is difficult, for ethical reasons, to advance any criticism. In any event, first more realistic plans should be set up, however, and not too many funds should be squandered on lost causes. Suggestions to this effect for P.K. Martapura are put up for discussion in Section 3.

The difficulties of procuring and providing financial means and using them usefully and economically can be gathered from the situation described. In order to create a clear situation for the future there is a great need for arguments with regard to the economic policies which here, too, set off a total balance of the general economic burdens of the state-owned pulp and paper mills against the necessary progressive and infrastructural project measures.

In the last analysis financial questions always have priority, and so below some alternatives are discussed of ways and means of improving the management of the state-owned pulp and paper industry, which can help to improve the financial situation in the future:

- short-term, medium-term and long-term planning in its commercial and sales sectors must each be set up in its financial planning. (The survey plans, if possible, in easily recognizable figures which have been rounded off and not in the so-called "number cemeteries" down to sen amounts and gramme quantities.) Financial planning

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of this kind should in any case contain a:

profit and result plan,
investment plan,
liquidity plan and
profitability and balance plan.

- **A full range of co-operation alternatives from know-how to joint ventures for foreign investors should be kept open for projects concentrating on particular aspects and for projects of a special kind, such as special paper or projects in the converting sector. The stocks of fibrous raw materials and the growing consumer market for paper products are the most important capital which the industry possesses in Indonesia. It is a question of aimed planning as to which leading part the Indonesian state and domestic management should play in this.**

- **It was quite natural that for years the main emphasis of the paper factories' management was, in the first place, put on production and cost orientated data. This is confirmed by the overall structure of the accounting system in the Indonesian paper industry. It is recommended that, in addition, profit orientated data and methods, such as for example direct costing, should be introduced into the accounting so that the consciousness and decisions of the management are switched over to thinking more about the more important, economic aspect of sales.**

- **Factoring provides an alternative to the sales financing largely practised up to now by the paper wholesalers, as this can better take into account the special conditions of the market than the classical methods which do not function particularly well. This, however, would give the banks a strong influence on the way affairs are carried on, and this should be further explored in every direction in order, if necessary, to make use of other advantages of a close connection of this kind.**

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2.34 The Labour Market

Table 43 shows the use of labour in the Indonesian paper industry. It must, however, be considered that the figures include also the daily workers, in addition to the permanently employed persons. Administration comprises also guards, health service and other employed personnel, which makes real comparisons difficult, in addition to the problem of definitions not always very clear, applying also to this table. Nevertheless, the relatively high number of employed persons in both fields is remarkable, in which connection please note the last section.

Between both mills there are differences in productivity, which are due to the use of labour as well as to the efficiency of plants, more or less limited at present.

Paper Mill	Productivity (t/man and year)
P.N.P.K. Padalarang	5,2
P.N.P.K. Letjes	11,6
P.N.P.K. Blabak	4,6
P.K. Bazuki Rachmat Banjuwangi	8,7
P.K. Gowa	9,4
P.K. Martapura	--
total state-owned Indonesian paper mills without P.K. Martapura	8,0

By way of comparison, these performances are roughly one-tenth of what medium-sized European paper mills produce per man and year. The net turnover per employee and year, about one million rupiahs, equivalent to 2,400 US $, is also about one-tenth of the turnover in continental European paper mills. The proportion of wage and salary costs, inclusive of social and similar additional expenses, is between about nine and thirteen per cent calculated from the turnover ex works. In their relative size they are about one-third compared with medium-sized European paper mills.

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The actual wages including additional payments of executives are, on average, about ten per cent of those paid out in Europe; the actual wages of the foremen about seven to eight per cent and those of the workers a little over five per cent of what is usual in Central Europe. This should on no account be connected with a statement comparing the standard of living, nor would that be admissible at all. It is intended, however, to make clear that, as a rule, especially executives, engineers and middle employees in the administration must also take on another job if they want to maintain a certain standard of living for themselves. Certainly there are differences here between town and country, and there are other arrangements for adapting oneself to the given situation. In the long run, however, double employment on the one hand, and a relatively low incentive on the other impair the ability and the will to work efficiently. This is, however, not a good starting position for efforts to raise the output of the stateowned Indonesian paper mills as envisaged.

When mention is made in this section of a labour market, this must mean above all the improvement of the factor of labour existing on the Indonesian market. Apart from one exception, there is not one fully qualified graduate pulp and paper engineer in Indonesia. All the works engineers have been trained on other subjects and had to be retrained for their actual work, in some cases on foreign courses. It is therefore admirable with what exceptional keenness and goodwill they have taken to the work they have been given and have mastered it. It should not, however, be overlooked that although no doubt a good basic training in essentials was achieved in short-term courses of that kind, years of practice and the necessary skill would be required to a far greater extent to build up the Indonesian pulp and paper industry. Suitable training also seems to be largely lacking in the case of the permanent foremen and machine operators. In this connection it was remarkable to see how much interest the works staff displayed by openly asking questions when technical films were shown within the framework of this work. Thus it may be possible to place justified hopes in improving the staff training to achieve better production results.

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In detail the following measures are proposed:

- **Theoretical and practical b a s i c t r a i n i n g of paper engineers in Indonesia, in co-operation with the Pulp and Paper Technology Department of the ITB and the Cellulose Research Institute of Bandung.**

- **Instructional courses for foremen and technicians.**

- **Practical training of engineers and personnel abroad only in cases in which new methods are to be taken over from the country concerned or by which new techniques and methods are to be introduced into Indonesia.**

- **Commissioning foreign experts to undertake mainly practical tasks within a concern and for a set period of time.**

- **It would appear advantageous to give one expert this task at a time, so that he is thus bound to build up better contact with the works personnel. This expert would have to be able to take a matter in hand, as laid down in a contract to that effect, and thus would have to involve Indonesian staff, the main subject in this connection being measures to improve the work.**

Table: 43 **Employees in the State-Owned Paper Mills of Indonesia in 1972**

Paper Mill	Employees			Planned Gross-Production in Tons
	Administration	Techn. Sections	Total [1]	
P.N.P.K. Padalarang	123	509	632	3 310
P.N.P.K. Letjes	50	652	702	8 250
P.N.P.K. Blabak	215	522	737	3 400
P.N. Daerah Banjuwangi, Banjuwangi	120	700	820	7 100
P.N. Gowa	146	618	763	7 200
P.N. Martapura	n. a.	n. a.	n. a.	973
Total Indonesian Paper Mills: Employees	653	3 001	3 654	30 233
Shares	17,9%	82,2%	100%	

Source: Paper Mills

[1] Including the number of daily workers at Padalarang (75), Letjes (162), Blabak (202), Banjuwangi (123), Gowa (n. a.).

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2.4 Conclusions of Market Research

III. CHANCES AND PROBLEMS OF THE MARKETS

2.41 Summary of the Forecasts

The quantitative results of the paper consumption of the market sections dealt with in the aforegoing paragraphs are combined in Table 44.† Here the trends in annual averages for the main grades up to 1975, for the time beyond that in five-year stages, and, in addition, the position at the end of the second REPELITA are given. An assessment of these estimates must be based on the assumption that it is a matter of plus-minus values, which are intended first and foremost to characterise a trend. Here it should be pointed out that the market findings ascertained in this study do not diverge to any great extent from those given by the Indonesian Pulp and Paper Association. This trend given here should be repeatedly examined at intervals and corrected. The increase in the overall paper consumption after the jump for the period 1970 to 1975 is assumed to be 11% p.a. After that it essentially follows the growth curve of initial industrialisation.

Newsprint

The consumption of newsprint is assumed to be underproportional to the development of the other paper consumption. The reasons for this are the influence of the other mass media in the developing country of Indonesia and the attitude of the administration as well as the outlook of large sections of the population, about 80% of which lives in the country. Part of the newsprint does not go into the sphere of newspaper and periodical printing.

Fine Paper

The trend in the overall consumption of fine paper at about 12.6% per annum continues overproportionally for the rest of this period. After that the proportion, which will probably amount to about 50% for 1975, is likely to drop off again. Normal-weight fine paper grades at some 60% of this figure are responsible for the largest proportion, and its growth in the coming years is likely to lie around 13.5% per annum. The use of thin fine and

† see page 139

finest paper of varying qualities, including cigarette paper and such like, will probably show a yearly growth of 10% and that of the heavy grades of bristol down to cardboard qualities a growth of about 12%.

Packaging Paper

It seems reasonable to expect a yearly growth of around 10% p.a. at first for these grades of paper; by 1980 they are likely to have reached a share of about one-third with a yearly increase of some 20% and to double again in the following five years. The strongest impulses will be felt from the greater expansion of industrialisation. The consumption of kraft paper will rise in 1974 with the increase in the number of paper sack consumers, and then in the 80's are likely to be felt from corrugated paper. In particular thin wrapping paper and special coated industrial wrapping paper is likely to increase this group of grades more strongly.

Household Paper and Products

A turn in tissue products is not expected to take place much before 1980; then a threefold increase by 1985 of the overall consumption of all the products in this group is certainly possible.

Construction Board and Other

On average it is reasonable to expect for the coming years a consumption of around 10 to 15 thousand tons per annum, which, as a result of irregularities in the imports, may be subject to slight fluctuations.

[illegible] 46	ESTIMATION OF PAPER AND BOARD CONSUMPTION IN INDONESIA : 1970 UNTIL 1985 (Q = 1.000 t)												
[illegible]	I. REPELITA						II REPELITA						
	1970		71 e	72 e	73 e	74 e	1975 e		78 e	1980 e		1985 e	
	Q	%	Q	Q	Q	Q	Q	%	Q	Q	%	Q	%
[illegible]													
[illegible]	68,6	34,4	34,5	40	48	45	50	18,3	70	80	16,2	125	14,2
[illegible]	10,1	---	20,9	21,9	25	28	32	---	49	60	---	105	---
[illegible]													
[illegible]	78,9	40,5	84,9	95,6	107,6	121	136,3	50,0	183	225	46,4	365	41,5
[illegible]	42,4	---	42,4	58,1	68,7	72,3	82,1	---	110	135	---	220	---
[illegible]	12,2	---	12,6	14,7	16,2	17,7	19,5	---	23	27,5	---	45	---
[illegible]	22,9	---	22,1	24,8	27,7	31,0	34,7	---	50	62,5	---	100	---
[illegible]													
[illegible]	35,5	18,2	40,6	48	53	59	66	24,1	114	165	33,4	330	37,5
[illegible]	25,5	---	26,1	28,0	30,2	32,6	35,9	---	73	100	---	165	---
[illegible]	15,5	---	16,8	17,5	19,6	22,0	24,6	---	32	80	---	130	---
[illegible]	2,5	---	1,9	2,5	3,2	4,4	5,5	---	9	15	---	35	---
[illegible]													
[illegible]	4,6	2,3	5,6	6	6,5	7	7,5	2,7	10	15	3,0	45	5,1
[illegible]													
[illegible]	7,4	4,5	10,5	9,4	12,9	14	13,2	4,9	13	15	2,0	15	1,7
	196	100	179,1	199	222	246	273	100	390	500	100	880	100

[illegible] see chapter 2.42

[illegible]

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With constant prices ex works or ex port for 1972 the paper market comprises the following quantities:

Year	Volume of the turnover of the paper market in billion Rupiahs	in Mio. US $
1970	14, 5	35
1974 End of I. REPELITA	29	70
1975	32	77
1978 End of II. REPELITA	45	108
1980	57	137
1985	105	253
Remark: in equal prices		

Price increases which are to be expected for reasons of adjustment to the international price level could not be taken into consideration here.

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2.42 Market Chances and Problems

With a total turnover of approximately 4,000 million rupiahs the state-owned paper industry will have a share of about 17% of the Indonesian paper market in 1972. The chances for the domestic paper industry can be gathered from the future development of this considerable home market. They are to be found

- in using the potential expansion brought about by extending production and new investments and involvement in the processing stages,
- in gaining a larger share of the domestic market,
- in making better use of domestic sources of raw materials also for exports of processed wood products such as pulp and paper.

From this result the objectives for the Indonesian paper industry which are dealt with in the section below.

The chief problems are summed by the following questions:

- What, from the point of view of expediency, should happen to the relatively small paper mills which are in existence ?
- Which investments offer the best incentive and how are they to be realized ?
- How can the marketing, which has so far stagnated, be systematically built up and how can that help to gain a considerably larger share of the market ?
- Which administrative and co-operative measures inside and outside the concerns are necessary to best achieve lasting success in the market ?

In the following sections an attempt is made to suggest suitable solutions to these problems. To do this it will be necessary to refer to the overall situation of the Indonesian paper industry including its technical conditions, the impact of deliberations about costs and thoughts on the staffing aspects of management and marketing.

3. ALTERNATIVES AND RECOMMENDATIONS FOR THE MARKETING CONCEPTION, INCLUDING A CRITICAL EXAMINATION OF THE EXISTING SITUATION AND THE NECESSARY CONDITIONS.

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3.1 Targets of Paper Marketing in Indonesia

What does marketing mean ? Marketing is a term for thoughts and actions which are related to the market. It characterizes a style of management as well as the sum of measures necessary for this which bring the whole enterprise, including both the technical and the sales sections, into line with the requirements of the market.
For the scope of this study this means:

> All decisions and measures for the business planning of the Indonesian paper industry seen in the long term have to be brought into line with the requirements of the Indonesian market.

In other words, this is consistent with saying that questions of raw materials, of the size of plant, of logistics, of sales organisation and of the overall organization of the concern are to begin with of a secondary nature, and they have to be adjusted as far as possible to the requirements of the sales market. In no case does marketing - as at first nearly all Indonesian counterparts interpreted it - refer only to the matter of sales.

The findings of the market investigation will therefore also be given precedence over any further planning ideas. These findings must supply the starting points from which individual commercial, technical, sales and organizational measures have to be made and what form they are to take. In the economic and technical spheres these are

- concentration of the existing relatively small paper mills in order to be able to carry out better controlled sales measures in the face of international competition and at the same time to obtain a broader basis for further measures to build up the industry.
- specialization to achieve an optimum effect by tightening up the relatively small funds available. In this connection it is not so much saving costs which plays the main role, as the calculations may have shown, but rather systematically building up paper mills with better conceived production techniques and, in particular, more purposefully building up market outlets.
- expansion of the domestic paper industry with the aim of achieving a higher share of the market for the purpose of ensuring permanent outlets for this branch of the industry and with the intention - seen in the light of international competition - of working with concerns of the optimum size.

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In the following sections the alternatives and suggestions for this are discussed in detail and are presented in a general planning model for the short, medium and long term phases. Suggestions for a marketing strategy are based on this and comprise, in addition to organisational suggestions, questions of

- product development,
- distribution
- and communication.

In order to cope with these new and not very easy tasks management and organisation must quite consciously make use of controls which conform to the market. This is reported on in the following section. Some general and detailed advice on improvements in the individual paper mills is regarded as necessary if the aims that have been set are to be achieved, and therefore these are also dealt with in this Study; this is followed by other investigations which are suggested and are thought to be necessary to complete the planning. Proposals to the Indonesian Government conclude this report to the Indonesian Government, the first task of which was "Assistance in Paper Mill Operation in Indonesia", and which has been extended in its second stage to cover "Assistance in Paper Marketing in Indonesia".

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3.2 The Recommended Economical and Technical Strategies as a Condition for the Marketing Strategy, Given in Total and for Each Paper Mill or Each Kind of Paper.

3.21 The Strategy of Concentration

A genuine merger was suggested in the recommendations made after the first visit in 1971. In the meantime preparations have advanced so far that after merging the works in Padalarang, Letjes and Blabak, the other paper mills in Banjuwangi, Gowa and Martapura are being combined into a single company. This has, at first, created a concentration in the plans and measures of the management which should bear its first fruits on the sales market.

The prospects of this new management and thus its aims are:

1. The formation of a dynamic management which determines the business policies of the new enterprise. Its chief responsibility concerns the sections of planning, sales policies, control, both internal and foreign relations, understood of course in the narrower sense. From these functions there results the organizational form of the top management of the enterprise, which, as was said earlier, must be dynamic, single-minded and sales-orientated. The resultant division of the work into a headquarters and the separate operational works of the six paper mills also prescribes that the management of the works have to concentrate on their actual tasks of production and improving production.

2. All planning must be made to fit in with the overall aims.

This means that sensible priorities will be created and double investments, such as for example the projected establishment of two clay coating plants by the two paper mills of Letjes and Banjuwangi, will be avoided from the outset. Rivalries of this kind within the state-owned paper mills can have only negative effects on the sales market for that kind of paper, which at present is still limited.

3. The most important sales policy measure is the systematic build up of the state paper industry's own paper distribution organisation.

The marketing tasks of this distribution organisation are developing direct distribution, building up a representatives/advisers' organisation, which has to fulfil the functions of a merchandiser in the sales sector of the wholesale trade, co-operation with the paper wholesalers, assisting in the development of policies for assortments and products, cultivating the market and much else besides.

4. By tightening up the instruments of control and direction, especially the measures for raising productivity both qualitatively and quantitatively should be set afoot.

These measures cover the sectors of production, logistics and, here in particular, the improvement of the transport system, which because of geographical conditions in Indonesia is vast, technically building up a better internal communication and information network with telex and data processing equipment, research and development.

5. Improving the relations inside and outside the concerns in the sense of an inside-marketing and an outside market.

To this belong the more abstract measures for improving human relations and public relations, especially through effective information, multiplying contacts and engagements with other market partners in the sales and supply branches, authorities and foreign partners at different levels.

Above all when the above-mentioned measures have had good results, alternative joint venture talks can be conducted from a position of strength. Starting from the present situation, nothing more than preliminary talks should be held and first of all a stronger market position should be built up with the aid of the measures proposed here.

But in all this it should not be overlooked that a concentration of this kind can also lead to problems. Dangers can arise when [illegible], especially of a personal or material kind, do not allow them, excessive demands, tasks to be carried out properly.

3.22 Strategy of Specialisation

3.22.1 General Remarks

The specialisation of the production programme is one of the first measures to be undertaken in connection with the merging of the Indonesian paper mills. Even before the production programmes in the different works were sorted out and reduced to only a few kinds of paper, which in some cases have been running for weeks or even months.

In the main it is the following reasons which make an efficient specialisation absolutely necessary.

Improving the Market Position by Developing Products and Marketing:

So far all the Indonesian paper mills have been in ruinous price competition with one another with their chief customers on the Indonesian market. By specialising it will not longer be possible to the same extent to favour one mill and to discriminate against another; the multiple costs of tendering will no longer be incurred.

With regard to quality the Indonesian market gives preference to imported paper, which has so far enjoyed a higher reputation.

As a further consequence of the specialisation programme it will now be possible to carry on a more purposeful improvement of products and to develop products in each factory. This will create better conditions of competition with the imported paper. In the end it will thus be possible to bring the domestic paper prices up to the level of the prices for imported paper, which are some 10% to 20% higher. A systematic approach to improving certain grades of fine paper using comparative quality and cost analyses, and sales promotion directed towards specific targets can thus achieve higher profits than could ever be achieved through saving costs by more efficiently dividing up the programme. The following proposals are therefore made:

To work out a value analysis in each concern for each kind of paper, as a result of this to carry out product improvements and to set up a plan to promote the sales of this product. Under Section 3.26 on Product Development an example of this is sketched out.

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Specialisation and product development also result, experience has shown, in closer contacts between paper manufacturers and paper users. If an immediate start is made with this kind of working programme combining product development and product promotion a special marketing department can be established at once in each paper mill. This will enable competent personnel to be trained for a future marketing department and the sales organisation of the headquarters. It is all the more necessary to do this since the Indonesian paper industry at present has no adequately trained staff in this sector.

why?

Raising Productivity by Improving the Technical Equipment

Specialisation, that means specially fitting out the plants according to the product to be produced, will considerably raise the quality of the paper productivity and the economic efficiency of the individual plants, and in the end will also increase the profitability of the relatively too small Indonesian paper mills.

Later expansion programmes can be carried out more purposefully and on more favourable investment terms, because then there will already be a special conception which will be directed towards meeting the clearly defined demands of the Indonesian paper market in the best possible way, i.e. with regard to grades, quantities, qualities and prices.

Since as a result of a specialisation programme the paper machine and the other production departments, such as the treatment of raw materials and finishing, can be used to optimum capacity, fewer changes of grades are necessary, it is possible to keep stocks as required, etc., the production costs per unit and paper grade can be lowered. But as an extensive cost and programme analysis in the various works has shown, the costs which will be saved for these reasons cannot be expected to be so high as was at first expected.

Specialisation also promotes a more intense and more practical training of the technical personnel.

I think that quality control has more effect in these connections.

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Assistance in Paper Marketing in Indonesia

Improving the Profit Situation by an Optimum Production Programme:

Any specialisation must aim at minimising the costs and maximising the profits. To do this the special cost situation of every paper machine must be taken into consideration. For this reason cost analyses according to the direct costing system were employed to find the optimum.

As was described in the first argument, by means of marketing considerations it is possible to carry out a more advantageous and a safe price policy which then also fundamentally improves the profit situation. As was described in the second argument, specialisation also means a segmentation of the product, i.e. in this case:

"A base or main product is allocated to each paper machine." This will create the conditions for obtaining the best possible costs, qualities, prices and profits for this main grade on the Indonesian market. Apart from these main grades, however, special paper with good market and profit prospects also has to be considered; other grades of paper are to be eliminated or to be switched to other more suitable paper machines. But just as the market situation can change, so a production programme must be prepared for any necessary changes. The method of accounting costs which is recommended here and which is to be introduced, that of direct costing, can therefore be used as an excellent regulator to decide whether a grade of paper should be produced or not. Of course, this only applies for assessing the expected profit, and the necessity of cultivating the market and customers are further arguments which have to be weighed up.

Specialisation is thus one of the alternatives for the relatively small-scale Indonesian plants

- to survive in the immediate future,
- to create the market for larger plants in the future and
- to ensure as smooth a transition of the market as possible to larger production units.

5.22.2 Quality Process and Programme Analyses

An analysis of the qualitative properties of the main grades of fine paper manufactured in Indonesia with the designations so far used of HVS, Cyclostyle and bristol or cardboard creates, for the beginning, a fundamental orientation in the questions of classification and/or allocation and also provides a chance to point out where improvements are necessary to achieve international standards. Here it is suggested that in future the main grades be divided up as follows:

Light-weight Fine Paper:

Manifold for typing

Normal-weight Fine Paper:

for writing and typing
for duplicating
for printing (off-set and letterprint)

Heavy-weight Fine Paper:

for bristol and office cardboard

Recommendations as to how such quality improvements can be systematically carried out in the paper mills were made during the first visit to the paper mills visited. A working model on the correlation of the various influences varying according to the technical process to the controlling of the quality and the profitability of printing paper is presented in Section 4.4, General Remarks for the Improvement of Control Systems. The investigations described below were made in the Cellulose Research Institute of Bandung and in Germany.

Since, in accordance with the designations used hitherto, HVS stands for writing and printing paper, this main grade is examined for the suitability for both fields of application.

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Light-weight Fine Paper, Manifold for Typing

Thin fine paper is usually used as typewriting flimsy.
It must be possible to write on this paper with a typewriter and ink.

The only manufacturer of white and coloured manifold which can be considered here is the paper mill at Padalarang.
The breaking lengths of manifold from Padalarang are between 4070 and 4850 m. on average. But only the following are necessary for:

manifold	g per m^2	breaking length
3rd class typing manifold	39 30	3000 m. 3000 m.
4th class * typing manifold	30 40	2500 m. 2500 m.
* remarks: class in the sense of material class breaking length on average		

It would be of greater advantage to give the paper a more expensive looking finish, and to pay less attention to the strengths.

Normal Fine Paper for Writing, Typing and Printing

Writing paper is the collective term for all paper which is written on directly or indirectly using instruments by hand or with a typewriter. This property of being able to be written on is of prime importance, and since writing paper is that paper of all kinds of paper which possesses the closest and most personal contact to the customer as the ultimate consumer the appearance and finish of writing paper naturally play an important part. The rather poor appearance is therefore the weakest point about Indonesian writing paper:

- The values for b r i g h t n e s s are

for Blabak	78%
for Padalarang	78/73%
for Letjes	76/70%
only Banjuwangi has higher values with	76/80%

International values for comparison are about 82/86%.

- The number of d i r t s p o t s and chunky fibres is several times greater in Indonesian paper than in paper from other industrialized countries from which part of the writing paper imported to Indonesia comes.
- The c l o u d i n e s s of the paper from Banjuwangi in particular and also from Blabak (samples from 1971) indicates inadequate sheet formation.

In addition to the price the marketability of this paper in particular is determined by its appearance and thus the impression that domestic paper must be cheaper in price and quality has unfortunately become too strongly established on the Indonesian market.

Printing paper is the collective term for those kinds of paper which are processed by various printing processes in the graphic trade. The first demand made on this paper is therefore that it can be easily printed on, i.e. of importance here are chiefly properties of the paper surface, the suitability for the different printing processes and the ease with which it can be handled by machines.

- The p r i n t a b i l i t y p r o p e r t i e s of the Indonesian paper are not yet satisfactory. In particular it is the insufficient uniformity of the smoothness of the paper's surface which to a varying degree negatively influences the printing qualities. Whilst the paper qualities of the HVS paper from Padalarang and Banjuwangi with the

medium weights per unit of volume of 0.635 - 0.700 g per cm^3 and 0.615 to 0.690 g per cm^3 would be more suitable for writing paper qualities, the fine paper grades of the other paper mills are at present more suited to printing paper. The reasons for this finding are at present due to the materials and the processes used. The HVS paper from Blabak with an average weight per unit of volume of 0.590 to 0.635 g per cm^3 and the Letjes PM I with an average of 0.610 to 0.695 g per cm^3 should, however, be increased to 0.700 to 0.800 g per cm^3 through appropriate measures in the pulp preparation and in the finishing, in as far as paper from there is to be used for printing purposes. Here an improvement at the same time of the sheet formation should be once again pointed out. HVS paper from PM II Letjes is in the standard range. At this point it is suggested that an IGT tester should be purchased for the Cellulose Research Institute to make it possible to carry out better investigations into printing techniques in Indonesia than hitherto.

Further remarks should be made on the uniformity of the area weight. In a precise investigation for the structure of the material of the paper machine in Banjaruangi area weight fluctuations within the running paper web were ascertained in the fluctuation range of

$$\sigma = \pm 3.7\%$$

With an output of this kind it may doubtless be possible to produce packaging paper but not by any means good printing paper for machine treatment. It is unlikely that the situation on the other paper machines is so unfavourable, but nor is it satisfactory, as the investigations show.

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Of far greater disadvantage from an economic point of view, however, are in all paper mills the excess weights which are constantly being produced. As was observed on the market in this connection, this leads to very strange behaviour on the part of the paper mills, because when the area weights are wrong the paper reams are either delivered with a greater weight or the number of sheets they contain often deviates considerably from what is usual. From a large number of random checks (680) it turned out that when the extreme values, which could in some cases be due to a false declaration of the area weight, are eliminated an excess weight of

4.7%

on average for all paper from all the Indonesian paper mills is produced.

The findings in the different works were for

Blabak	in 72% of all cases 8.7% excess weight
Padalarang	in 72% of all cases 7.4% excess weight
Banjuwangi	in 72% of all cases 7.0% excess weight
Letjes	in 95% of all cases 6.2% excess weight

In the individual works random checks on operating paper machines showed that it was not uncommon to work with excess weights.

It may well be the case that in Indonesia the same importance is not attached to a constant equilibrium moisture point for printing paper (normal value: 55-60% at 20° C. in a pile) as in other countries. Nevertheless it was noticed that in all the paper mills the paper leaving the paper mills had too high a dry content.

For these reasons it is urgently recommended that plant to check the area weight and the moisture should be installed; for the time being, stricter area weight checks should be carried out at once by hand. When it is considered

that over 90 % of the paper produced is sold in reams, at a rough estimate an excess weight of four to five per cent, a dry matter content which is two to three per cent too high and working on an average about one to two per cent in the lower allowable variation - these factors together produce

|| extra production of 7 - 10 %

which accures practically as extra profits. For the current year this would be for all the works together a sum amounting to at least 200 million rupiahs, which could thus be saved. In this way the costs of purchasing area weight and moisture checking installations of some 7.5 million ruphiahs per paper machine and the costs of a continual statistical operation and quality control would be amortized in a very short time by this alone.

- The strength properties of Indonesian HVS paper are assessed in the following graph in Table 45 ♦ in comparison with DIN standards. What can first be seen from this comparison with standards is that the Indonesian paper follows the international trend of lowering the area weights. Better strength values for writing paper of the first and second classes can accordingly be produced only in the older plant of PM I in Letjes and the two older plants in Padalarang. For the first class of use, however, the dynamic properties of the double foldings and of the tensile strength would have to be improved still further. This applies equally to the writing paper at present being produced in Blabak and the PM II of Letjes, which can be classified in the medium range classes of use. Thus the fine paper from Banjuwangi, however, can be put only into the last class. The same applies to the HVO grades (offset printing paper) from Banjuwangi, whose strength values range far beyond the limits of international standards, unfortunately also under these allowable variations.

♦ see page 196

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It is certainly rather difficult to make a precise classification, but this comparative graph provides some indication as to the improvements in quality to be carried out and ideas on a better differentiation of these grades as required by the Indonesian market. The particular purpose for which the various classes are used can be taken from the chart below:

Sort	Use		
	writing	typing	printing
1	durable documents	-	-
2	important documents	-	-
3	foolscap and writing paper for important matters	foolscap and typing paper for important matters	printing paper of first grade
4	normal foolscap and writing paper with or without water mark, draft paper, book writing paper	normal foolscap and typing paper ledger paper	printing paper of second grade
5	foolscap and writing paper for secondary purposes	ordinary foolscap and typing paper	printing paper of third grade

TABLE : 45 | QUALITY POSITION OF INDONESIAN HVC REGARDING BREAKING LENGTH AND FO

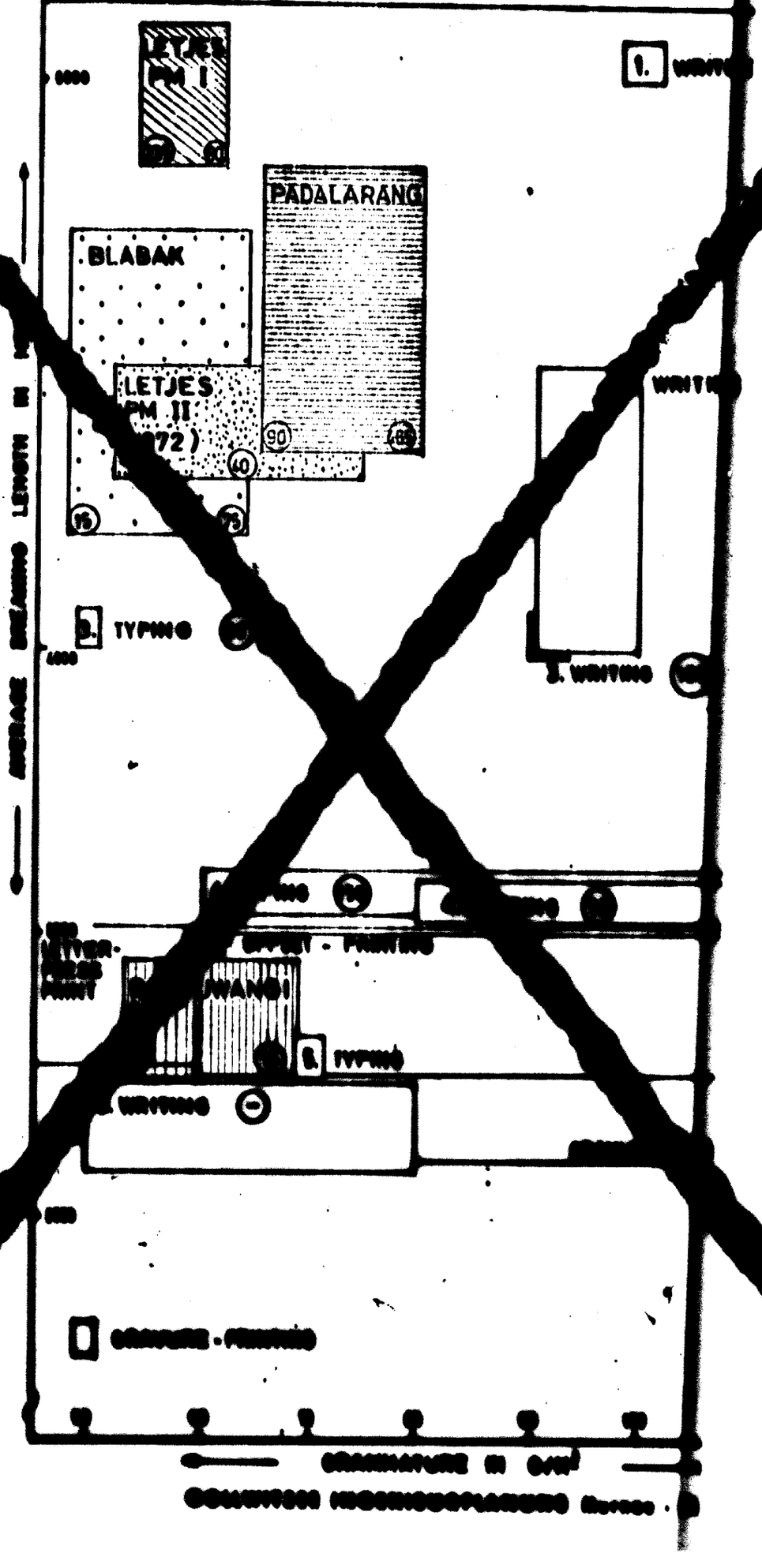
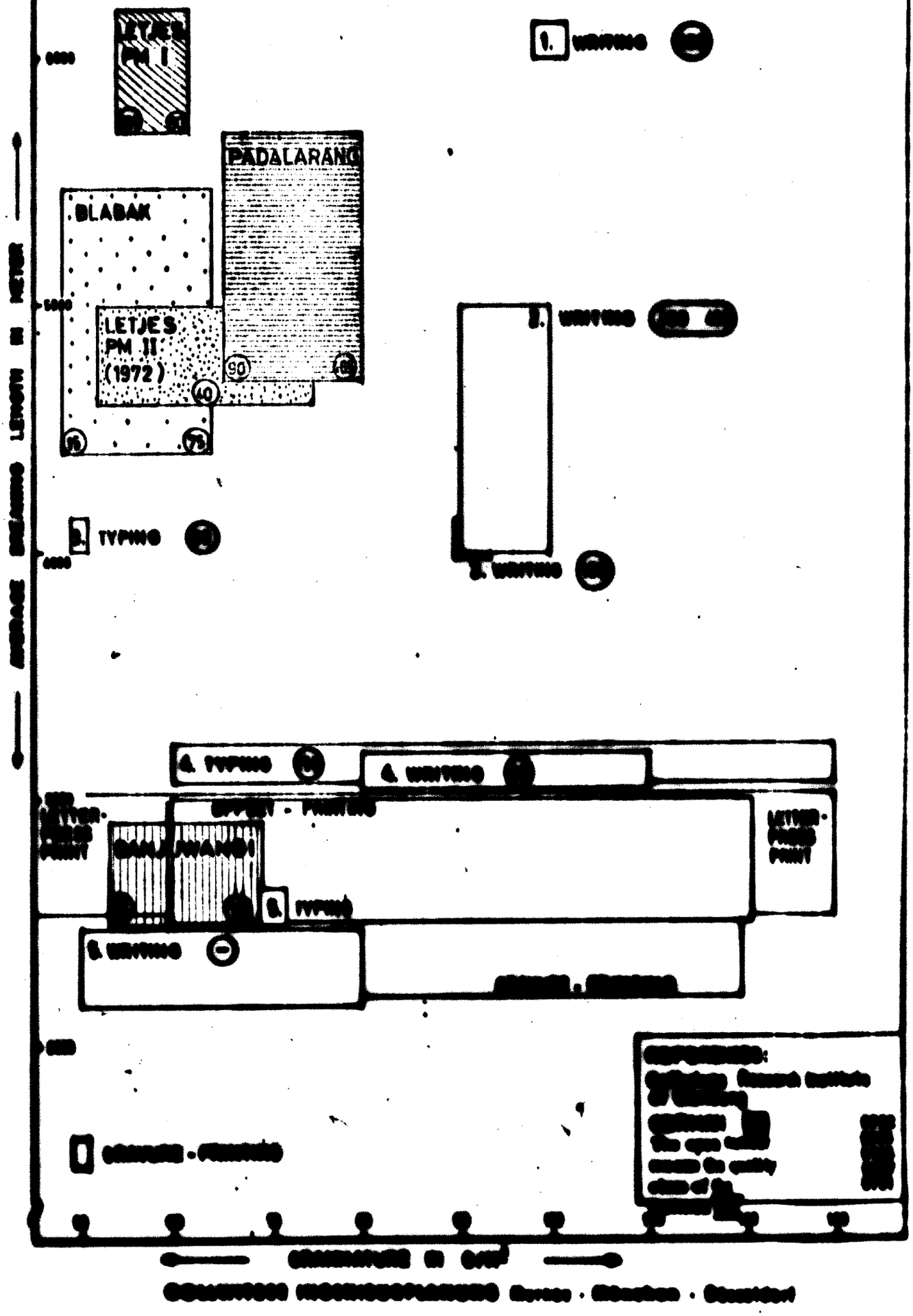


TABLE : 46	QUALITY POSITION OF INDONESIAN HVS FINE PAPER REGARDING BREAKING LENGTH AND FOLD



[redacted]

[redacted] Assistance in Paper Mill Operation in Indonesia
[redacted] Assistance in Paper Machine in Indonesia

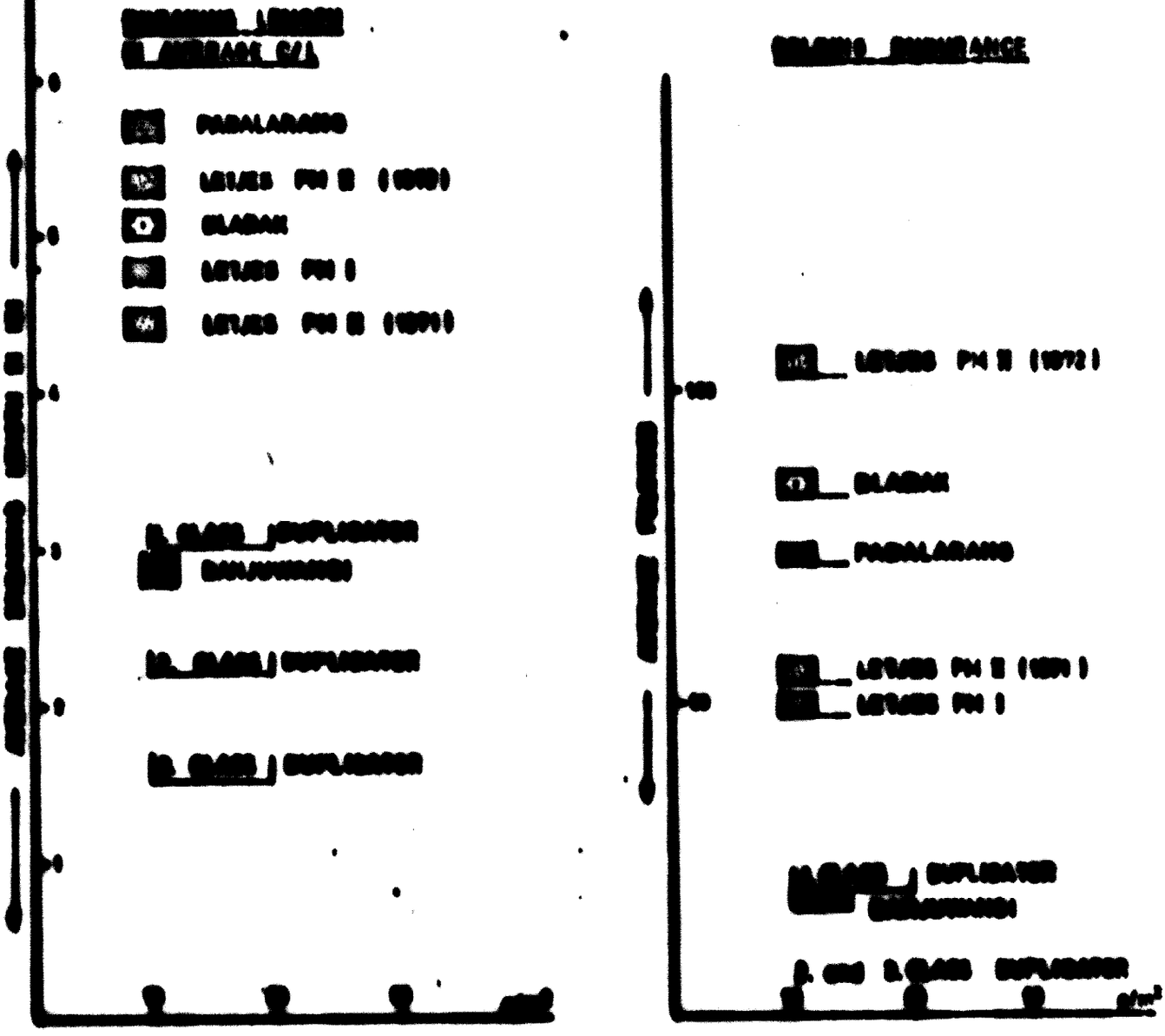
[redacted] Blue Sheet for Duplicating

Table 46 shows a comparison of the quality of Indonesian duplicator (cyclostyle) paper and the [redacted] standards with regard to their static and their dynamic strengths. The quality status of the Indonesian paper is disproportionately high, with the exception of the cyclostyle from Banjuwangi. It is certain that in Indonesia many reports, manuals and frequently used printed products are printed on cyclostyle. Nevertheless this comparatively high quality of the Indonesian duplicating paper does not seem to be necessary.

For these reasons price considerations and the market play a more important part in the question of which paper mill is to manufacture fine paper for duplicating purposes in future.

It should be pointed out as a suggestion that it is better to talk about duplicating paper or cyclostyle duplicator rather than cyclostyle paper, because in international usage cyclostyle is really cyclostyle matrix paper.

TABLE: 46	QUALITY POSITION OF INDONESIAN DUPLICATOR (CYCLOSTYLE) PAPER REGARDING BREAKING LENGTH AND FOLD	[illegible] 159



[illegible] Assistance in Paper Mill Operation in Indonesia
Assistance in Paper Machining in Indonesia

Heavy-weight Fine Paper, Printed and Office Cardboard

Heavy-weight fine paper, e.g. bristols and different sorts of cardboard, especially office cardboard have, as can be seen from Table 45, a considerable market and favourable prospects in the future. With regard to their appearance the Indonesian products are often even very inferior to the imported grades in this group. Chunky fibres and bad stains as well as too low a white content are indications that the stock preparation and in particular the stock sorting are still very much in need of improvement. On the other hand the strength values, as Table 47 shows, are considerably above the values demanded by international standards.

TABLE: 47	QUALITY POSITION OF INDONESIAN BRISTOLS AND OFFICE CARDBOARDS REGARDING BREAKING LENGTH.	[illegible] 161

[redacted]

[redacted] Assistance in Paper [redacted] Operation in Indonesia
[redacted] Assistance in Pulp, Bleaching in Indonesia

The production programme for 1971, broken down into the main grades, is presented in Table 11. The production planning for the current year and total quantities envisaged for 1971 are given in the following table, No. 48.

Sri and remarks refer first and foremost to the high proportion of kraft paper, especially from Java. Investigations carried out here show that the paper with wood content is far more suitable for printing paper than for packaging paper. By modifying the pulping process and stock preparation higher paper strengths can be expected from the long-fibered types of bamboo (Bamboo gigantea) from the Banjarmasin area and from blending with other suitable fibrous material, so that good kraft packaging paper should be produced mainly in Banjarmasi.

As can be gathered from a similar projection of the values, the advance planning is not being made according to the realities of the Indonesian paper market. Suggestions for possible ways of expanding existing plants are therefore discussed in the comments that follow and are presented in the form of a new production programme in connection with the potential sales outlets for this kind of paper. A summary of this short-term advance planning is given in Section 5.50.

Table : 48	Planned Production-Programmes of the Paper Mills for 1973 and 1974

Paper Mill	Fine Paper t	Cigarette Paper t	Kraft Paper t	Total Paper t
	P	P	P	P
P.N.P.K. Padalarang	3 000	320	--	3 310
P.N.P.K. Letjes	8 250	--	--	8250
P.N.P.K. Blabak	3 400	--	--	3 400
P.K. Basuki Rachmat Banjuwangi	6 745	--	355	7 100
P.K. Gowa	4 300	--	2 500	7 300
P.K. Martapura	991	--	12	973
All Paper Mills 1973 Shares	26 786 80,5%	320 0,7%	3 247 10,8%	30 233 100%
All Paper Mills 1974 Shares	28 400 80,5%	320 0,7%	4 100 10,8%	37 780 100%

Source: DIREKTORAT JENDERAL PERINDUSTRIAN KIMIA

3.22.3 Recommendations for Improvement of Productivity and for Specialisation of the PADALARANG Paper Mill

Critical Description:

The production of the two older paper machines amounted to:

Year	Gross Production tons	Net Production tons	Losses tons	Share %
1970	4,422	3,718	724	16.3 %
1971	4,477	3,249	1,228	27.5 %
p1972	---	3,310 1)	---	---

Sources: Pulp and Paper Association
1) taking into account the projected rebuilds for the end of 1972.

The outputs of the individual paper machines in 1971 amounted to:

Unit	Real Production	Evaluated Production
PM I (1922) Escher Wyss TW 1): 2050mm 50-250 g/m²	2,680.6 t (95.90%)	about 2,800 t (100%)
PM II (1929) Escher Wyss TW: 1990mm 35-70 g/m²	1,796.6 t (106.12%)	about 1,700 t (100%)
PM I + PM II	4,477.2 t ---	about 4,500 t (100%)

remarks:
1) TW: trimmed width

The 100%, given here as a rounded value, is worked out as follows:

	365 days	1095 shifts	=	100 %
less	holidays	19 "	=	1.73 %
less	yearly overhaul	42 "	=	3.83 %
less	weekly overhaul	48 "	=	4.37 %
less	breakdown (± 9%)	84 "	=	7.65 %
In this valuation 100% means: 902 shifts = 82.42 % of a total year				

Taking a calculation of this kind as a basis by which to measure the potential capacity of a paper machine provides no incentive and therefore is not advisable. As overhaul periods and stoppages can, for the most part, be personally influenced, the following scheme is proposed for all the paper machines:

one year (365 days)	1095 shifts	
official and planned holidays	19 "	
maximum capacity	1076 "	= 100 %
overhauls	98 "	
optimum capacity	978 "	= 91.5 %
breakdowns and other stoppages	84 "	
normal capacity	894 "	= 83.5 %

(simplified 900 shifts = 7,200 hours)

By better planning and preparation the normal capacity can be brought up to the international level usual in other countries with full employment of 95%. For Padalarang this would mean a potential normal paper machine capacity of

about 5,200 tons per annum.

After the intended rehabilitation and the planned raising of production by about 10% this would be for 1978

about 5,700 tons per annum (gross production)

With a possible reduction of the waste losses in the finishing sector to about 14%

about 5,000 tons per annum (net production)

can be expected.

In practice this means for the technical management of the Padalarang paper mill:

- all measures for raising production must be directed towards this target.

During the first visit a number of suggestions were made to the management of the P.N.P.K. Padalarang on the various possibilities of raising production.

The production programme of the P.N.P.K. Padalarang in 1971 was made up of the following kinds of paper (see Table 49).

[redacted] Assistance in Paper Mill Operation in Indonesia
[redacted]

The age of the paper machines, their low output and the working width force them to produce only high quality paper grades, but no actual specialities.

For both paper machines together the gross production of at present 15 tons per day in about 300 days on full capacity should be brought up to

19 tons per day in 300 days, or
16 tons per day in 315 days, or
14,5 tons per day in 340 days.

The net production at the same time would have to be raised from 10,5 tons per day (300) to 14,4 tons per day (300) or 11,05 tons per day (315) or 14,65 tons per day (340), respectively. This calls for improved working, especially in the finishing section.

Betreff: Assistance in Paper Mill Operation in Indonesia
Assistance in Paper Marketing in Indonesia

Table 48	Production Programme 1971 P. N. P. K. Padalarang			
Kind of Paper	Gross-production t	Net-production 1) t	Share %	%
A. Light-weight fine paper (PM II)			8,4	
cigarette	300	176		5,5
manifold bank post aerogramme	140	98		3,0
B. Normal-weight fine paper (PM I)			87,1	
writing and printing	105	84		1,6
exercise	50	36		1,1
(PM I and II)				
duplicator	1 971	1 497		44,0
special paper 2)	486	330		10,4
C. [redacted]			34,5	
[redacted] and index	441	309		9,0
cover 3)	1 316	907		28,6
D. [redacted]			--	
[redacted]	--	--		--
couverture	--	--		--
[redacted]	--	--		--
Total production	4 477	3 240	100	100

Source: P. N. P. K. Padalarang

Remarks: 1) These figures deviate in total by about 20% from other given figures
2) reform
natural
certificate
light sensitive, diazo
3) [redacted]

Betreff: Assistance in Paper Mill Operation in Indonesia
Assistance in Paper Marketing in Indonesia

Proposals:

The following production increases and specialisation measures are proposed for the two paper machines in the Padalarang paper mill and the future production programme as alternatives:

PM I:

- Raising the average daily production from 9,3 tons per day (300) to 12 tons per day (300).
- The optimum results can be produced under present production conditions first and foremost for paper with an area weight of over 100 g/m², especially for good bristol qualities, as can be seen from the cost analysis in the following section (see Table 15).

Basically, however, the question arises "Can and should much more in the way of profits be taken out of this plant and which overall investments are still worthwhile in the long run for mill operation in Padalarang ?" As there is no paper machine for a multiple programme anywhere else in Indonesia, with the possible exception of the PM I in Lotjo, some thought should be given to whether this paper machine should be used for this purpose and whether, in addition to this special paper, about 50% better bristol grades should also be produced (cf. also notes on Blatt).

The most suitable for this is office paper, namely:

- reprographic paper,
- computer printout-paper for business-forms,
- first and second sheet office writing and typing with watermarks,
- [illegible] for visiting cards and similar,
- tabulating card stock,
- matrix stock.

With a production programme of this kind the pulp preparation for the PM I must be planned accordingly. It is suggested that, in addition to the new newly installed wet pulp preparation plant with paper and rolling, the old one with defibrator and pulp engine be retained. It is suggested that a cooking down with lejas be built in for cooking the pulp, which would simplify the technical operation of this office production line, lower the power requirements and improve the quality. Proposals to this effect were submitted on my first visit. The multiple-purpose paper machine should be fitted out with a size-press, a ground roller or a dandy roller mark installation and a pope reel, as well as a new headbox. Other parts

of the plant are to be renewed accordingly. In the matter of finishing in particular, better machines, more suitable second-hand and reconditioned plant with low investment costs should be set up, namely rewinders with reel-cutting equipment, a calender, a format embossing machine and a new small format cross cutter, a modern one in this case, which is also suitable for thin paper grades.

When it is considered that doubling the driving power combined with a corresponding extension of the dry end can make possible a daily capacity of 30 tons, it should probably still be possible and expedient to make use of the PM I up to the end of the Second REPELITA in the overall programme.

PM II

- Raising the daily average production from 5.7 tons per day (200) to 7 tons per day (250).
- The exclusive use of this machine for manifold, correspondence, onion skin, carbonizing and similar light-weight grades of fine paper is recommended. It is not advisable to produce duplicating paper on this plant.

It is planned to rebuild this machine in 1978. In doing so special attention should be paid to improving the regulations of the drive. Part of the paper should be processed into carbon black and one-time carbon, computer print-out forms and waxed paper and onion skin. A small part can be printed to make fancy paper and also be processed into small serviettes.

The essential tasks to be tackled here are

- the development of new or improved products,
- the marketing of manifold. The present market share of domestic manifold paper is about 5%. The total potential demand for all these thin grades of paper is around 5,000 tons.

This quite clearly conveys the advantage which is to be found in developing a marketable manifold paper and the disadvantage which is to be found in proposed alliance to sell these products of the Pabbiseang paper mill.

The production of cigarette paper is dealt with in section 5.22.2 (Kimia paper).

Betrifft: Assistance in Paper Mill Operation in Indonesia
Assistance in Paper Marketing in Indonesia

Recommendations for Improvement of Productivity and for Specialisation of the LETJES Paper Mill

Critical description:

The production of the two paper machines amounted to:

Year	Gross Production tons	Net Production tons	Losses tons	Share %
1970	7,798	6,260	1,532	19.7 %
1971	8,940	7,778	1,162	13.0 %
1972	...	8,250	...	...

Source: Pulp and Paper Association
There are differences between these figures and the statistical report of P.N.P.K. Letjes.

The individual outputs of the paper machines in 1971 amounted to:

Unit	real gross production	share of capacity	capacity
PM I (1939) Escher Wyss TW: 2100 20-250 g/m²	3,277 t	(36.99%)	about 3,700 t (100 %)
PM II (1970) Escher Wyss TW: 2400 20-1150 g/m²	5,600 t	(63.01%)	about 5,100 t (100%)
PM I + PM II	8,927 t	(91.1%)	8,800 t

Source: P.N.P.K. Letjes
Escher Wyss Report: 20 g/m²
This calculation is apparently based on the maximum capacity. The net production after finishing amounted in 1971 to:

PM I	3,277 t	77 %
PM II	4,750 t	85 %
PM I + II	8,000 t	82 %

Remarks: a) of the real, annual production

With an improvement in the quality controls in the production it should be possible to effect a reduction to 18%, so that accordingly a production output of

7,880 tons per year net production

can be expected for 1973. A further increase can also be expected from the use of better fibrous raw materials, especially if the paper machine speed of PM II is raised, and from the elimination of short-time web breaks, which have so far not been recorded and which are therefore not included in the above figures. An increase in the present average daily capacity of from 20.3 tons a day to 25 to 30 tons a day can be achieved without difficulty on the basis of the available machine data with a better input of raw materials. That would produce an annual capacity for the PM II of

7,500 - 9,000 tons per annum (300),

and with the gradual improvement measures it seems quite possible to reach 10,000 tons per annum (gross production) on the same machine. To do this, however, as previously stated, it is necessary to use a larger share of wood pulp, which should, if possible, contain more long-fibered material. P.N. Mantagara and P.N.P.K. Pematang Siantar could supply market pulp and market ground wood. Advice to this effect is contained in the discussion of these plants. A further possibility is seen in the importation of white and wood-free paper waste, the cost price of which is about one-third of that of pulp.

A further increase in the capacity of the PM II will result from the planned expansion of the plant to 50 to 60 tons a day. As the manager of the P.N.P.K. Letjes could personally see for himself in Chevremont, the expansion of the PM II to this output is certainly quite possible, moreover even to as much as a total of 100 tons a day. More is said about this in section 3.35.

[illegible] Co., Ought N. Netherlands to the paper mill of Hoogeveen, P.N. Tanjung Ark, Kalimantan (PM with TW, 4,400 mm for fine paper and cardboard, 35 tons a day, paper mill of Hoogeveen, Doesburgum, Zuidlaren, PM with TW, 4,400 mm, 100 tons a day of fine paper.)

[redacted]

[redacted]

It is planned to expand the other PM 1 from the present average output of 14.5 tons per day to an average of 18 tons per day. It should, however, be considered whether with more suitable refurbishing measures it would be possible for the planning to be geared to 18 tons a day on average. An expansion by almost 30% is possible from the technical point of view and is more justified from the commercial aspect and the market economy, especially since this plant has not been added to essentially since 1959 and the value of the paper manufactured on this PM 1 will continue standing on the shop-floor in the shop-costing plant planned for later on all the while.

The problems surrounding the expansion of the pulp plants can be largely eliminated by supplying modern woodyards, etc.

The production programme of the paper mill at Leipa comprised the following kinds of paper in 1970: see Table 10. About 70% of the fine paper produced is within the normal weight range, approximately 60% is used for writing and printing paper. Those kinds of the paper which are chiefly produced are especially suitable for the PM 2 which is to be expanded.

Name Assistance in Paper Mill Operation in Indonesia
Assistance in Paper Industries in Indonesia

Table : 50	Production Programme 1971 P.N.P.K. Leles				
Kind of paper	Net-Production			Share	
	PM I	PM II	PM I + II	%	
A. Light weight fine paper, machine 30 g/m²	50	--	50	0,5	0,5
B. Medium weight fine paper, [illegible]	500	977	1 477	10,5	14,5
writing 50 - 80 g/m²	600	3 200	3 800	12,5	37,5
printing 70 - 80 g/m²	50	20	70	0,5	0,5
duplicator 60 g/m²	200	1 000	1 200	2,0	11,5
cover 70 - 100 g/m²	1 000	50	1 050	10,0	10,5
C. Heavy weight fine paper, printing 150 g/m²	--	500	500	5,0	5,0
board (bending) 200 - 250 g/m²	500	--	500	5,0	5,0
index (bending) 250 g/m²	500	--	500	5,0	5,0
Total production	3 000	6 000	9 000	100	100

Source: P.N.P.K. Leles

Betr.: **Assistance in Paper Mill Operation in Indonesia**
Assistance in Paper Marketing in Indonesia

Summary

The following production increases and specialisation measures are proposed alternatively for the two paper machines in the Letjes paper mill and the future production programme:

PM I:

- Raising the capacity from 10.3 tons per day ([illegible]) to 15 tons per day and 18 tons per day respectively.
- The optimum performance of the PM I can best be achieved by specialising the plant on one production group only, as far as possible. Suitable for this for 1973/74 would be the production of coated base paper for the new clay-coating plant to be set up, for in this way the use of this older plant can be ensured for several years to come.

In particular, this calls for an increase in the use of long-fibered materials for the plant of the PM I, 15-20% being a guideline under the circumstances, an expansion of the PM plant, including a pope reel, activating the size press and setting up a rewinding machine.

PM II:

- Gradually raising the production output of the existing plant by using wood fibrous material from the present average output of [illegible] tons per day ([illegible]) to about [illegible] tons per day.

  After that expansion to 30 to 40 tons a day and the installation of a size press.

  Subsequent expansion of the plant to some 60 tons a day.

- Production of wood-free writing paper, only after installing a size press, also of printing paper. Preferably paper in the low weight range of grammages should be manufactured. To what extent this plant could also produce [illegible] papers, [illegible] or whether some wood fibrous material should be used in the [illegible] or [illegible] plants would have to be examined once again.

[redacted]

[redacted] Assistance to Paper Mill Operation in Indonesia
[redacted] Assistance in Paper Machine in Indonesia

The paper manufactured on the PM I should be chiefly used in the following sectors

school writing and drawing paper,
normal office paper,
for writing, typing and printing
(possibly with the Darwin ground rubber water mark) and
normal line paper
(so-called business paper).

In 1970 the market for such normal line paper grades, the so-called common grades, which are mainly used as writing and typing qualities, is likely to be about

[redacted]	[redacted] for school writing and drawing 5,000 tons for office paper 9-10,000 tons for business paper and similar kinds
total	15-16,000 tons of common grade line paper for writing and typing purposes.

With the increase in the output from 5,5 to 6,000 tons per annum, supposed to start with, the PM II at Lodjoe could cover 30 to 35% of this market. After the first expansion to 10/11 tons a day this paper machine could cover up to about 50% of this market, which will have grown to 18,000 tons per annum, with part of the substitution programme, and with a subsequent expansion to 200 tons a day about one-third or more of this market. It is decided to adopt a market conception of this kind for the production programme of the PM II it is absolutely essential to ensure the sales of these grades of paper from Lodjoe by a corresponding marketing programme. In addition to supplying office paper, programmes for school improvement should, particularly good chance here. This could also provide guidelines for further projected expansion of paper processing in Lodjoe.

The programme for the planned chip-making plant comprises mainly paper for cigarette packets and other packings. These sales should be created by direct contacts with the potential consumers who have already been questioned on this matter.

[redacted] Assistance in Paper Mill Operation in Indonesia
Assistance in Paper Machine in Indonesia

Recommendations for the Improvement of the Productivity and for the Rehabilitation of the Bekasi Paper Mill

Initial Description

The production of the paper machine in Bekasi amounted to:

Year	Gross Production tons	Net Production tons	Losses tons	Share %
1970	3,000	2,850	150	94.1
1971	4,111	3,941	170	94.7
1972	...	3,400	..	..

Source: Pulp and Paper Association
These figures deviate somewhat from other statistical figures of the P.T.P.P. Bekasi.

The paper machine works within the weight range of 80 g/m² to 200 g/m² with a working width of 717 2,300 mm. But since the subsequent plants for paper finishing are more narrowly designed the useful width is reduced by about 10%. With the designed capacity of the paper machine supplied by Escher Wyss - Ex Perma, which became operational in 1964, is given as 84 tons per day equal to 2,520 tons per annum (300), only some 70% of this production is achieved. Other essential reasons for this low quantity are to be found in the inadequate performance of the Pandia Sidoarjo plant, which in spite of alterations to the mode of operation never reached the planned performance either in quantity or quality, and in losses in the diesel plant.

The production programme of the Bekasi paper mill is given in Table 15. The below production targets and the optimum conditions to maintain the operational performance and to make a profit can already be achieved with the lowest weight shown.

If the raw material situation can be secured to the extent of about 70% by supplying wood pulp and purchasing in addition chemical grades of waste paper, it will be possible to achieve a production output by the paper machine of 4,200 tons per year which supply 70% machine utilization time, which is equal to

4,200 tons per annum (300) gross production.

This therefore will then not provide a satisfactory solution and thus it is proposed that

a financial revision plan for the P.T.P.P. Bekasi be set up immediately which adapts the plant capacity to the best performance and the paper machine to better and more suitable products.

[redacted] Annex 177

[redacted] Assistance in Paper Mill Operation in Indonesia
Assistance in Paper Machine(s) in Indonesia

Table 51	Production Programme 1971 P.T. P.K. Blabak	
Kind of Paper g/m²	Net-Production t	Share %
A. Machine finished fine papers	--	-- --
A. Uncoated fine papers		88,7
writing 80/90 g/m²	700	38,7
manifold 64/70 g/m²	600	14,6
bankcheque 60 g/m²	600	14,1
duplicator 60/100 g/m²	60	3,7
cover paper 80 g/m²	600	6,6
A. Uncoated high fine papers		88,8
printing		
white 120 g/m²	600	28,0
coloured 100 g/m²	600	14,6
packaged		
white 100 g/m²	70	3,6
coloured 100 g/m²	600	16,1
A. Packaging 150 g/m²	100	3,6 3,6
Total production	6 600	100 100

Source: P.T. P.K. Blabak

Betreff: Assistance in Paper Mill Operation in Indonesia
Assistance in Paper Marketing in Indonesia

Proposals:

The following production increases and specialisation measures are alternatively proposed for the future production programme of the P.N.P.K. Blabak:

- Designing the paper machine for heavy weight grades. Thus the guaranteed production output of 24 tons a day will be ensured in any event. By improving the press section the output of the plant under what will thus be the same conditions can be raised by about 25 to 30%. By modernising the headbox and expanding the dry end the capacity of the paper machine can be raised to about 40 tons a day, although here another bottleneck occurs in the water supply.

  With regard to designing the plant to producing qualitatively better grades of cardboard there are three basic possibilities to choose from:
  a) installation of a second headbox or extending it into a multi-Fourdrinier machine (second wire section).
  b) production of heavy weight paper (for example, of 100 and 225 g/m^2) and setting up a separate laminating plant, possibly with a coating installation. Nowadays area weights of between 350 and 450 g/m^2 can be produced at lower cost on this board liner laminating machine with the kinds of cardboard made up accordingly than on a cardboard box machine.
  c) the combination of both possibilities. The essential advantage of doing this is that high quality surfaces are achieved, which increases especially the competitiveness of the domestic kinds of cardboard as against the imported products. That is one of the prerequisites for marketing of the products from Blabak. The economic prerequisites are examined in the next section.

  As the initial measures to raise productivity, first some simple improvements are proposed for 1973 which should make the efforts begun in 1971/72 more effective. These are above all:

  -- The use of more wood pulp, ground wood and waste paper (see also under the recommendations for Latjes). Better staining can be achieved especially with the addition of ground wood.

Betreff: Assistance in Paper Mill Operation in Indonesia
Assistance in Paper Marketing in Indonesia

-- Operating with continual statistical operational and quality controls to first obtain the exact data necessary for further improvements and to avoid at once the losses of pulp and paper.

-- Installation of an area weight and humidity control plant.

-- Removing the defects in the diesel plant.

In this way the net production can be gradually raised to over 5,000 tons per annum (TPA).

The proposed programme of grades comprises as the main group

heavy weight paper up to light cardboard grades (100 - 225 g/m²) and later laminated grades up to 400 g/m².

Here the following individual quality groups should be distinguished:

1st Quality: Finest Cardboard

These special grades, such as photo cardboard or coating base-cardboard (stencil board), should either be imported or for special reproduction purposes manufactured in Padalarang.

2nd Quality: Fine Cardboard

These grades should be produced in Padalarang on PM I or in Blabak.

Programme for P a d a l a r a n g: (roughly 1,500 tons p.a.)

cardboard for visiting cards, business cards, special cards, menus,
drawing board,
cardboard for special printing purposes,
cardboard for special office purposes,
cardboard for embossed greetings cards, etc.

Programme for B l a b a k: (roughly 3,000 tons p.a.)

simple greetings card cardboard,
fancy cardboard,
picture book cardboard,
cardboard for postcards,
cardboard for prospectuses,
cardboard for simple printing purposes,
utility sheet and file card cardboard.

[illegible] Assistance in Paper Mill Operation in Indonesia
Assistance in Paper Marketing in Indonesia

[illegible]

Programme for Blabak ([illegible] tons p.a.)

manila board,
index board,
[illegible] board,
board for ring binders,
cover board for office purposes
for school books and exercise books
for pocket books,
cardboard for albums.

Laminated and, under certain circumstances, coated grades of board can be used when sturdier and better grades are required. In addition [illegible] cardboard is especially suitable for packaging purposes, such as, for example

envelope board,
wet machine board,
[illegible] cardboard for boxes,
cardboard for cigarette packets.

This division of the programme for Blabak envisages about one-third of the grades in the higher price class and about two-thirds of the grades in the medium and simple price class. Roughly [illegible] of all heavy-weight paper and light-weight cardboards are likely to be [illegible], the rest white or off-white.

Seen overall, a production of some [illegible] tons per annum in Blabak would cover about [illegible] of the domestic demand for these grades. If expansion to [illegible] tons a day were carried out by [illegible], a market share of over [illegible] would have to be achieved. Immediate involvement in the cardboard processing sector is proposed as an application of the marketing to be created for these grades of paper and cardboard. The information which this would provide can then be used for the development and expansion of this branch of production.

[redacted] Date [redacted]

[redacted] Assistance in Paper Mill Operation in Indonesia
[redacted]

[redacted]

Recommendations for the Improvement of the Productivity and for the Specification of the BAMI/DTA Aceh Paper Mill [redacted]

[redacted]

The production of the paper machine [redacted] in Indonesia amounted to:

Year	Gross Production tons	Net Production tons	Losses tons	Share %
1978	[redacted]	[redacted]	[redacted]	[redacted]
1979	[redacted]	[redacted]	[redacted]	[redacted]
[redacted]	...	[redacted]	...	...

[redacted] Pulp and Paper Association

[redacted] On the basis of the observations it is recommended that all paper losses be accurately determined and recorded statistically, so that genuine comparative values can be set up.

The designed capacity of 30 tons a day equal to [redacted] tons per annum (TPA) was achieved in mid-1978, so that the production quota could be generally given for 1978. The qualities, however, which can be obtained on the machine are still very high, especially when it is a question of fine paper. Also compare on this the graphs in the third part of this section. In order to improve, to safeguard and to stabilize the production result which has now been reached both as regards quality and the technical process, a number of rebuilding operations are absolutely essential. In the paper production sector it is a question of the following individual rebuilds:

- [redacted]
- [redacted]
- [redacted]
- [redacted]

[redacted] were documented [redacted] examples of the A.G. [redacted] Aceh, [redacted] additional experience, during his recent visit here, so that a check can be made with the appropriate measures.

[redacted]

[redacted]

[redacted]

The theoretical output of the plant amounts to 30 tons a day with 10 g/cu.m and with a dilution rate of about 10%. By stabilizing the power source, by building in air circulation plant in the dry ash, and by extending the total effective production time the gross production of this plant can be raised to 36 and 40 tons per day. As the supplier of the machines no longer exists and Engineering is at present still in an isolated position as far as transport is concerned,

- the arranging of important elements from the technical aspect of the production and
- the arranging cost of maintenance as a precautionary measure

are of decisive importance for the maintenance of a stable production for the P.M. Ismail Ferhunoğlu.

The appropriate increase in the pulp production for bamboo pulp can also be achieved by a modification to the pulping process, especially by using higher pulping temperatures and shorter digestion cycles. A small point, however, should by all means be established by recovery units, the recovery system. The supply of bamboo is, over a longer period, uncertain, and moreover the costs increase almost to raise the price of bamboo. According to all the information obtained the whole basis of the supply of bamboo are outside the Development Area and cannot, to date, have been secured in any very conclusive way. At this point, therefore, it is thought necessary to add a remark of these observations

[redacted]

The co-operation with the state forestry authorities, including the Forestry Institute at Bogor, must be greatly intensified. Joint plans and long-term silvicultural planning as well as improvements in the collection and transport are important fundamentals for the existence of this project.

The problem of recovery and supply for bleaching with [redacted] are intended to be investigated to improve the pulp preparation as thoroughly. For the

[redacted] Date [redacted]

From [redacted]

Assistance to Paper Mill Operation in Indonesia
[redacted]

prepare the most appropriate material is wood fibrous materials, both as logs and as woodchips. If logs are transported to the mill, however, a wood chip plant should be established; woodchips could be loaded directly and transported to the works from the harbour by lorry. The advantages of using wood fibrous materials are improved paper qualities, especially with regard to the sheet formation (because of the long and very thin fibres of bamboo pigments this presents a genuine problem for the manufacture of paper at [redacted]) and with regard to the greater utilization which can be made of the pulping plants (higher degree of cooking in the cellulose digesters) and with regard to the improvement of paper strengths and, as a result, also to the running properties on the paper machine as well as a reduction of the hardness of the paper.

As part of the rebuilding operations which are planned, design experts should previously investigate what the maximum design speed of the machine is and to what extent it is possible to use the output of this machine at more than 8 tons a day. Seen from the point of view of the market and of profitability a further expansion of [redacted] is to be approved.

The present production programme of the P.N. Kertas [redacted] is presented in Table 10. Over 90% of the output is [redacted], except from paper and only about 9% is kraft packaging paper.

[redacted]

[redacted] Assistance in Paper Mill Operation in Indonesia
[redacted] Assistance in Paper Industries in Indonesia

[redacted]		Production Programme/1971 P.T. Daiwabi Bandung, Banjaranegi	
Kind of Paper	g/m²	Net Production tons	Share % %
1. Ultra-weight fine paper		.....	.. ..
2. Normal fine paper			95.1
Writing	80-90	4,000	80.0
Printing	70	500	5.0
Cover	70	500	5.1
3. Super-weight fine paper		.....	.. ..
4. Packaging paper			4.9
Kraft	70-90	490	4.9
Total production		5,000	100 100

Remarks: P.T. Daiwabi Bandung Banjaranegi
[redacted] orders come from Banjaranegi factory for 1970:
Writing + printing (80) t
Cover (70) t
Kraft 490 t
500 t

[redacted] & Co. [redacted] No 106

[redacted] Assistance to Paper [redacted] Operating in Intensive Conditions in Third Developing Countries

[redacted]

The following increases in production and specialization measures are recommended as alternatives for the future production programmes of the P.M. Board Machines in Sanderswood:

- For 1970 raising production to 35 to 40 tons per day (gross production) or 31 to 35 tons per day (net production).

  A further expansion to cover 50 tons a day and installing a size press could be envisaged for around 1975.

- At first the programme of the paper mill was confined to the grades

  writing [redacted] and [redacted] and kraft [redacted].

  By only a slight change in production a high productivity in this network. Basically the decision was right, and it is recommended that measures to improve the quality and to have the costs be systematically carried out in order to thus ensure the optimum working of the plant in Sanderswood on a broad basis.

- A useful improvement of the products manufactured in Sanderswood, which is definitely by any form of coating, is seen in varying the products manufactured through additions in the course of paper processing or after calendering. Proposals are described on this in Section 5.2.5.4.

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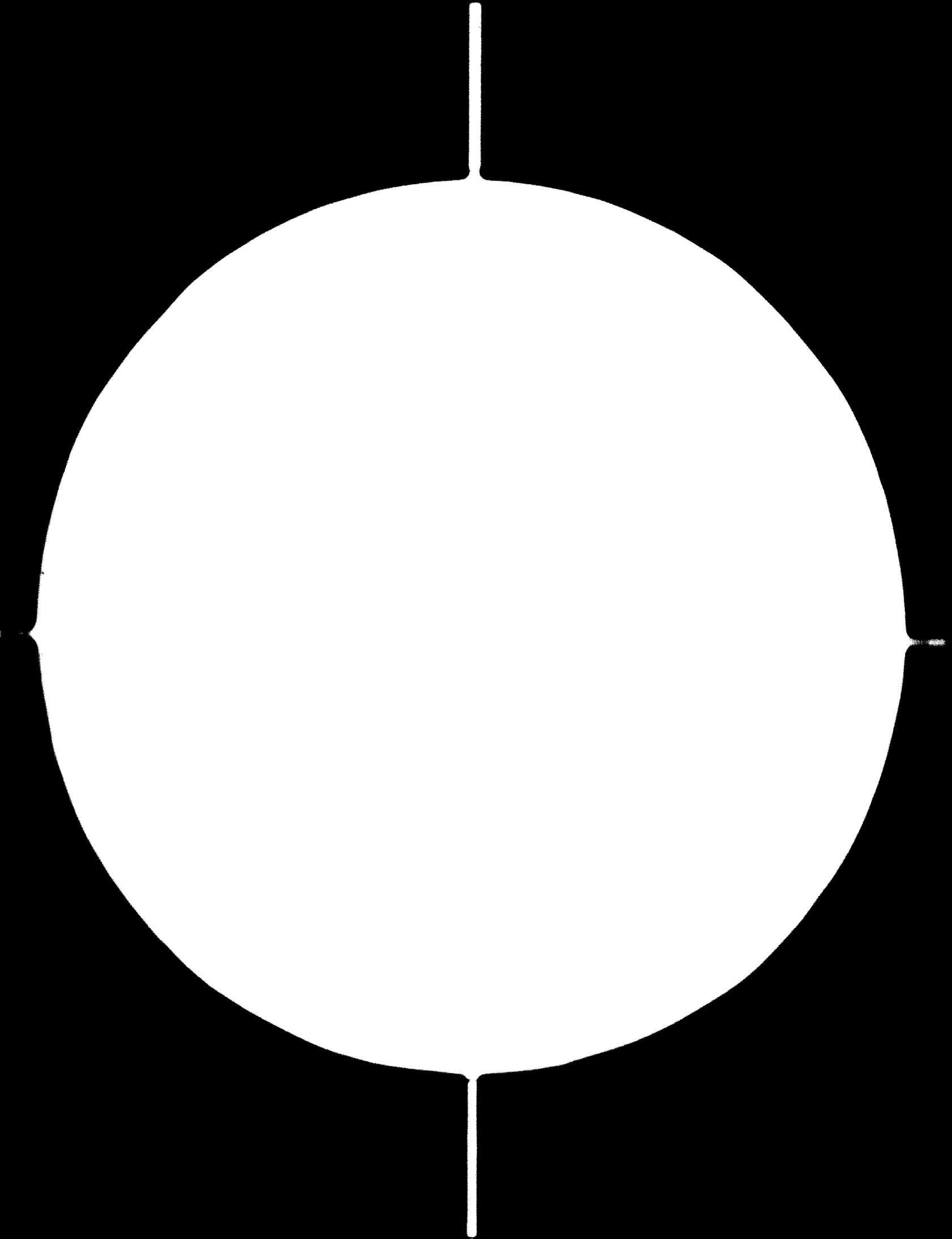

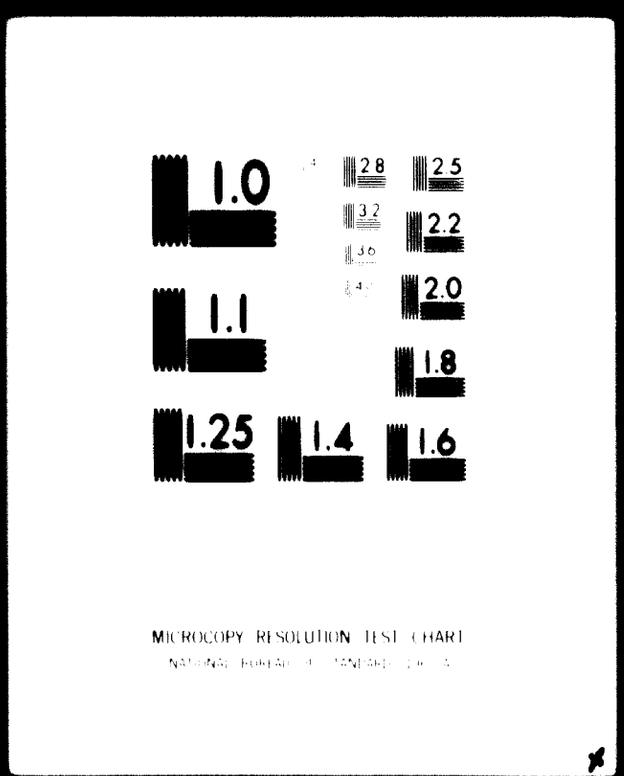

Betrifft **Assistance in Paper Mill Operation in Indonesia**
Assistance in Paper Marketing in Indonesia

Recommendations for Improvement of Productivity and for Specialisation of the GOWA Paper Mill (Sulawesi):

Critical description:

The production of the paper machine (KANEMATSU, TW 2,400 mm, 40-120 g/m^2) amounted to:

Year	Gross Production tons	Net Production tons	Losses tons	Share %
1970	453 [1]	385	68	15
1971	2,000 [2]	1,700	300	15
p1972 [3]	---	7,200	---	--

Source: Pulp and Paper Association
Remarks: 1) low production as a result of delivery troubles
2) start in September 1971
3) full operation since 1.1.1972
4) It is necessary to measure the paper losses and to report this in statistical control surveys.

As the production programme planned for 1972 shows (Table 53), 60% of the production, which was fully resumed at the beginning of the year, is envisaged for writing paper, a lower amount for printing paper and 40% for kraft packaging paper.

At present a team of Japanese consultants is still at work to stabilise the production which has been brought up to the guaranteed daily output of 30 tons a day. That would correspond to a gross production of

9,000 tons per annum (300).

By applying suitable measures the daily output of the paper machine could, however, be raised to 35 to 40 tons a day, and it is recommended to arrange this target with the Japanese team of consultants at present working there and to immediately set in motion the technical arrangements necessary for this, so that this output can already be attained in the course of 1973; that would then be more than

10,000 tons per annum (300).

Betrifft Assistance in Paper Mill Operation in Indonesia
Assistance in Paper Marketing in Indonesia

TABLE 53		Planned Production Programme 1972 P.K. Gowa	
Kind of paper	g/m²	Planned Net production tons	Share %
1. Light-weight fine paper			
manifold [1]		for local use	n.a.
2. Normal fine paper		4,320	60
writing	55[1]-80		
printing	80		
duplicator [1]		for local use	n.a.
3. Heavy-weight fine paper		-----	--
4. Packaging paper		2,880	40
kraft	50 - 90		
Total Production		7,200	100

Source: P.K. Gowa and Pulp and Paper Association
Remarks: 1) used in Sulawesi island.

Betrifft **Assistance in Paper Mill Operation in Indonesia**
Assistance in Paper Marketing in Indonesia

Proposals:

In order to specialise it is suggested that chiefly writing and printing paper be produced and that the production of kraft paper be limited to a minimum; just as much as the market expects to purchase with attractive offers. It is also proposed that it should be examined to what extent duplicating paper should be manufactured in Martapura or in Gowa.

Should there be a stronger demand for offset paper in the near future, it would be advisable to install a size press, for the operation of which a plan should be worked out without delay.

With regard to the situation of the supply of raw materials an alternative programme should be worked out for this which boosts the use of wood raw materials and which sounds out and compares other possibilities for growing the mill's own bamboo. At the same time it could also be examined whether planting eucalyptus would be a better alternative.

Because of its location on the island of Sulawesi the Gowa paper mill holds a special position in supplying the country with paper. Since over 90% of the products have to be transshipped at the port of Udjung Pandang about 18 km away, it should be examined to what extent the other islands, especially Sumatra, should be supplied with writing and printing paper chiefly from Gowa for the next few years.

Betrifft **Assistance in Paper Mill Operation in Indonesia**
Assistance in Paper Marketing in Indonesia

Recommendations for the Improvement of the Productivity and the Specialisation of the Paper Mill in MARTAPURA (Kalimantan):

This plant was not visited, therefore these proposals can only be made with the appropriate reservations.

Production was begun in the course of 1972 on a paper machine with a width of 1,860 mm., delivered earlier from Japan as part of the reparations. The theoretical maximum capacity of this paper machine designed for a maximum speed of 120 m/m amounts to about 14 tons per day at 60 g/m^2. Especially since this plant is in its initial phase and the staff first has to be given a basic training, a conservative expectation of the possible output for the coming year is 1,000 to 1,500 tons per year, which could then perhaps be raised later to 2,000, at the most to 3,000 tons per annum, and possibly more. It does not appear advisable to expand this plant, for actually a basic study for this project should examine whether even under the Indonesian conditions such a small combined plant with sulphate pulp and ground wood production is economically worthwhile at all. Since this project, as also in the case of some other new Indonesian paper mills, is apparently a plant set up primarily out of consideration for regional politics, realistic compromise solutions must be found as far as possible. Here it should not be overlooked that there are limits, which begin where profitability cannot be expected even in the long term. Seen from the point of view of a genuine development project a solution would have to be found for Martapura which later secures the economic continuation of the plant.

It is doubtless right that high quality paper may provide an alternative solution for this small plant. But it can be said against this fact that the Indonesian market still does not require quantities of any size of this kind of paper, and that a programme with very wide variations for several grades of high quality paper with many special additives and very high demands on the staff cannot be seen as a genuine alternative for this remote paper mill. There may be Europeans who can manage to produce something

special with such a small machine here in Europe, especially if they can mobilise this larger common market for specialities of this kind. In Indonesia there is a rather different state of affairs. Thus, for example, the production - proposed by Mr. van Doosselaere - of corepaper, lamination paper for impregnation purposes, overlay paper and similar paper would require that the construction and furniture industry first be examined and the sales of these goods be tested. Moreover, further investments are necessary to produce these boards. Until production begins for the necessary melamin resin or other resins about 80% by weight would have to be imported. But if this special paper were to be exported the demand in other countries would first have to be explored. It should also not be forgotten: Who will establish this production of special paper in Martapura on Kalimantan and who will guarantee a safe supply of materials ? A recommendation bound up with so many risks of this kind cannot be approved.

The production of processed or converted paper would at first also encounter difficulties of a similar kind. For this reason it seems to be more sensible to look for simpler suggestions which do not involve so many risks:

- Kalimantan is cut out to be a pulp area. The production of basic raw materials holds fewer risks. The use of wood pulp and wood chips here would, as the investigation into the conditions of production and quality in the other mills has shown, result in considerably better productivity, in better quality and in profits rising proportionally faster.
  If therefore market pulp and ground wood can be produced in Martapura on relatively adequate terms, seen overall this would allow higher profits to be made especially in the paper mills on Djawa. An immediate plan should ascertain with what measures and simple means air dried pulp and ground wood can be prepared in Martapura for the other paper mills.

  Under circumstances a suitable interim solution to this problem is the classical air drying of wet lap boards as a cheap installation.

Betrifft: Assistance in Paper Mill Operation in Indonesia
Assistance in Paper Marketing in Indonesia

- On the basis of the first production samples submitted, for reasons of quality the production of duplicating paper presents itself at first, and it should be examined whether exclusively this kind of paper can be produced for the time being.

  Furthermore, this small paper machine should be used for testing new fibrous raw materials and for improving their suitability for paper techniques. In this respect this paper machine can perform useful development work for the Indonesian paper industry in the close co-operation existing with the Cellulose Research Institute of Bandung. Seen like this, this paper machine in Martapura can be a useful investment for the future.

Betrifft: Assistance in Paper Mill Operation in Indonesia
Assistance in Paper Marketing in Indonesia

Recommendations for the Closed Paper Mill Of
PEMANTANG SIANTAR (Sumatra)

This plant which has been closed was also not visited, so that these suggestions be submitted only with due reservations.

According to information, not only is the power unit reported to be intact but also part of the wood grinder. For the reasons mentioned above it is therefore also recommended that it be examined to what extent a production of market ground wood is justifiable from the technical and the economic point of view and can be carried out for a limited time as an interim solution of course. It would be better to make use of it than to let it fall further into disrepair, and by using ground wood better staining in particular can be achieved. The cardboard grades in Padalarang and above all in Blabak could be considerably improved in their appearance as far as quality is concerned.

Betrifft **Assistance in Paper Mill Operation in Indonesia**
Assistance in Paper Marketing in Indonesia

3.22.4 Analysis of the Profitability of the Existing Production Programme and the Proposed Specialisation Programme, including Cost Comparisons

General remarks:

It was planned that the report-writer should examine these questions together with an expert on costs. As a result of the uncoordinated engagement of the two experts, Mr. Robert H. Cook, the costs expert, could not help completing his work before the report-writer had arrived in Indonesia. The latter then found in Indonesia in the three paper mills at Padalarang, Letjes and Blabak systems for accounting the cost centres which Mr. Cook had recommended to these firms. The guidelines given to these paper mills by Mr. Cook could certainly have been used for comparative cost analyses if they had been uniformly applied in all the concerns. Unfortunately, however, no authority was competent to control that the same guidelines were being observed in all the concerns, and so different interpretations were applied in all the concerns, which unfortunately led to the important costing values not being comparable to one another. So when the subsequent cost analyses are made it must be borne in mind that although there are identical bases for comparing the various grades within one concern, these do not exist for comparisons between the different mills.

For these reasons the Indonesian Government is recommended to:

- commission a cost controller to give the same names to all records relating to accounting and production techniques in all the paper mills - including the mills at Banjuwangi and Gowa, which were set up on the basis of different operational accounting systems - and to see that the guidelines are being adhered to.

This should be done as quickly as possible, since the accounting system in Gowa is to be changed by a Japanese expert in the near future, and since it is absolutely

essential that all the concerns in the new merger of all the mills to be created possess the same bases for costing and have the urgently required records ready to hand for the necessary decisions. It was suggested that an Indonesian costs expert, Mr. Moh Tajib, be entrusted with this work.

In detail the following important objections should be raised:

- In none of the paper factories are exact figures kept of the paper output; either the figures are roughly estimated, and then for the benefit of appearances, or the records are not kept in their entirety and, as was observed, this was done knowingly. Usually only overall records are kept, and not records which relate to the individual grades.

- In the Padalarang paper mill both PM's are recorded in one cost centre, which does not give accurate comparisons. In addition groups of grades (GOLONGAN) are formed which then do not allow accurate information to be gathered on the essential grades.

- The principles of valuation are not uniformly applied, as, for example, for rejects. This results in false assumptions, for example for the cost analysis for Blabak. Moreover the Blabak calculation of the pulp would have to be re-examined, since the cost centres of power, labour, general overheads and depreciations were not included in the apportionment.

- In Banjuwangi and Gowa the whole accounting system ought to be adapted to the guidelines set up for the other three paper mills. In Martapura, according to information received, the preliminary work for this is beginning.

In conclusion, it should just be mentioned here that operational and cost comparisons represent a valuable means of rationalising the concerns, except that everything must be as accurately comparable as possible. In Europe

this practice, promoted on an inter-firm level and by the associations, has brought considerable advantages to the paper industries over here. For the Indonesian paper industry some of the immediate advantages are to be found

- in the possibility of lowering the purchasing prices by comparisons. A number of observations in the cost analysis lead to this conclusion.
- in possibilities of lowering costs by comparing costs, of raising outputs by comparing outputs and of improving qualities more economically by comparing qualities. In this way the initial guidelines for a better control of all the concerns can be found, which last but not least represent a better basis for the price competition with imported paper.

In the following compilation some important data for comparison are given which should be used to collect the first information at once and with the help of which the way can then be paved for the first control measures.

Betrifft **Assistance in Paper Mill Operation in Indonesia**
Assistance in Paper Marketing in Indonesia

Compilation of data for comparing the different concerns:
a) Composition and costs of the consumption of fibrous raw materials for certain kinds of paper,
b) hourly output of the paper machine for certain kinds of paper (1,000 mm working width among others),
c) number of workers employed at the PM,
d) utilisation of the working width,
e) utilisation of the PM speeds,
f) utilisation of the PM operational time,
g) wire and felt change times with detailed data,
h) wire and felt consumption per ton of paper,
i) power consumption per ton of pulp,
j) power consumption per ton of paper,
k) finishing hours per ton of finished paper,
l) waste on the paper machine and in the finishing,
m) sorting per hour, per format, per area weight and per grade,
n) hourly output of ream wrapping,
o) hourly output of packaging, etc.

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Assistance in Paper Marketing in Indonesia

Part of marketing is a sales and profit orientated instrument of control, which is available here in the form of the

direct costing system.

The advantages of this system of calculating costs which is to be additionally applied are:

- Direct costing is an important basis for decisions for the management, since it allows for each grade of paper, for each area weight and each format a scale to be set up of their contribution towards covering costs and of the profit remaining in the end for each paper machine.

  The more successful management is in allotting the paper grades at the upper end of the scale to each paper machine the higher the yield for the enterprise.

- Direct costing allows a daily success control for each paper machine as well as for other sections of the works and of sales to be carried out.

- Direct costing allows all paper machines to be optimised.

- Direct costing allows a management to be set up for the separate spheres of responsibility according to performance. In this way executives and other staff can be made to take a more intense interest in the success of production and sales.

- Direct costing allows a lower price limit to be fixed for each grade of paper, since it is possible to make a better comparison of the influence of each kind of paper on the profit situation.

- Direct costing allows a more accurate valuation of stocks of semi-finished and finished products to be carried out.

- Direct costing also allows decisions on the technical side of the production to be assessed and made more accurately, e.g. an assessment of the pulp input and the output, fixing the lots and planning extensions and closures.

It is therefore recommended that

- direct costing be set up in all the Indonesian paper mills.

Betreff: Assistance in Paper Mill Operation in Indonesia
Assistance in Paper Marketing in Indonesia

Analysis of Profitability and Cost Comparison:

For reasons which were dealt with earlier it is unfortunately not possible to carry out accurate cost comparisons. In order to assess the following cost analysis a number of explanations must therefore be given:

Explanations:

- The main purpose of the cost comparisons ascertained by means of the direct costing system is to provide information as to whether and to what extent it is possible to improve profits by the proposed specialisation of the production programmes.

- A number of corrections, previously agreed to with the Indonesian counterparts, to the records submitted were made with the intention of producing a better basis of comparison. Nevertheless, a number of statements which could not be satisfactorily cleared up in the available time still remain open. It is therefore necessary to complete these and moreover, after the necessary reorganisation of the accounting system in all the mills, to set up more accurate cost comparisons. The cost comparisons presented here allow enough for the time being to be said about the improvements in the total profits to be expected from the proposed specialisation measures. They demonstrate the significance of direct costing as an important instrument in planning products in keeping with the market and in controlling the output. In addition, in this case they also allow a control of the level of performance hitherto of the Indonesian paper mills to be made and provide information which is absolutely essential for optimising production.

- The specialisation programmes proposed hereafter for the individual paper mills are generally based on the existing production plants taking into consideration the future expansions. Marketing is, however, a matter of thinking in alternatives, and so the specialisation proposals drawn up here are only meant to be understood as alternatives, capable of modification.

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In order to cope with the problems posed by tasks necessary for the specialisation measures an Assortment Commission should be set up immediately, consisting of one or two experts for each of the following subjects:

accounting (direct costing),
technical production planning,
operational and quality control,
production development and, last but not least, distribution and marketing.

The comparisons of costs and profitability made in this study refer to the sectors

a) Input, i.e. the costs of the raw materials and wood materials fed in and of the technical auxiliaries. The other costs are not dealt with any further here, since they are not the actual subject of this study.

b) Production output, especially with regard to optimising productivity.

c) Output, above all in arranging the programme and with the objectives of lowering the costs of making quotations and increasing the services.

Betrifft **Assistance in Paper Mill Operation in Indonesia**
Assistance in Paper Marketing in Indonesia

Input analysis and recommendations to cut the cost of material:

Over 35% of the costs for Indonesian paper are dependent on imports. Of these about one-tenth are used to purchase fibrous raw materials, roughly 50% to purchase pulping chemicals and paper chemicals, about 10% to purchase wires, felts, and smaller spare parts, the rest are capital costs to pay for imported plant.

By means of more detailed cost comparisons, especially in the case of auxiliary materials, the production costs, on the one hand, can be decreased considerably, and on the other hand the dependence on imports can be reduced. The proportion of the costs for these auxiliary materials in paper mills in Western countries is just a little less than half as much as in Indonesian paper mills. To improve the competitiveness in the face of imported paper therefore something must be done in this sector and, quite apart from that, such a high degree of dependence on imports should always be viewed critically.

The prices or the costs of the domestic and imported fibrous raw materials should at the same time be subjected to an especially close examination. They are set out in Table 54. From this it can be seen that

- domestic cellulose, at a very rough estimate, is about 25% cheaper than imported cellulose. The cost advantage is roughly half of this,
- the use of Indonesian market hard wood pulp would not only improve the quality of the ricestraw pulp paper, but could also lower the costs according to the proportion used, altogether by plus/minus 10%,
- the use of domestic market groundwood is very attractive in any event,
- the use of more favourably priced imported pulp and white waste paper should be examined from case to case.

TABLE 56	PRICE / COST COMPARISON OF IMPORTED AND DOMESTIC FIBROUS RAW MATERIALS IN RP / 1 kg (air dry)						
raw material	approx. import price	PRODUCTION COST					
		Padalarang	Letjes	Blabak	Banjuwangi	Gowa	Martapura
softwood kraftpulp bleached	100	101,50	103,05	100,00			
softwood kraftpulp semi-bleached	96,50-97,00						
softwood sulfitpulp bleached	96,00-98,00						
hardwood kraftpulp bleached	88,50-93,00						
softwood sulfitpulp unbleached	85,50-89,00						
softwood kraftpulp unbleached	81,50-88,50						
ricestraw sodapulp 1st bleached			74,78				
ricestraw sodapulp bleached				70,00			
ricestraw sodapulp bleached		88,43					
hardwood kraftpulp bleached							67,73
softwood groundwood bleached	67,50-70,00						
ricestraw sodapulp 2nd bleached			65,00				
softwood groundwood unbleached	63,00-65,50						
bamboo kraftpulp bleached					62,64		
wastepaper envelope shavings	61,50-65,00						
ricestraw sodapulp unbleached			56,50				
bamboo kraftpulp bleached						54,99	
rubberwood kraftpulp bleached							54,18
wastepaper Kd. white shavings	54,00-56,00						
bamboo kraftpulp unbleached						44,27	
bamboo kraftpulp unbleached					42,78		
hardwood kraftpulp unbleached							37,65
wastepaper white ledger rejects (calculated)	33,00-35,00		25,00				
hardwood groundwood wastepaper (calculated)		10,00					12,60

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Assistance in Paper Marketing in Indonesia

Cost comparison of the production programme of the paper mills and recommendations to improve productivity:

Taking the 1971 production programme of the Padalarang paper mill as an example, Table 55[+] shows what proportion of the total profits were made by the individual kinds of paper in 1971 and, as dealt with in the next section, what profits are to be expected in 1973 from the newly proposed production programme.

E x p l a n a t i o n s: Information is given in

columns a and b: on the kinds of paper for both paper machines broken down into fine and packaging paper and by weight classes.

columns c and d: on the production outputs as given by the paper mills per hour in kg and the annual production.

columns e and ee: on the paper losses. The data from Padalarang were corrected by more realistic estimates according to the conditions prevailing.

column f: on the total production hours calculated for the year from the results reported in columns c and d. These calculated production hours reproduce an optimum condition, which, however, as Table 56 [++] explains, were never achieved working under full capacity.

All calculations are first based on the assumption that 300 working days = 7,200 hours can be fully utilised. The span of up to 365 days is reserved for holidays, general overhauls, large-scale experiments and the like; the working time of the paper machines can, however, be extended to, for example, 315 or more days. A reason must be given for all performances falling short of these - here given as 7,200 hours.

[+] see page 205
[++] see page 206

Betrifft **Assistance in Paper Mill Operation in Indonesia**
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Either they are caused

- **by maintenance and daily cleaning or**
- **by change-overs and**

thus result in the available running time of the machines. This is reduced, where appropriate, by

- **interruptions or waiting times, or**
- **a more or less high paper output of a more or less good production reduces the optimum utilisation.**

Dividing up the records in this way has the advantage over the usual method of creating a system of information in which the precise reasons are given which can serve to constantly improve the utilisation of the valuable operating time of the paper machine.

As the compilation of the changing times of the different grades shows, the elimination of small production orders does not bring about any great improvement in productivity:

Paper mill	Changing-time share	lots or production numbers			
		under 5 t	5-10 t	over 10t	total
Padalarang PM I	48 h = 0.69%				
PM II	15 h = 0.20%	70	100	41	211
Letjes PM I	" = 1.68%	21	23	38	82
PM II	" = 0.86%	46	62	167	275
Blabak	n. a.	5	14	141	170
Banjuwangi	45 h = 0.74%	n. a.	(only contracts over 10 t)		
Gowa	n. a.		only bigger lots		
Martapura	n. a.		only bigger lots		

column g: **on the contributions made by one ton of finished paper towards covering the costs, given in 1,000 RP. This**

sum is the amount which remains, after the deduction of materials and packaging costs (pulp costs were recorded at their cost price), costs of special finishing and of special distribution, to cover the costs incurred in maintaining production. This, as well as a loss or profit, results from the difference compared with the sales price obtained without taxes.

The contribution towards covering costs can be improved by lowering the costs of materials, by raising productivity or the selling price.

column h: on the contribution towards covering costs made by one paper machine-production hour.

column i: on the scale of the paper grades. The grade higher up in the scale produces a higher contribution towards covering the day-to-day operational costs and thus a higher contribution towards making a profit.

column j: on the total contribution of one grade of paper towards covering the year's requirements. The amount necessary for the PM I in Padalarang is 53,400.000 RP (calculated). The turnover was 80 billion rupiahs, the difference of 33.4 billion rupiahs is the profit of the PM I. The PM II did not produce a loss of 15.5 billion RP. The difference of 11.1 billion rupiahs is the total profit and is contrasted with the turnovers in Table 57.[+] This table is discussed further in the next section.

The Tables 58 to 60[++] show the evaluations for the paper mills in Letjes, Blabak and Banjuwangi. Gowa and Martapura were not fully operational in 1971.

+ see page 207
++ see page 208 - 210

TABLE : 55

COMPARISION DIRECT COSTING OF THE PRODUCTION PRO

KIND OF PAPER			NET PRODUCTION 1971 PER HOUR kg/h	NET PRODUCTION 1971 PER YEARS t	LOSSES %		TOTAL CALCULATED HOURS PER YEAR	CONTRIBUTION FOR PRODUTION AN PER t IN 1000 RP	CONTRIBUTION FOR PRODUTION AN PER t IN 1000
a		b	c	d	e	ee	f	g	h
PM I									
1 LIGHT WEIGHT FINE PAPER:									
2 NORMAL FINE PAPER:									
COUVERTURE		80	365	—	1,0	—	—	—	—
WRITING (HVS)		60	339	87	0,1	15	247	16,8	5,1
		80	364		0,1	15		14,6	5,3
DUPLICATOR		69	400	260	0,1	10	625	31,1	12,9
3 HEAVY WEIGHT FINE PAPER:									
REFORM		120	313	339	0,9	10	1050	33,2	11,
BRISTOL (LONDON)	WHITE	190	426	288	0,8	5	678	48,8	20,3
	COLORED	190	426		0,5	5		50,8	21,1
COVER	NATURAL	100	416	837	1,0	15	2050	55,6	20
	COLORED	225	400		1,0	15		58,0	23
6. PACKAGING PAPER:									
WRAPPING									
REMARKS		PM I		1811			4.650 = 64,5 % (300)	—	-
PM II									
1. LIGHT WEIGHT FINE PAPER:									
CIGARETTE	WHITE	26	125	178	1,0	25	1425	63,9	8
	COLORED	26	125		1,4	25		67,0	8
MANIFOLD		29,5	163	93	1,0	30	570	57,5	9
2 NORMAL FINE PAPER:									
DUPLICATOR		69	364	1167	0,1	10	3220	31,1	11
REMARKS		PM II		1438			5215 = 72,5 % (300)		
		PM I + PM II		3249					

REMARKS

BOTH THE PAPERMACHINES ARE COMBINED IN THE USED ACCOUNTING SYSTEM, THERE FORE THE FIGURES HAVE NO EXACT REAL VALUE OF COMPARISION THE SAME FAULT IS THE CONTENTRATION OF SIMULAR KINDS OF PAPER IN PAPERGROUPS IN THIS ACCOUNTING SYSTEM SO THERE IS ALSO NO EXACT REAL REPARATION

PROGRAMME 1971 AND THE RECOMMANDED PRODUCTION PROGRAMME OF P.N.P.K. PADALARANG

FOR READINESS OF AND PROFIT			RECOMMANDED PRODUCTION PROGRAMME 1973				CONTRIBUTION FOR READINESS OF PRODUCTION AND PROFIT		
R h 1000 RP	POS.	PER YEAR IN MIO. RP	KIND OF PAPER	t/YEAR	kg/HOUR	CALCULATED HOURS/ YEAR	PER 1 HOUR IN 1000 RP	POS.	PER YEAR IN MIO RP
h	i	j	k	l	m	n	o	p	q
5,7 5,3	7 6	1,4	1th AND 2nd QUALITY WRITING WITH WATERMARKS ETC (60 – 80 g/m²)	500	400	1250	10 - 15	2	15,6
12,5	5	7,8							
11,3	6	11,9	REFORM	400	365	1100	12	3	13,2
20,8 21,6	3 2	14,3	BRISTOL AND COVER	2250	500	4500	21	1	94,5
20,3 23,2	4 1	44,6							
	EARNINGS DEMAND	80,0 53,4		3150 (+ 71,5 %)	INCREASE OF ROUND 15 %	6850 = 95 % (300)		EARNINGS DEMAND	123,3 80,0
8 8,4	4 3	11,7							
9,4	2	5,4	MANIFOLD	500	190	2630	10 - 15	2	33,0
11,4	1	36,7	BOND (45 – 80 g/m²)	1350	320	4220	15 - 20	1	74,0
	EARNINGS DEMAND	53,8 69,3		1850 (+ 28,5 %)	INCREASED OF ROUND 15 %	6850 = 95 % (300)		EARNINGS DEMAND	107,0 85,0
TOTAL TOTAL TOTAL	EARNINGS DEMAND SURPLUS	133,8 122,7 11,1		5000				TOTAL EARNINGS TOTAL DEMAND TOTAL SURPLUS	230,3 165,0 65,3

SECTION 2

Table 56 — Comparison of Production Hours

Paper Mill		Total Hours per Year	Breakdown 1971 techni-cal	techno-logical	maintenance	total	Effective Production Hours 1971	Calculated Production Hours for 1971	Set-up Total Production Hours for 300 days
Padalarang	PM I	8,760	1,291	378	.	1,669	6,945	4,650	7,200
	PM II	8,760	868	298	.	1,166	7,439	5215	7,200
Letjes	PM I	8,760	400	600	.	1,000	7,760	5,730	7,200
	PM II	8,760	67	593	.	660	8,100	6,975	7,200
Blabak		8,760	263	304	621	1,188	7,570	5,332	7,200
Banjuwangi		8,760	-1,610-		528	2,138	6,094	5,649	7,200
Gowa		8,760	.	.	.	2,190 2)	6,570 2)	-	7,200
Martapura		8,760	.	.	.	.	n. a.	-	7,200

Sources : The Paper Mills

Remarks: 1) could be modified regarding the plans provided

2) upgraded on the three months of 1972 for comparison purposes

Table 57	Calculated Profit Margin for 1971 and the Recommended Production Programme					
Paper Mill	Production Programme 1971			Recommended Production Programme		
	turnover in million RP	calculated profit/deficit in million RP	share %	calculated turnover in million RP	calculated profit in million RP	share %
Padalarang	459,9	+ 11,1	+ 2,4	700	65,0	9,3
Letjes	1 001,9	+ 0,3	± 0	2,000	61,7	3,1
Blabak	444,1	+ 12,3	+ 2,5	650	58,9	9,1
Banjuwangi	855,0	- 17,5	- 2	a) 1,130 b) 1,280	4,3 20,0	0,4 1,6
Gowa	54,0 1)	--	--	ca 1,200	balance ± 0	
Martapura	.	--	--	n.n.	balance negative	
all paper mills	2 814,9	6,2 2)	0,2	4,7 - 4,8 billion RP	approx. 200 million RP	4,2

Sources: PULP AND PAPER ASSOCIATION and own calculation

Remarks: 1) only for a short period in 1971

2) only for the four mills in Djawa

TABLE: 58

COMPARISION (DIRECT COSTING) OF THE PRODUCTION - PROG

KIND OF PAPER	g/m²	SIZE	PRODUKTION PER HOUR kg /m²	PRODUKTION PER YEAR t	LOSSES %		TOTAL CALCULATED HOURS PER YEAR / h	PER t IN 1000 RP	COV PER IN 10
a	b	b b	c	d	e	e e	f	g	h
PM I:									
1. LIGHT WEIGHT FINE PAPER									
MANIFOLD	30	–	n.a.	34	÷	8	e 136		e 1
2. NORMAL FINE PAPER									
EXERCISE BOOK PAPER		–	n.a.	295	8	8	s 2135	475	1
WRITING (HVS)	60	65x100	417	595				•	
PRINTING (HVO)	70	65x100	500	22	÷	8	44	22.3	1
DUPLICATOR	69	65x100	n.a.	199		8	e 398	•	e 1
COVER VIOLETT	90	65x100	542		÷	8		30.2	1
BLUE	90	65x100	542	s 674	÷	8	s 1245	32.8	1
GREEN	90	65x100	542		÷	8		31.9	1
CASING 1.)	90	65x100	542		÷	8		26.5	1
3. HEAVY WEIGHT FINE PAPER									
BRISTOL (LONDON)	190	61x86	667	234	÷	8	350	40.3	
INDEX (MANILA)	220	72x118	713	141			197	68.6	
4. PACKAGING PAPER									
WRAPPING 2.)	100	65x100	542	393	÷	8	725	29.6	
				2.587			5730 80 % (300)		
PM II									
1. LIGHT WEIGHT FINE PAPER	no								
2. NORMAL FINE PAPER:									
EXERCISE BOOK PAPER		–	n.a.	577	÷	10	805		e
WRITING (HVS) 3.)	50	65x100	667	2438	÷	10	3650	23.1	
	60	65x100	713	503	10	10	e 705	17.3	
	70/80	65x100	n.a.	282	÷	10	e 375	•	e
PRINTING (HVO)	70/80	65x100	n.a.	49	÷	10	e 65	•	e
DUBLICATOR	69	65x100	833	1007	÷	10	1205	16.1	
COVER	70/100	65x100	n.a	11	÷	10	15	•	e
3. HEAVY WEIGHT FINE PAPER									
DRAWING	120	55x75	833	129	÷	10	155	22.7	
				4.996			6975 ≈ 97% (300)		

REMARKS 1.) THIS CALCULATION IS TO CHECK (SOME ERRORS IN LETJES CALCULATION)
2) ONLY FOR OWN USE, MARKET PRICE HERE 80RP/KG
3) THE SPECIAL CALCULATION OF HVS 50 g/m² SHOUD BE SUPPLEMENTED AND THE MARKET PRICE OF 143 50 RP/KG IS TO CHECK

PROGRAMME 1971 AND THE RECOMMENDED PRODUCTION - PROGRAMME OF P.N.P.K. LETJES

COVERINGS			RECOMMENDED PRODUCTION PROGRAMME 1973				CONSTRIBUTION FOR READINESS OF PRODUKTION PLUS PROFIT		
ER 1 h 1000 RP	POS.	PER YEAR IN MIO. RP	KIND OF PAPER	t / YEAR	kg / HOUR	CALCULATED HOURS PER YEAR	PER 1 HOUR IN 1000 RP	POS.	PER YEAR IN MIO RP
h	i	j	k	l	m	n	o	p	q
10 0		e 1.4							
19 8	3	s 42.3	2nd QUALITY WRITING PAPER	3300	500	6600	23.7	1	156.0
11 2	10	0.5	LATER BASE STOCK PAPER ± 60 g/m²						
17 7	5	e 7.1							
16 4	7								
17 8	4	s 20.5							
17 3	6								
14 4	9								
26 9	2	9.4							
49 0	1	9.7							
16 1	8	11.7	WRAPPING PAPER	150	600	250	17.8	2	4.5
		102.6 92.4 10.2 = 11%		3450 + 33%	INCREASE OF	6850 = 95% (300)			160.5 112.0 48.5 = 43% PROFIT
12 3	5	9.9	EXERCISE BOCK PAPER WRITING	6250	925	6720	21.4	2	144.0
15 4	3	56.3							
12 3	5	8.7							
15 4	4	5.8							
15 4	4	1.0							
13 4		16.2							
15 6	2	0.3							
18 8	1	4.3	DRAWING	125	950	130	21.6	1	2.8
		102.5 112.4 9.9 - 8,8%	DEFICIT	6375 + 28%		6850 = 95% (300)			146.8 134.0 12.8 + 9,5% PROFIT
TOTAL EARNINGS TOTAL DEMAND TOTAL SURPLUS		205.1 204.8 0.3		9825					TOTAL EARNINGS 307.3 TOTAL DEMAND 246.[illegible] TOTAL SURPLUS

SECTION 2

TABLE 59

COMPARISON (DIRECT COSTING) OF THE PRODUCTION PRO

KIND OF PAPER		g/m	NET PRODUCTION PER HOUR kg/h	NET PRODUCTION PER YEAR 1971 t	LOSSES %	TOTAL CALCULATED HOURS PER YEAR h	COVERING PER t IN 1000 RP	COVERING PER h IN 1000 RP
a		b	c	d	e	f	g	h
1 LIGHT WEIGHT FINE PAPER :		no						
2 NORMAL FINE PAPER :								
WRITING		50	523	885	16	1310	16.7	
		60	761	88	8	131	31.2	
MANDAT		55/70	590	540	11	903	39.1	
BANDEROLE		60	508	384	7	758	20.2	
DUPLICATOR		60/80	643	94	8	146	12.8	8.5
COVER	COLORED	90	573	226	8	394	57.8	
	COLORED	90	573		10		81.0	
3 HEAVY WEIGHT FINE PAPER :								
CARDBOARD	WHITE	120	761	345	8	452	35.8	
	COLORED	190	876	498	14	555	32.4	
POSTCARD	WHITE	190	900	70	12	72	42.2	
	COLORED	190	817	425	8	520	33.1	
4 PACKAGING PAPER :								
WRAPPING		110	850	103	8	121	28.0	
				3350		5332		
						= 76% (7000)		

REMARKS :

THE PRICE FOR RICE STRAW PULP WAS USED WITH 3600RP/kg AFTER RECONSTRUCTION OF THE CALCULATION IT WAS CORRECTED UP TO 70 00 RP/kg

SECTION 1

ON PROGRAMME 1971 AND THE RECOMMANDED PRODUCTION PROGRAMME OF PNPK BLABAK

ERINGS			RECOMMANDED PRODUCTION PROGRAMME 1970						
R h 000 RP	POS	PER YEAR IN MIC RP	KIND OF PAPER	t/ YEAR	kg/ HOUR	CALCULATED HOURS/ YEAR	CONTRIBUTION PER TON IN MIC RP	POS	PER YEAR IN MIC RP
h	1	A	B	I	D	D	E	E	E
	2	10,1							
	7	9,1							
	0	21,1							
3	10	10,0							
0,5	11	1,2							
3,0	3	13,6	COVER PAPER	1000	ca 000	1005	38,0	1	50 .
5,0	2								
	5	12,2	HEAVY WEIGHT PAPER/PAPER CARD - BOARDS OF 2ND AND 3RD QUALITY	4000	ca 000	4450	38,0	1	155
0,0	4	15,7							
1,0	1	3,0							
7,0	6	14,0							
2,0	9	2,7							
TA	MAN HRS	107,8		5000		6115	TOTAL EARNINGS		215 .
				60%		80% APPROX			
TA	MANS	88					TOTAL EARNINGS		155
TA	RP	12,3					TOTAL		50 .

SECTION 2

TABLE 00

COMPARISON OF THE PRODUCTION -PROGRAMME 1971 AND THE REC

KIND OF PAPER	g/m²	PRODUCTION 1971 PER HOUR kg/h	PRODUCTION 1971 PER YEAR t	LOSSES %	TOTAL CALCULATED HOURS PER YEAR /h	COVERINGS PER 1 IN 1000 R P	COVERINGS PER 1 h IN 1000 R P	POS
a	b	c	d	e	f	g	h	i
1 LIGHT WEIGHT FINE PAPER								
2 NORMAL FINE PAPER								
WRITING (HVS)	00	1 067	560	0	515	28 1	26 6	2
	00	1 200	5 770	0	4550	20 0	22 1	4
PRINTING (HVO)	00	1 200	110	0	00	• 20 0	21 5	6
BLUE COVER	00	1 200	140	0	115	• 20 0	21 0	5
3 HEAVY WEIGHT FINE PAPER								
4 PACKAGING PAPER								
KRAFT	00	1065	130	0	120	• 20 0	20 0	1
	00	1170	00	0	00	• 20 0	23 0	3
	00	1 312	0	0	5	• 20 0	21 6	7
	00	1 333	254	0	191	• 20 0	21 0	0
			7 060		5060		TOTAL EARN	
					• 7000 (300)			
							TOTAL DEMA	
							TOTAL DEFIC	

REMARKS
THE ACCOUNTING SYSTEM
BANJUMANG WORKS ALSO
THIS OF GOMA PAPERMILL)
WITH TOO ROUGH EVALUATED
AND NOT STATISTICALLY
NTROLLED VALUES

SECTION 1

THE RECOMMENDED PRODUCTION-PROGRAMME FOR P K BASUKI, RACHMAT, BANJUWANGI

RINGS			RECOMMENDED PRODUCTION PROGRAMME 1973:						
h RP	POS	PER YEAR IN MIO R P	KIND OF PAPER	t / YEAR	kg/HOUR	CALCULATED HOURS/YEAR	CONTRIBUTION	POS	PROFIT IN
	i	j	k	l	m	n	o	p	q
4	2	13 8							
1	4	100 5	WRITING PAPER	8500	1 300	6200	ov. 22.5	1	141.0
5	6	1 8							
8	5	2 5							
8	1	3 5							
8	3	1 4							
4	7	0 1	KRAFT-PAPER	000	1 300	500	ov. 22.5	1	13.3
0	8	4 0							
TAL EARNINGS		1274	ALTERNATIVE A	9 300 AND	MORE	6 850 = 95 %	(300)	TOTAL EARNINGS 154.3 TOTAL DEMAND 150 0 TOTAL SURPLUS 4.3	
TAL DEMAND		g = 150-160	ALTERNATIVE B	10 500	1540	6850	ov. 25.5	TOTAL EARNINGS 175 TOTAL DEMAND 155 TOTAL SURPLUS 20	
TAL DEFICIT		o= 12,8-22,8							

SECTION 2

Betrifft **Assistance in Paper Mill Operation in Indonesia**
Assistance in Paper Marketing in Indonesia

Output analysis of the proposed specialised production programme and recommendations to cut the cost of distribution:

In the second part of the comparative tables of the individual paper mills the proposed production programmes are examined with regard to their future expectations of profits. Seen overall and with very careful examination and using the same underlying basic values which are unchanged, profits which can be termed normal are to be expected for the concerns in Padalarang, Letjes and Blabak. At present no profits or very low ones are expected in these mills. For the concerns in Banjuwangi and Gowa there is a possibility of getting out of the loss situation and breaking even for the time being. This gives rise to a number of demands:

1. In the given situation of rather low profits the paper prices must be raised as soon as possible coupled with the protection of import duties. In this way higher profits can be made, which can be used above all to finance the necessary investments. A conscious price and depreciation policy is the best means of financing investments.

2. In order to safeguard the profits in the market for some time to come the products must be processed and converted as far as possible.

3. In order to safeguard production for some time to come the productivity of the existing plants should be improved and the costs of materials dependent on imports reduced. Before establishing new and larger plants the existing ones should be further extended.

In order to lower the distribution costs special efforts are required under the conditions prevailing in Indonesia. At present the mills' own storage facilities are only possible at the places of production, and the transport costs, especially for the more distant mills, are considerable, as Table 61 shows. The burdens can be better distributed by a mixed calculation and supplying from one delivery store or from the two of Djakarta or Surabaja. The more distant firms in particular which are not yet in such a good financial situation do not suffer any disadvantage and costs will be distributed onto all customers.

Table 61	Transportation Costs per kg of Paper in 1972					
Paper Mill / Area	Padalarang	Letjes	Blabak (about)	Banjuwangi	Gowa	Martapura
Djakarta	2,00	5,50	4,00	7,00	11,50	10,00
Surabaja	- -	0,90	2,00	1,95	10,00	9,00
Bandung	0,60	5,50	- -	7,00	- -	- -
Semarang	- -	2,61	1,50	3,90	- -	- -
Surakarta	- -	2,12	1,00	3,41	- -	- -
Jogjakarta	- -	2,39	0,50	3,90	- -	- -
Medan	- -	- -	- -	- -	12 - 14	- -
Palembang	- -	- -	- -	- -		- -
Udjung Pandang	- -	- -	- -	- -	low	- -
Bandjermasin	- -	- -	- -	- -	- -	1,25
Denpasar	- -	- -	- -	2,75	- -	- -

Sources: Information from the Paper Mills

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3.23 Strategy of Expansion

3.23.1 General Conditions

The strategy of expansion aims at

- capturing larger and more important sections of the market and
- securing the market position to be achieved by controlled measures of expansion in the supplying of pulp and chemicals, by building larger production units, by creating more value in further processing and conversion stages and expanding the distribution network.

In the first place, therefore, it should be decided in which market segments decisive market shares are to be captured and how high these shares of the market must be.

The market segment of fine paper holds a key position, especially in the sales sections of office and school paper. Other important markets are the sectors of communication and information with the segments newsprint and other special kinds of printing paper and the sector of packaging with the segments of the different kinds of packaging paper or packaging products. Also of interest are then some special market segments, such as grades of finest paper especially cigarette paper, household and hygienic paper and some special cardboards.

The fundamental criteria for dividing up the expansion possibilities and the relation to the market sectors for fine paper are explained by the production model for fine paper presented in Table 62. The following Tables 63 and 64 demonstrate the production models for communication and information paper, which link up with the model for fine paper and the model for packaging paper. In the light of these models, it can be seen, on the one hand, what chances the state-owned paper industry in Indonesia has of expanding into which new production sections, and, on the other hand, it is possible to recognise the bases for which marketing programmes should be set up. More is said about this in section 3.3.

TABLE : 02

PRODUCTION MODEL OF THE MARKET STRUCTURE : FINE PAPER

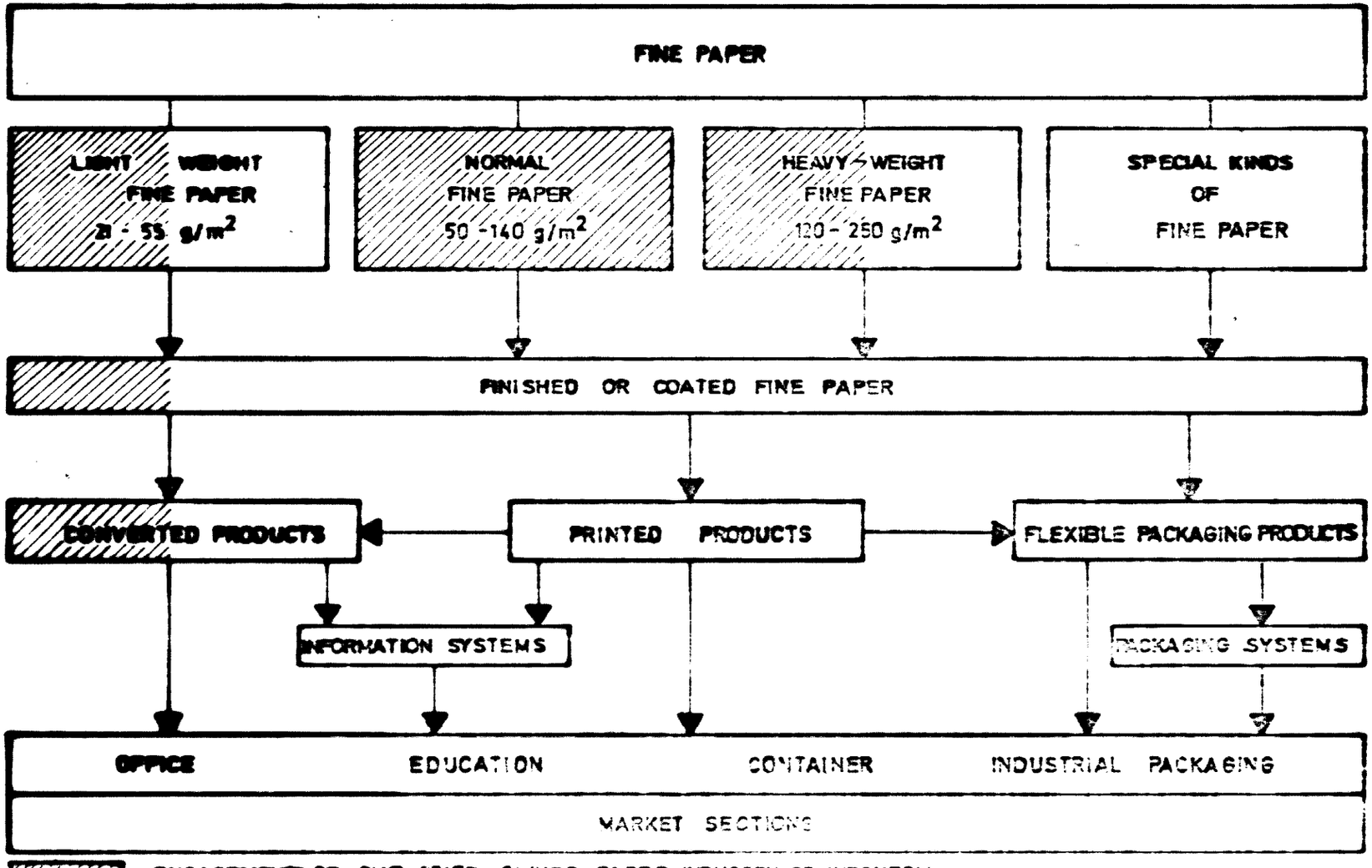


TABLE 69 — PRODUCTION MODEL OF THE MARKET STRUCTURE : COMMUNICATION AND INFORMATION PAPER

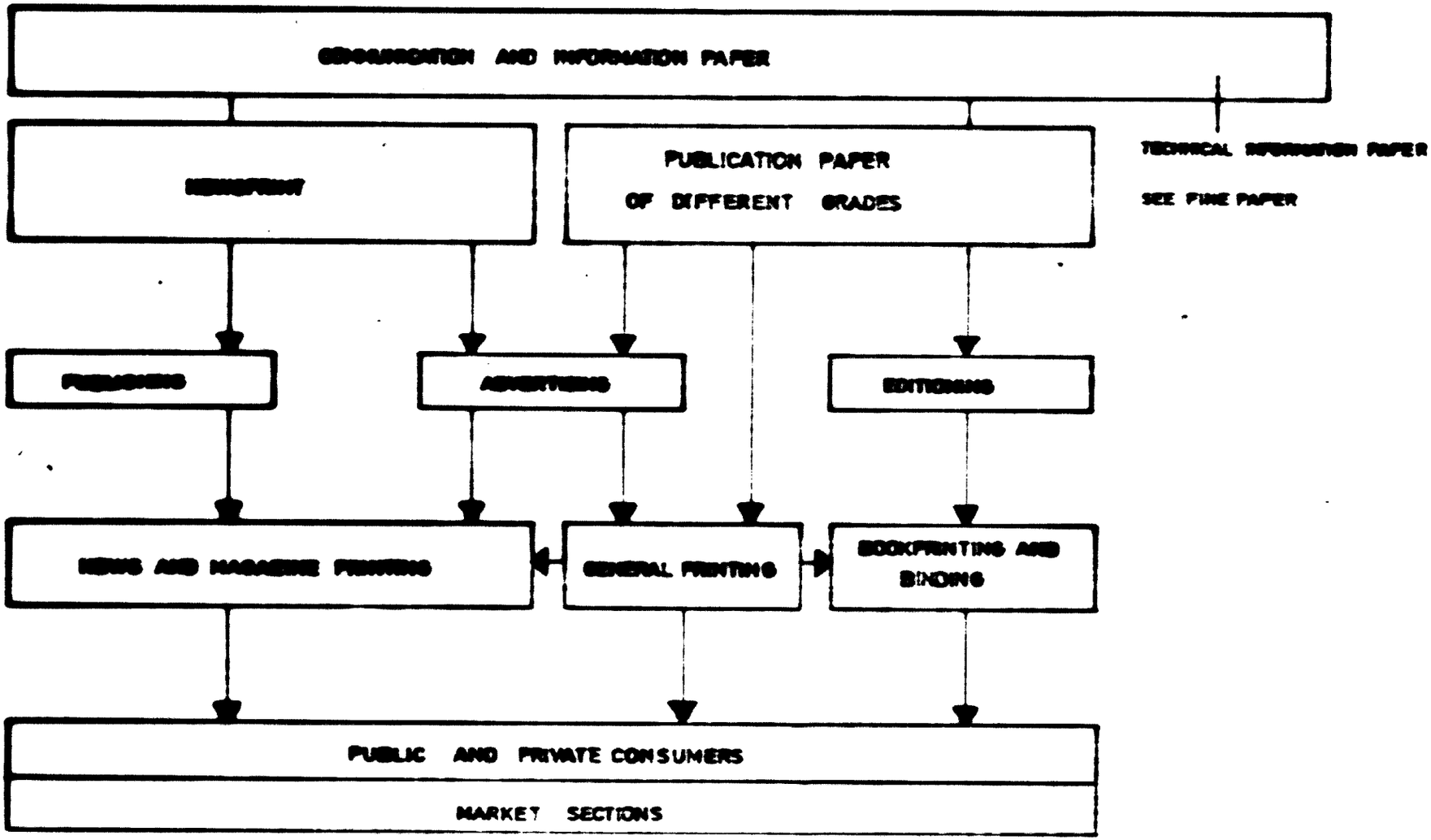
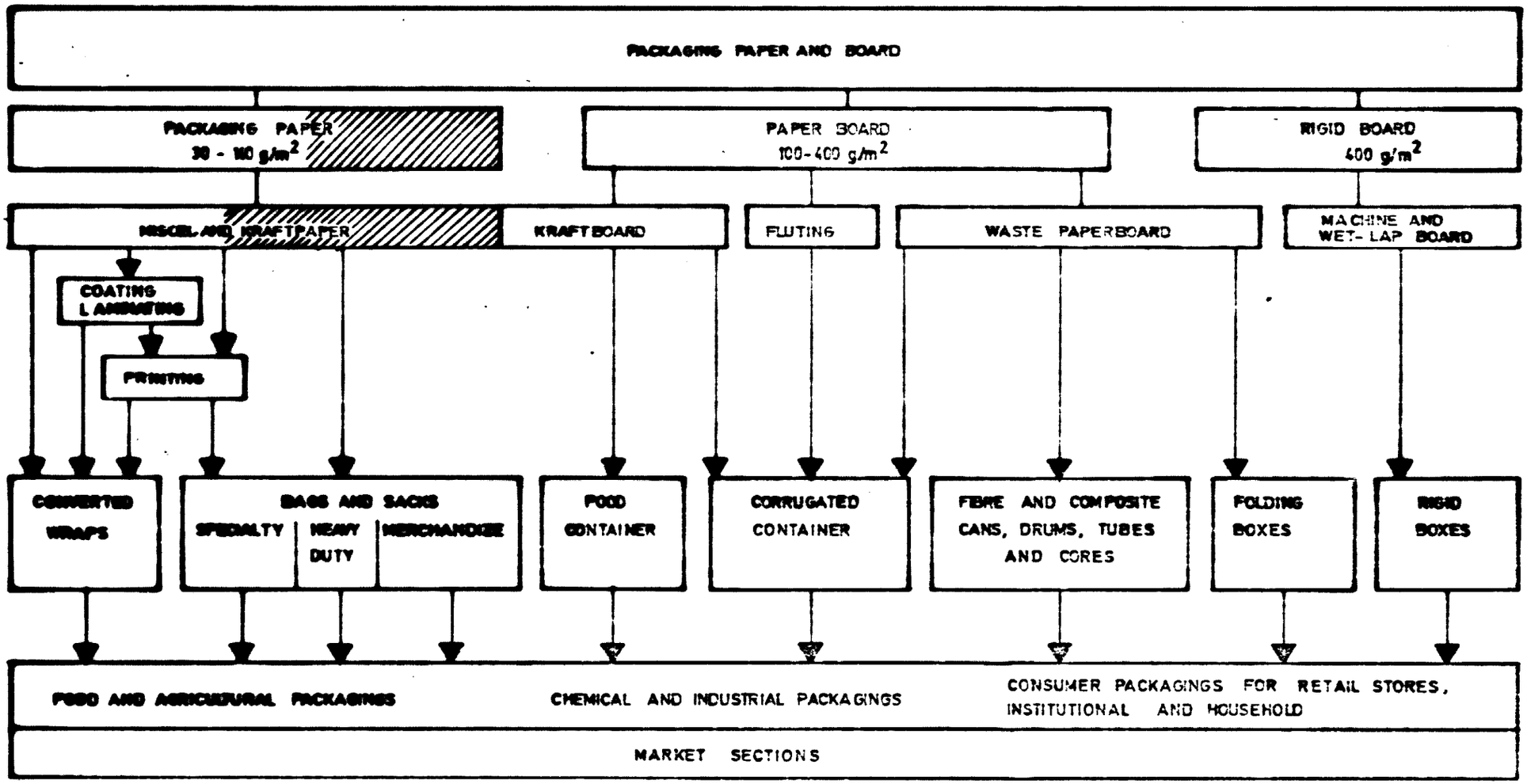


TABLE 06	PRODUCTION MODEL OF THE MARKET STRUCTURE : PACKAGING PAPER AND BOARD



ENGAGEMENTS OF THE STATE-OWNED PAPER INDUSTRY OF INDONESIA

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In order to decide how large the extensions of the existing plants and to what extent change-overs and the size of new production plant are to be carried out the quantities, as estimated for the future according to this study, of each individual kind of paper required in tons per day worked out for the coming periods of time are presented. See Table 65. + In projecting a new plant the following arguments have to be considered:

- A certain proportion of paper, especially special products, will no doubt continue to be imported.
- The question as to how far there are chances of exporting Indonesian paper will also have to be examined.
- The actual gross daily production should be at least 20% higher than the output going into the market, to balance out the losses in time and material.
- To do this it must be decided to what extent the sales of the projected production quantity are secured.
- It must be examined whether the large-scale plants should be in keeping with the latest and the future highest international standards, whether it should be decided to make the plants smaller for a number of reasons involving the securing of risks, or whether for reasons of profitability and better economy they can consist of used plant which must in any case be reconditioned to bring it up to the present level of technical performance.

Another piece of information giving a survey of the size of present-day plants in Central Europe as well as of the present and future maximum capacity may also be of use here. See Table 66. ++ It should be mentioned at this point that in the course of the next two or three years a number of smaller and also medium-sized plants are to

+ see page 219
++ see page 220

be closed for structural reasons, and in some cases the acquisition of medium-sized plant on favourable terms is likely to be possible and to be justified for economic and profitable use for the next decade and beyond in Indonesia.

The essential significance of an expansion by setting up larger production units is a lowering of costs related to the product and, as a consequence, increased competitiveness. The essential significance of an expansion by extending into the sectors of paper processing and conversion is raising the yields from the products and making the market more secure by bringing in more customers.

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Table 65	Forecast of the Possible Future Paper Demand in Terms of Daily Paper Production [1]					
Kind of Paper	Daily Consumption in tons					Remarks
	1972	1974	1978	1980	1985	
Newsprint	164	185	287	329	515	
Thin fine paper						
cigarette and similar	27	31	37	41	49	
manifold and similar	33	40	58	72	136	
Normal fine paper						
bond	25	37	62	82	164	
common	205	259	389	432	740	
Heavy fine paper						
bristol and similar	20	27	41	52	82	
cardboard, incl. packaging grades	82	101	164	205	329	
packaging paper and bond						
M./F., M./G. wrapping	12	16	31	52	102	
kraft sack	115	134	300	410	680	
kraftliner for corrugated material and similar	62	53	78	124	320	
miscel. and fluting	10	37	53	82	214	changings by top-liner
Tissue	2	7	20	41	144	
Board	.	.	.	.	.	several small board mills

Source: See table 44

[1] Production demanded means 300 working days/Year, 90% use of working time and 11% losses, rounded off to 5 at the end of the figures.

TABLE 06

WORLD WIDE INFORMATION ABOUT PRODUCTION CAPACITY

KIND OF PAPER	g/m²	EXISTING NORMAL DAILY CAPACITY IN CONTINENTAL EUROPE		HIGHEST EXISTING CAPACITY		POSSIBLE FUTURE CAPACITY	
		t / DAY	REMARKS	t / DAY	REMARKS	t/DAY	REMARKS
NEWSPRINT	51	250 - 450	-	450 585 - 670	HIGHEST MAXIMUM WITH DOUBLE SUCTION WIRE	1000	HIGHER SPEED
THIN FINEST PAPER	9 - 30	17,5 - 35	MASCHINENFABRIK ZUM BRUDERHAUS NORMAL TYPE	35	REGARDING PRODUCED GRAMMATURE		
THIN FINE PAPER	31 - 45	25 - 45	YANKEE TYPE	>100			
MEDIUM FINE PAPER:							
BOND	60-100	25-65	—	UNTIL 85	LARGE VARIATION		
MEDIUM FINE	40-120	50-100	—	300	HIGHEST	700-800	HIGHER SPEED
WOODFREE	40-120	<30-200	—	450	MAXIMUM		
BASE STOCK	40-100	120-180	—	200-250 425	HIGHEST MAXIMUM		
HEAVY FINE PAPER	120-250	<35 - 65	—	145	LARGE VARIATION REGARDING SPECIALITIES		
WRAPPING PAPER AND BOARD:							
MF-WRAPPING	10-50	15 - 60	—	80-120	FOR MASS PRODUCTION		
KRAFT AND MISC. FOR CORRUGATING	100-300	80-180	—	215 670	HIGHEST 2 LAPS MAXIMUM 4 LAPS		
FOURDRINIER BOARD	120-400	100-250	—	360 400	6 LAP COATED UNCOATED		
VAT CYLINDER BOARD	200-700	80-180	—	215 250	NORMAL VAT SUCTION VAT	650	HIGHER SPEED
TISSUE	12 - 18	25-100	—	130	FOR MASS PRODUCTION		
AUTOMATIC WET LAP BOARD		10-30	—	35	LARGE VARIATION		

SOURCES: VOITH GmbH, HEIDENHEIM WEST GERMANY

IT MUST BE EXPLAINED THAT THESE FIGURES ARE ONLY INFORMATIVE, MAY BE THERE ARE ALSO OTHER STANDPOINTS.

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3.23.2 Alternative Proposals for Expanding the Production and Conversion of Newsprint (see Table 67)

If we presuppose a modern newsprint paper machine it could not be considered for covering the domestic demand before 1980. By that time, however, the size of the most modern plants is likely to have increased still further. Seen from the point of view of sales, it should be ascertained to what extent there is a common interest in Singapore, Malaysia and other countries in the area to guarantee the sales for a larger Indonesian newsprint plant. In Japan, too, under circumstances, an interest in purchasing newsprint can be assumed, although on very tough competitive terms. Seen from the point of view of production there are the following alternatives:

First Alternative: Building up a large plant after 1980, i.e. a high risk is accepted, the consequence of using suitable techniques, logistics and staff would have to be solved by that time and that is a further risk factor. In addition, by that time larger amounts of foreign currency would have to be continually raised for the import of newsprint.

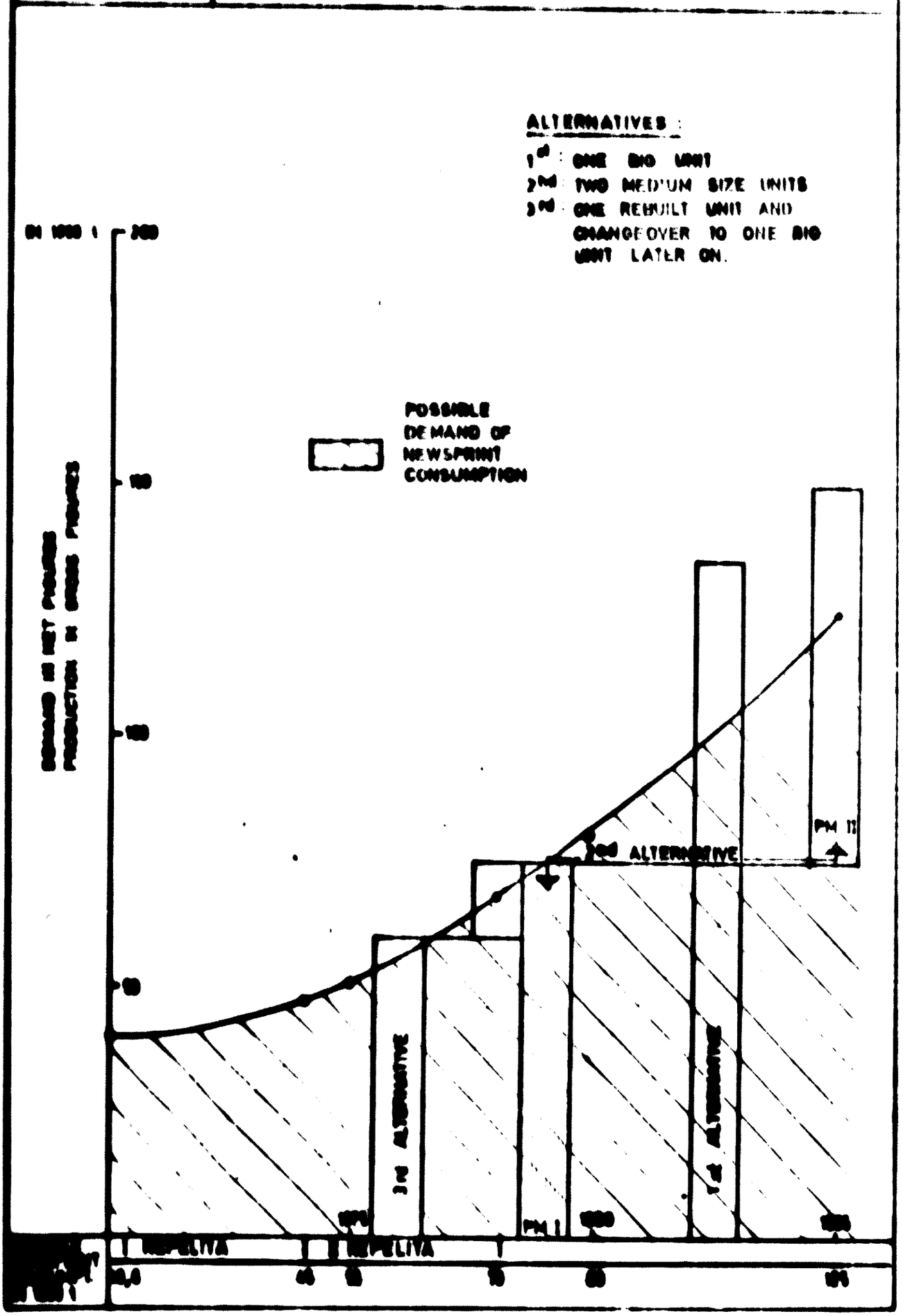
Second Alternative: Successively setting up two newsprint paper machines, at first medium-sized plant, which will considerably reduce the above-mentioned risk factors. All the same, relatively large amounts of investment funds will have to be raised, and the profitability and the yield would be impaired by this and by the higher expenses, which in view of the very serious international competition in particular must be viewed very critically.

The first two alternatives also require a larger and as far as possible uniform supply of raw materials to be secured. In the present state of affairs this is sufficiently possible with coniferous wood only in the northern area of Sumatra. In north Sumatra, however, an infrastructure still has to be created. Otherwise, it is first necessary

to examine and put to the test the additional use of other kinds of fibre, such as tropical hardwoods, rubberwood or agricultural waste, such as bagasse. It is obvious therefor that these problems cannot be fully solved by Indonesia alone.

Third Alternative: The following interim solution presents itself more as a compromise. Co-operation with an internationally known newsprint manufacturer who is prepared to set up a used and reconditioned paper machine for the production of newsprint and similar paper in Indonesia and, if possible, in the area of the highest consumption, on Djawa. Here both coniferous wood and other kinds of wood from the region of Natog, tropical fibre woods from the other islands and, under circumstances, bagasse as well to some extent could be used. The plant could cover the bulk of the requirements up to 1980 with a production of some 200 to 240 tons a day. After that new and more modern plants with a safe supply of raw materials can be put into operation. The older plant can then be used to good purpose for producing corrugated board for some more years to come.

TABLE 07 | ALTERNATIVES OF NEWSPRINT EXPANSION



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Alternative Proposals for Expanding the Production and Conversion of Fine Paper

a) Thin Finest and Fine Paper (see Table 68a)

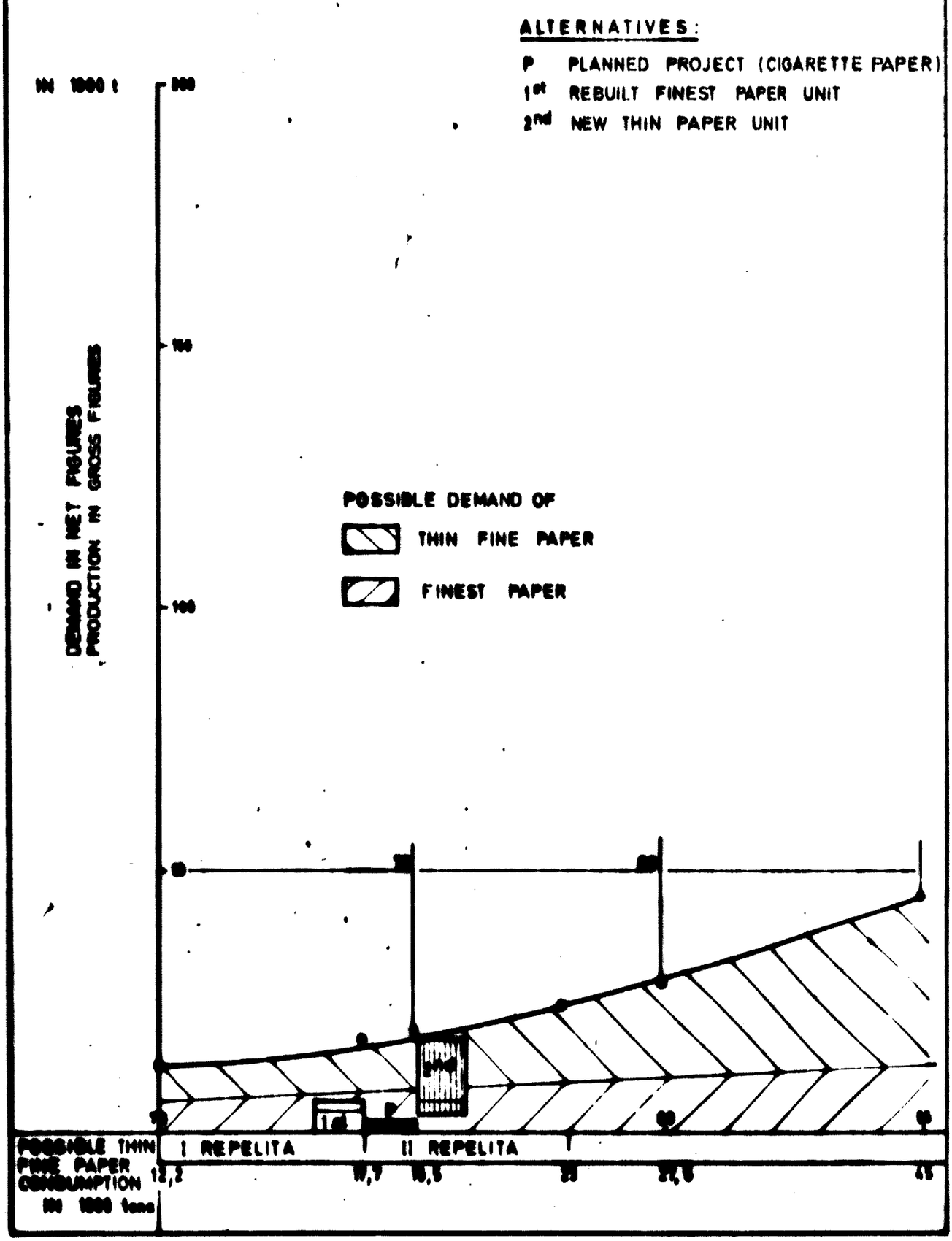
For the production of thin finest paper it is planned to establish a 5-7 ton per day cigarette paper mill in or near Padalarang. This is to be carried out in the next two years. It must be questioned whether such a small plant can cope with the market demands for the supply of finest paper and higher quality fine paper, can face the competition from abroad without high protective tariffs and whether a yield can be obtained such as is actually usual in the case of this higher quality paper.

Since, as a consequence of the credit approval, it has been decided to establish this plant, it is suggested that sensible alternatives should be sought which will keep these disadvantages down to an absolute minimum.

First Alternative: Setting up a larger, possibly second-hand and reconditioned plant for the production of finest paper, with 15 to 20 tons a day. The programme of this paper machine could consist of over 50% cigarette paper, the rest consisting of thin printing paper, airmail, onion skin and similar high quality paper, which could perhaps even be exported. The Indonesian market for this high quality, thin finest paper would be covered in the best possible way for the next few years - only special grades, such as electric insulating paper, anti-acid manila paper and similar kinds of paper which are difficult to manufacture in Indonesia would still have to be imported. The yields which could be obtained from a plant of this kind in keeping with international standards are at any rate likely to be considerably higher than could be achieved with the under-sized current project.

Second Alternative: Setting up a medium-sized plant to produce thin fine paper with an output of 40 - 50 tons a day, on which manifolds could be manufactured. Better grades of thin paper should then be produced on the PM II in Padalarang or - and this would have to be investigated more closely - in Martapura. Other combinations can also be imagined.

TABLE 68 a	ALTERNATIVES OF THIN FINE PAPER EXPANSION



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b) Normal Fine Paper (see Table 68b)

For the production of normal fine paper the following expansions of the existing plants can first be carried out:

Paper mill	normal fine paper, net-production in t [1] expansion stage			
	1971	1st	2nd	3rd
Padalarang	1,853	2,250	2,250	2,250
Letjes	7,045	9,825	15,950	28,450
Blabak	2,027	1,000 [2]	1,000 [2]	1,000 [2]
Banjuwangi	6,549	8,500 [3]	10,000 [3]	10,000 [3]
Gowa	347	7,200	9,000	10,000
Martapura (u. p.)	---	---	---	---
total paper mills	17,821	28,775	38,200	51,700
daily net production (300)	59	96	127	172

1) Gross production plus 20%
2) excluding the share of heavy fine paper
3) excluding 2,000 t/year kraftpaper

Taking the first expansion stage for the end of the first REPELITA and the other two for the second REPELITA as a basis produces the following alternatives:

First Alternative: Expansion of the PM I and PM II in Padalarang, of the PM I in Letjes and of the plant in Banjuwangi for the production of bond qualities with a total capacity of about

52 tons per day

and expanding the PM II in Letjes and the plant in Gowa to a total capacity of about

120 tons per day

of common writing and printing paper.

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Successively setting up two further plants of at first 150 tons per day each of normal fine paper, both for writing and printing paper. These plants should later be capable of expansion to 200 to 250 tons per day. The advantages of doing this are obvious. There are relatively few risks involved with regard to the investment of capital, technical and logistical problems, and the training of the mills 'own staff would be promoted in a consistent way.

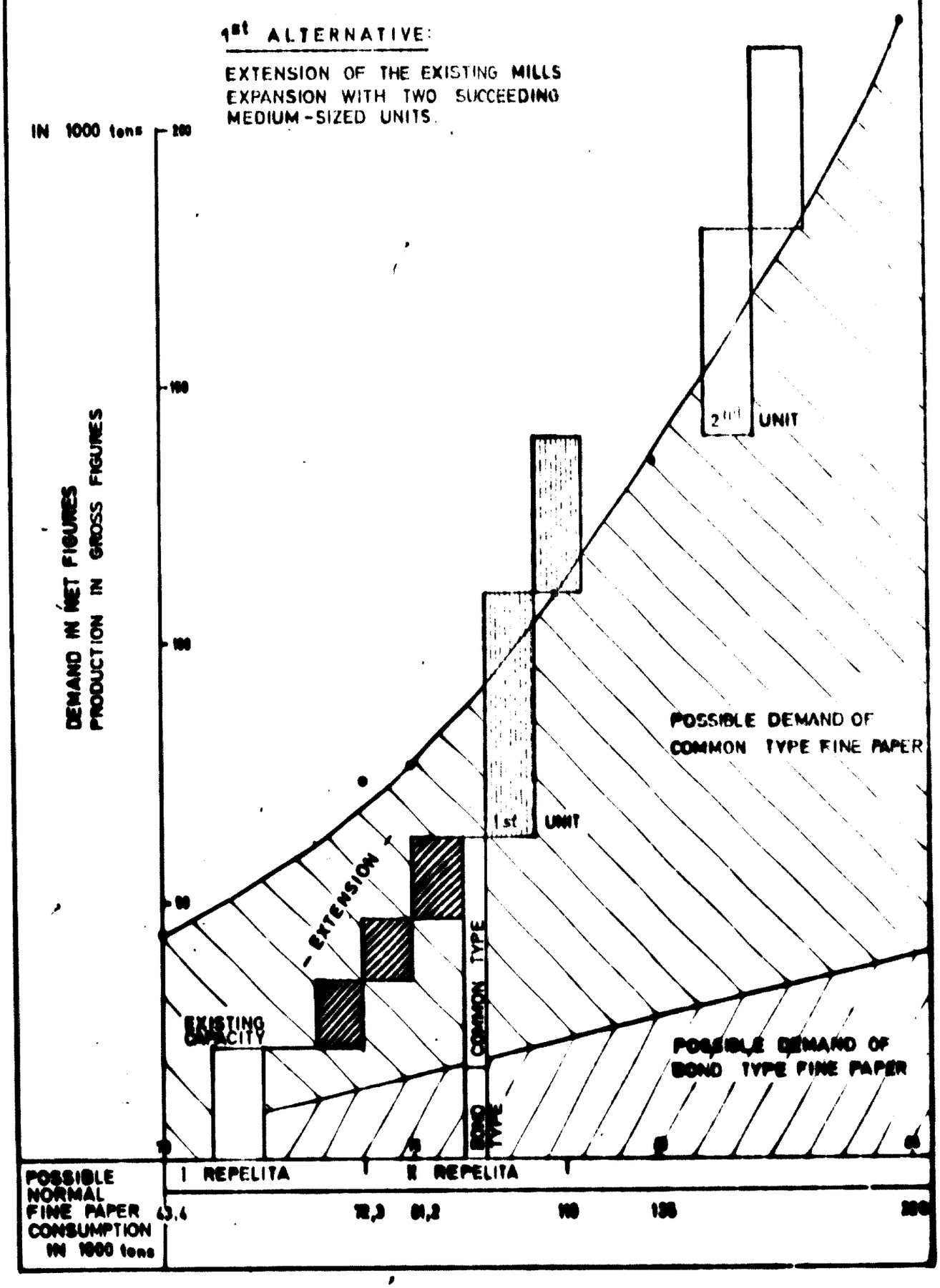
It is recommended that a coating plant be set up for Letjes. For this the paper from the PM I should be used.

Large-scale expansions should be made in the fields of finishing and converting especially for the ranges of "office paper" and "school paper".

Second Alternative: The setting up forthwith of larger fine paper machines of the most modern design in Indonesia increases the technical, economic and political risks. But later on new alternatives will present themselves in keeping with the level of development which has then been attained.

The aim for all the alternatives should be a high share of the market of more than about 80% of the fine paper products.

TABLE 68 b	ALTERNATIVES OF NORMAL FINE PAPER EXPANSION



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c) Heavy Fine Paper (see Table 60c)

First an extension of PM I in Padalarang and a corresponding rebuilding of the Blabak plant is put up for discussion. This would enable the domestic supply of about 12 tons per day of cover and heavy fine paper qualities to be brought up to

24 tons per day

in the first expansion stage and to about

± 35 tons per day

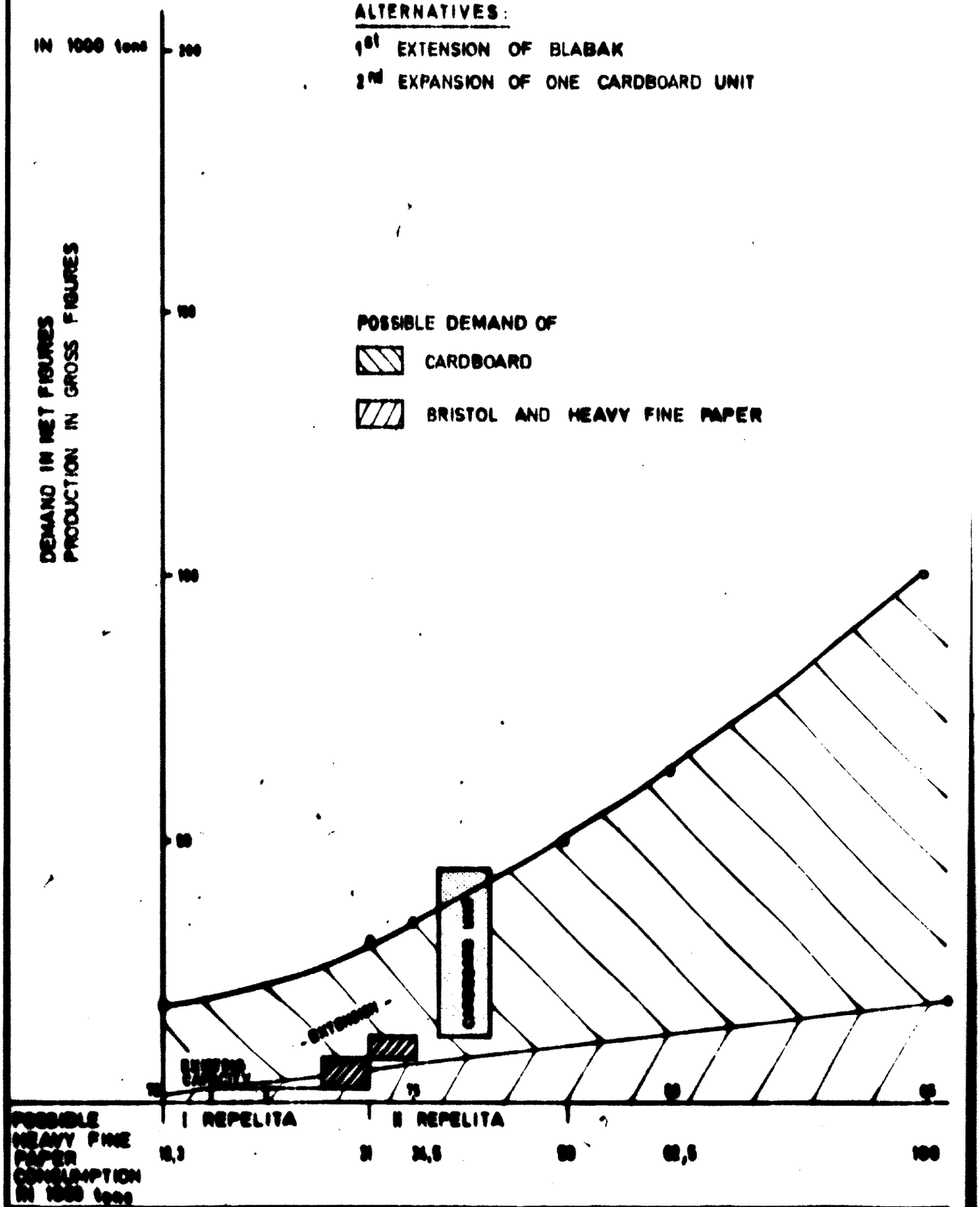
in the second expansion stage.

First Alternative: Thus a larger share of the market could be obtained in the second REPELITA for bristol and similar qualities. The advantage would be that a good market coverage for this segment of products can be achieved with relatively low capital investment. If a larger plant were set up for cardboard qualities then nothing but heavy fine paper qualities could be produced in Blabak.

The establishment of a combined laminator/coater plant is to be recommended here.

Second Alternative: It is recommended that a multi-Fourdrinier machine be set up for the period of the second REPELITA for cardboard qualities of over 100 tons a day, which should later be capable of considerable expansion.

TABLE 68 c	ALTERNATIVES OF HEAVY FINE PAPER EXPANSION



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Alternative Proposals for Expanding the Production and Conversion of
Packaging Paper and Board (see Tables 69 a and b)

Here there are the following individual alternatives for kraft paper and similar grades:

First Alternative: Expanding the production of kraft paper in Banjuwangi to some 2,000 tons per annum and setting up a dispersion coating plant for bleached and unbleached kraft paper to manufacture gummed paper, flexible and industrial wrapping and similar coated paper. Setting up a web-fed press is also recommended.

Second Alternative: Possibly in Banjuwangi as well, setting up a used and reconditioned paper machine chiefly for the manufacture of brown and white M. G. and M. F. wrapping paper with an output of about 15 to 25 tons a day.

This will enable the market for this wrapping paper to be built up and to be prepared for a large-scale plant to be set up around 1980. The machine can then, as required, be rebuilt later for the manufacture of tissue paper.

Third Alternative: For the production of kraft paper a medium-sized plant with an output of about 250 tons a day should be set up at the beginning of the second REPELITA which should then be extended to over 300 tons per day. This raises the question of how far kraft and finishing can also be manufactured on this plant. If the answer is yes, the design capacity of the first plant would have to be larger or preference given to setting up a second plant. It would have to be decided at a later point how large the plant would have to be that would have to be erected later.

Fourth Alternative: In order to overcome above all an acute shortage of simple corrugated paper thought can be given to erecting a used and reconditioned paper machine with an initial output of 80 tons a day which could be expanded to 120-140 tons a day. This plant, to be set up in the Djakarta region, could be supplied with regional raw materials, such as cold soda rice straw or SC bagasse,

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apart from the waste paper from the corrugated mills and the town area. Most of the output would be purchased by the present corrugated cardboard works.

The advantage of this conception would be that cheap paper urgently required by the market could also be produced economically. Good fluting qualities can also be achieved with these quantities of fibrous raw materials. Otherwise a plant exclusively for fluting or the rebuilt newsprint machine which would then be available for this cannot be considered for the Indonesian requirements before 1980 to 1985. Quantities required could, for the time being, be manufactured on the plant which also produces kraft paper.

Another argument will , however, be the export of fluting, perhaps made from tropical wood fibrous material.

Fifth Alternative: For the manufactureof folding box board reference is made back to the previous comments. Any decision on this should only be taken after further careful research into the market. The question of the continued industrialisation of the country of Indonesia is an important prerequisite for this.

Sixth Alternative: Rigid board should, for the time being, be produced on wet-lay plant or cardboard automatic plant. With regard to further proposals for specialisation refer to the first part of this study.

TAB. 69 a | ALTERNATIVES OF KRAFTPAPER EXPANSION

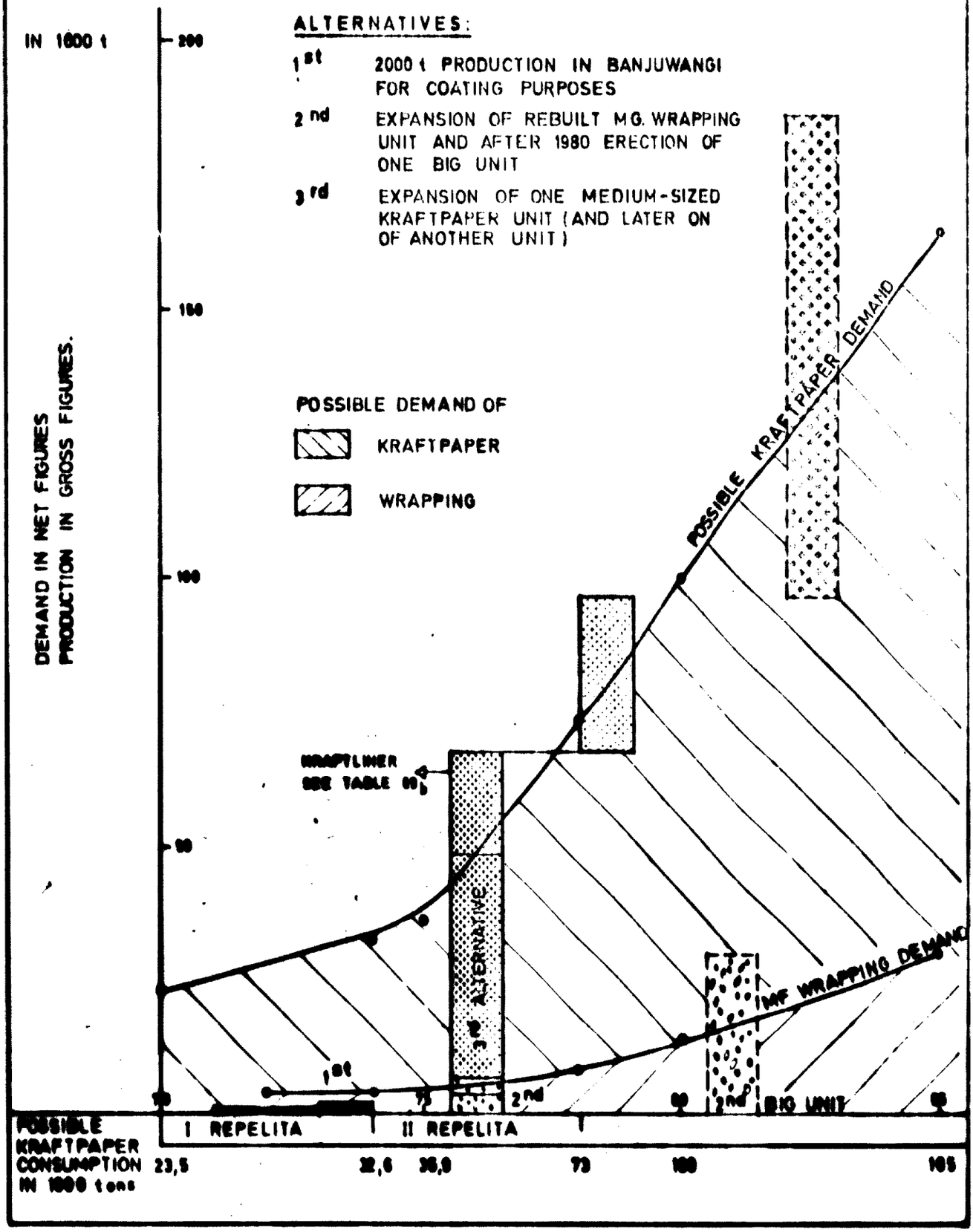
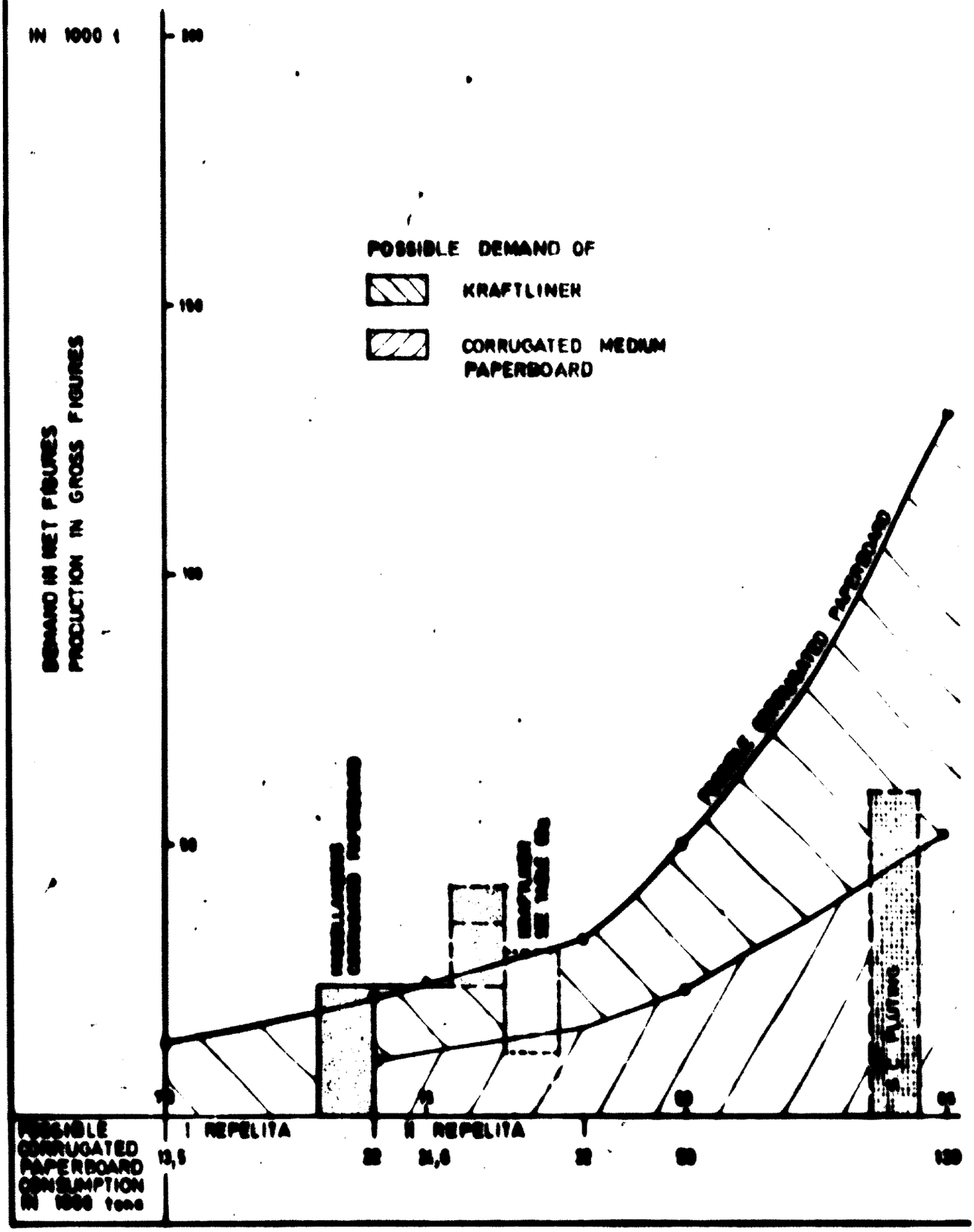


TABLE 69 b | ALTERNATIVES OF CORRUGATED PAPERBOARD EXPANSION



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Alternative Proposals for Expanding the Production and Conversion of Tissues

At present it is not possible to recommend the building of a tissue plant. Not until the end of the second REPELITA is the Indonesian market likely to absorb such a large quantity that it would be an attractive proposition to start up production. Moreover, it should not be forgotten that the market for this paper or the products manufactured from it differs fundamentally from the sales markets of the other kinds of paper dealt with here. This market also calls for a basically different attitude to consumer marketing.

3.21.1 Alternative Proposals for Expanding the Production of Pulp and Raw Materials

Having dealt with the possibilities of expansion for the paper producing and converting facilities, it is now necessary to discuss the facilities for the supply of raw materials. First, the questions to be asked are:-

- should the work be done in combined facilities, i.e. is the paper to be produced at the place of pulp production ? or
- is it more advisable to work with a system of a largely centralised pulp supply from fibrous raw materials centres and have the paper produced near the centres of consumption ?

Generally speaking, each individual case of a project must be decided separately. Basically, however, a centralised supply of wood cellulose is very important, above all for the existing facilities, and, prior to the projection of new facilities, a decision should be taken already now as to the way in which an optimum solution of the existing and rather difficult transport problems can be found.

Experience has shown that the cost advantages of combined pulp and paper production facilities as against separate installations will amount to between 15 and 20%. Considering the large transport distances, the insular structure, and the additional handling problems of finished products, it is believed that nearly the same cost proportion can be deducted in respect of combined facilities. Further possibilities with a view to a division of labour are the separate production of chips and the concentration of the production of base chemicals and auxiliary materials to result in larger production units. The same importance inherent in the measures for covering the supply of raw materials and for safeguarding economic efficiency by way of cost reductions to be achieved through such supply also attaches to the measures for quality assurance by using wood cellulose. The question of to how far use should preferably be made of coniferous wood market cellulose, or the extent to which market cellulose from tropical woods can also be

wood, should first be established in more detailed examinations in the Cellulose Research Institute of Bandung. The results thus obtained are then to be considered in a final assessment of the question as to which raw materials and, hence, which pulp facilities, should be given preference.

The questions of an international division of labour are of special importance for the Indonesian wood, pulp and paper industry, and it is from this angle that new arguments in favour of the sale of raw and wood materials could develop, for, in the future, Indonesia will have better chances as a supplier of converted raw materials.

Closely related to these questions is the question of using new transport systems, a field in which bulk carrier vessels and containerization represent indispensable conditions for such a future programme, which, however, does not preclude certain steps of this development being anticipated even now to the benefit of the existing installations.

It is thus proposed to establish, by way of a basic examination,

> a development model for all future projects. In this model, consideration must be given to questions of supplying raw materials, of the technical and financial execution of the programmes, the transport systems required, the investments in market supply (warehousing), as well as the problems associated with domestic and foreign trade policy.

Table 70 shows a summary of the future fibrous raw materials requirements as may present themselves with the projects suggested above.

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Table 70	Possible Domestic Demand of Fibrous Raw Material until 1985 1)			
Kind of Raw Material	1972	1974 - 1978	1980	1985
wood pulp (including all kinds of tropical softwood, hardwood and imported pulp)	2 - 3	100 - 150	220-270	500
s-c-pulp	-	-	-	60
groundwood	small amounts	40	55	120
rice straw pulp	16	25	25 or lower	25
bagasse pulp 2)		possible	possible	possible
bamboo pulp	16	20	20 or lower	20
waste paper	small amounts	10	30	75
fibrous raw material	34, 5	200 - 350	350-400	750

Source: Own researches

1) The application of this table only is to use in connection with the contents of chapter 2, 233

2) In case of use the share of the other kinds of pulp are to diminish

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3.24 Model of General Planning Short-term, Medium-term, and Long-term Stages

Having discussed the strategy of expansion with regard to questions of supplying raw materials, paper production and processing, a summary has been compiled below on the recommendations made on this subject, including a time model for the short-term, medium-term, and long-term stages. The measures required to be taken for securing the market aspect of such expansion are discussed in the following paragraphs.

Table 71 shows a breakdown of recommended new products. Table 72 shows the layout of a planning model that is based on the recommendations made in this Study.

In order to provide an approximate survey of the investment costs of the proposed projects and to obtain comparable data on the cost of a modern paper machine and that of a rebuilt paper machine for the cases on hand, a corresponding breakdown is given below (Table 72). The guiding prices specified refer exclusively to the paper machine, i.e. without accessories and the electrical portion.

In order to give a criterion on the capital required for a complete turn-key paper mill, including utility installations but without a cellulose factory, the overall investment for new facilities, according to the data supplied by Papiermaschinenfabrik Voith GmbH, Heidenheim, West Germany, amounts to between about 5 and 7 times the plain cost of the machines, depending on the make, size and appurtenances of the latter.

As mentioned earlier, these estimated values refer to machinery of the most modern design. The question is whether and to what extent such machines should be set up in Indonesia. At any rate, however, this information is quite valuable, for it reflects, among other things, largely the basis of performance in international competition.

The writer's other own estimates are based on his own data which have been co-ordinated with the known expansion projects. While these estimates are not the subject of the present Study, the writer dispensed with detailed figures and gave only the estimated total.

In this Study it is not intended to give an assessment of the other projects known so far; the recommendations given in this Report are based exclusively on the results obtained from the market research.

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From Table 73+ it is clear that, according to this conception, the preparatory work on planning and actual execution will concentrate on the years 1973 to 1975. A rather considerable organizational expenditure will be incurred if all or a large portion of these proposals are to be realized. It is the aim of these efforts to increase, until the end of the second REPELITA or earlier, the market share of the domestic paper consumption from 19% to roughly 75%.

+ see page 266

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TABLE 71	Summary of the Recommended New Projects			
Kind of Paper	Alternative No.	Description of Recommended Projects	Capacity t/year	Start
Newsprint [1]	1	one big modern unit	135,000	after 1980
	or 2	two medium-sized units	2x 75,000	1978
	or 3	one rebuilt unit and later on one modern unit	60,000 / 70,000	1975 after 1980
Thin finest paper	1	Cigarette paper project	1,500-2,100	1973 / 74
	or/and 2 [1]	rebuilt unit	4,500-6,000	1973 / 74
Thin fine paper	or 1	medium-sized unit	12,000 - 15,000	1975
Bond paper	1	extension of Padalarang PM I/ PM II Letjes PM I (plus claycoater) Banjuwangi	up to 15.600 [2]	1973 / 76
Common fine paper	1	extension of Letjes PM II Gowa	up to 36,000 [2]	1973 / 76
	and	two medium-sized units	2x 45,000/ 75,000	1977 and after 1980
	or 2	one big modern unit	125,000	1977

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Kind of Paper	Alternative No.	Description of Recommended Projects	Capacity t/year	Start
Heavy fine paper	1	extension of Blabak (plus Laminator / coater	7,200/ 10,500	1974
Cardboard	1	one multiply cardboard	30,000	1976
Kraftpaper	1	expansion of Banjuwangi (plus dispersion coater)	2,000	1973/74
	and/or 2	one rebuilt MF - unit	4,500 - 7,500	1975
	and 3 3)	one medium sized unit	75,000 / 90,000	1974/76
	4 3)	one big unit	90,000 or more	after 1980
Miscellaneous corrugated material (fluting) 1)	1	rebuilt unit	24.000 / 42.000	1974
	and	one unit	60.000	after 1980
Container board Rigid board	1	start with some small automatic board machines	x 3,000/ 9,000	1974
	2	bigger and modern board units	after further exploration	
Tissue	1	one rebuilt unit	± 5,000	1978

Remarks: 1) also a question of exporting 2) new and old capacity
3) additional capacity for kraftliner in case of higher demand

TABLE 72 Estimated Investment Cost of the Proposed Paper Machines

Object	1000 t/year	in millions of Deutsch-marks
Newsprint (modern peak) 1)	125 - 150	25
Newsprint, double wire 1) (modern peak)	175 - 200	30
Newsprint, rebuilt unit	60/70	± 5
Cigarette Project	1,8 - 2,1	
Thin fine paper, rebuilt unit	12/15	± 4
Bond paper expansion for Padalarang PM I, PM II, Letjes PM I Clay coater	up to 15,6	± 3
Common fine paper expansion for Letjes PM II (100 t/day) Coves	up to 36	± 4
Fine paper (modern peak) 1)	75	18
Heavy fine paper expansion for Blabak PM Cemmaster, coater	up to 10,5	± 2
multiply cardboard (modern peak) 1)	80	18
MF Kraftpaper (modern peak) 1)	80/80	9,5
MF Kraftpaper rebuilt unit	15/20	± 2

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Kraft sack paper (modern peak) 1)	75	15
2 Kraft sack paper units (modern peak) 1)	200	36
Fluting and liner (modern peak) 1)	75	14
Fluting and liner (modern peak) 1)	125	24
Kraftpaper and fluting, Duoformer (modern peak) 1)	200	14
Automatic board unit (modern peak)	5	1
Tissue (modern peak) 1)	40	8
Tissue, rebuilt unit	5	± 1

Sources: 1) J. M. Voith GmbH, Heidenheim, West Germany, and own estimation

TABLE 73

SHORT - TIME PLANNING

I REPELITA

KIND OF PAPER OR PAPERPRODUCT (SEE TABLE 71)	1972	1973	1974	1975
NEWSPRINT				3rd ALTERNATIVE REBUILT UNIT
THIN FINEST PAPER				1th ALTERNATIVE CIGARETTE PAPER PROJECT
THIN FINE PAPER				2nd ALTERNATIVE REBUILT UNIT 3rd ALTERNATIVE MEDIUM SIZED UNIT
BOND PAPER CLAY COATED PAPER				EXTENSION AND CHANGING PROGRAMME FOR PADALARANG, LETJES I, BANJUWANG CLAY COATING UNIT
COMMON FINE PAPER				1th ALTERNATIVE EXTENSION AND CHANGING PROGRAMME FOR LETJES II, 1th MEDIUM SIZED UNIT 2nd ALTERNATIVE ONE BIG MODERN SIZED UN
HEAVY FINE PAPER LAMINATED PAPERBOARD CARDBOARD				EXTENSION PROGRAMM F BLABAK ONE MULTIPLY CARDBOARD UNIT LAMINATOR-COATER
KRAFTSACK PAPER MG - KRAFTPAPER DISPERSION COATED PAPER				DISPERSION COATING UNIT REBUILT MG UNIT ONE MEDIUM SIZED UNIT
MISCELLANEOUS CORRUGATED WRAPPING				REBUILT UNIT
RIGID BOARD				AUTOMATIC BOARD MACHINES
TISSUE				

SECTION I

REMARK THE END OF THE CHEST MEANS THE START OF THE PLAN OF PREPARATION AND ERECTION OF THE PLANT

MEDIUM - TIME PLANNING

LARGE - TIME PLANNING

I REPELITA

1975 | 1976 | 1977 | 1978

UNTIL 1980

UNIT

ALTERNATIVE ONE BIG MODERN UNIT

2nd ALTERNATIVE MED SIZED UNIT

2nd MEDIUM SIZED UNIT

ROGRAMME FOR
NJUWANG

ND CHANGING
FOR LETJES I,

1th MEDIUM SIZED UNIT

2nd MEDIUM SIZED UNIT

2nd ALTERNATIVE
ONE BIG MODERN SIZED UNIT

MULTIPLY CARDBOARD UNIT

ILT MG UNIT

MEDIUM SIZED UNIT

ONE BIG UNIT

ONE BIG FLUTING UNIT

YANKEY UNIT

SECTION 2

ANS THE START OF THE PLANT, THE CHEST DESCRIBES THE TIME
N OF THE PLANT

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APPENDIX

Recommendations for the Cellulose Research Institute (LEMBAGA PENELITIAN SELULOSA) of Bandung

Appendix: History

This part of the report is both a part of this report and a separate report. On the matter of the history, it must be explained that the report-writer was asked during his briefing in the UNIDO Headquarters on 6th/7th July, 1971, both by the Management Department and by the Technology Department to take a look at the Bandung Cellulose Institute and to make a report on which proposals he considers appropriate for the Institute itself and for his work within the framework of the ECAFE tasks.
A first report in writing was personally explained on his interim visit to the Headquarters in Vienna on 8th/9th March, 1972.

In the course of his research the report-writer came across the history of the Institute, which was first given as a grant by the German Federal Government to the Indonesian Government as a pulp and rayon research institute in 1968. With the approval of the counterparts of the Director General for the Chemical Industry and of the UNDP Offices in Djakarta, the report-writer took steps with the German Embassy in Djakarta which resulted in the responsible gentlemen in the Ministry for Economic Co-operation in Bonn agreeing to seriously examine whether an additional grant of an appropriate amount can be made available to complete a Paper Research Department for the Institute. To do this the following conditions would have to be fulfilled:

- The Indonesian Government files an official application declaring that the continuation of the Institute within the framework of the new tasks will be guaranteed by the Indonesian Government.
- The UNIDO should confirm that the Institute will be used within the framework of ECAFE research.

On a second visit to Indonesia the report-writer was informed that the preliminary work to institutionalise the Institute would first have to be completed before the Indonesian Government could make such a declaration to the Federal German Government. The report-writer was also asked to work out a joint statement with Mr. van Deesselaere.

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Since the expert, Mr. van Dusselaere, however, failed to keep any of the appointments arranged with the report-writer, did not supply a report he promised about his views on expanding the Cellulose Institute, and moreover submitted proposals in a discussion which are irreconcilable with the ethical principles of an independent consultant, the report-writer was compelled to disassociate himself from a joint report. This was discussed with the responsible counterparts in the Indonesian Government and recorded in writing and handed over to the UNDP Office to be passed on to UNIDO.

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Assistance in Paper Machining in Indonesia

3. 3 Machining Systems

3. 31 General Remarks about Machine Connections

According to a simple but practical division one differentiates between

"inside marketing" and "outside marketing".

Inside marketing comprises the elements

- [redacted]

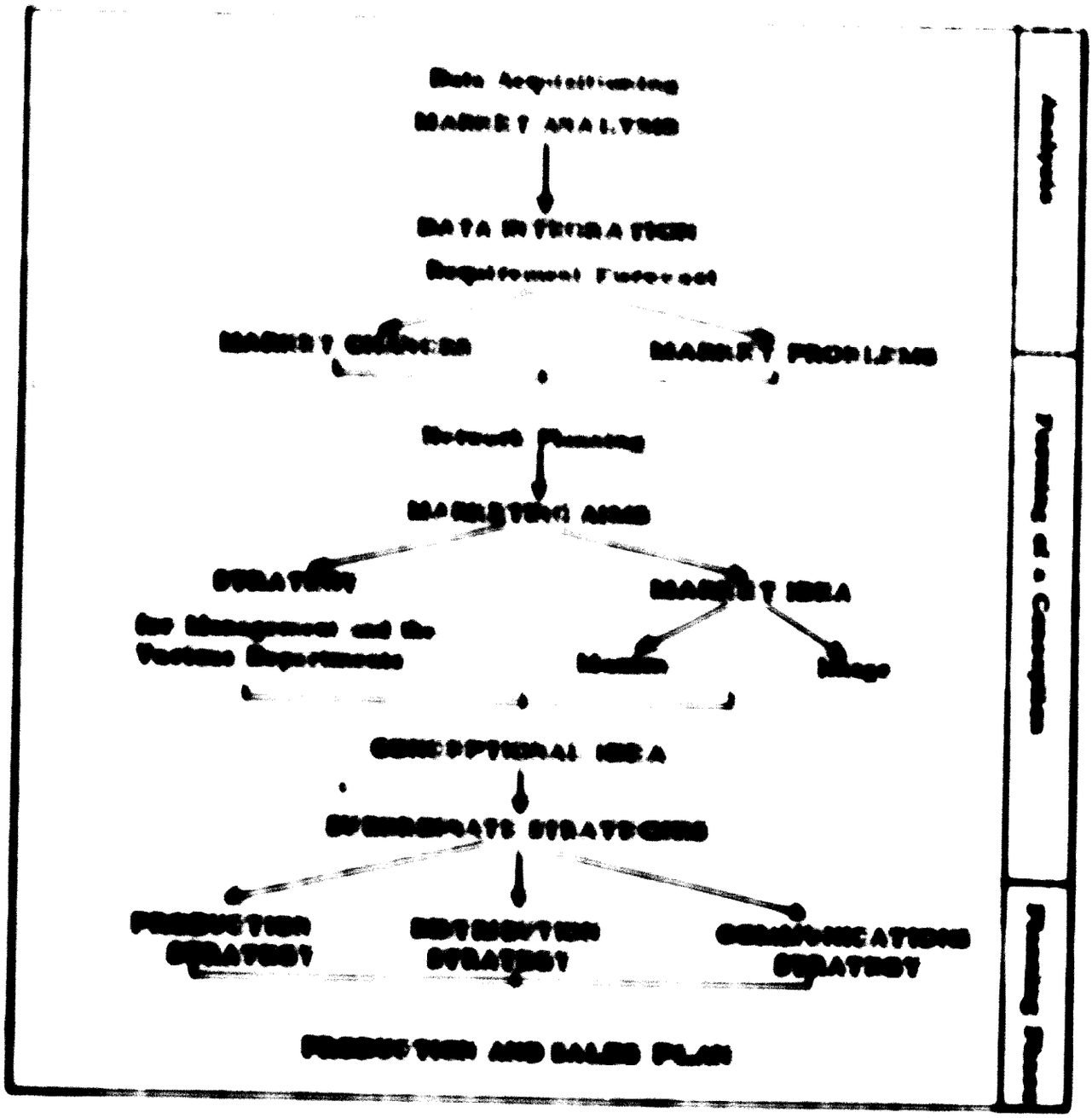
Outside marketing comprises the elements

- [redacted]

It is the aim of inside marketing to manufacture marketable products with the aid of these three elements, and outside marketing has the aim of obtaining from the market the necessary money for these products by way of these specific measures.

[illegible] Assistance in Paper Mill Operation in Indonesia
Assistance in Paper Marketing in Indonesia

Target planning of the marketing is projected in accordance with the following pattern:



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Assistance in Paper Marketing in Indonesia

After the market analysis and formulation of the potential demand, which were dealt with in the second part of this Report, the strategic marketing aims of

concentration
specialisation and
expansion

were formulated in this section of the Study. Presentation of the alternatives offering themselves is deliberately simple in this Report. According to a decision taken by the Indonesian Management, the formulation of these strategies in the form of network planning was to be further elaborated and forwarded to all departments concerned.

The maxims of the state-owned Indonesian paper industry lie, essentially, in the macro-economic area of the country. They are governed chiefly by the following ideas:-

- Utilisation and exploitation of the national reserves of fibrous raw materials;
- Creation of modern, economically operating entrepôt industries with a high labour content at the same time, to cope with the growing population;
- Answering the paper demand from the country's own raw materials and means of production to the extent possible to secure the above aims as far as possible;
- Enlightened self-interest regarding the establishment, development and lasting protection of a national enterprise - possibly with international connections -, i.e. an enterprise whose aims should not only serve national interests but one which would be obligated to increase its own benefits.

This enterprise must, consciously, know how to present itself, not only within its own internal structure but also before the public. This is most appropriately achieved through successful activities. In this respect, self-advertising can only be regarded as having a supporting effect and as serving the purpose of interpreting urgent requests and protective measures to Government Authorities.

[illegible] Assistance in Paper Mill Operation in Indonesia
Assistance in Paper Marketing in Indonesia

- Since "an owl" is already widely used as a symbolic animal, this mark should continue to be used and, possibly, complemented with other marks, e.g. Garuda water-mark.

Development and securing of the sales are additional strategic marketing aims. In this respect the proposed product expansions will exert the strongest force. With the aid of the substrategies in the areas of

programme and product layout,
distribution and
communication

it will then be necessary to establish a production and sales plan in line with the intentions of Management. This planning section will then conclude with the set-up and development of the sales organization.

From: Assistance in Paper Mill Operation in Indonesia
Assistance in Paper Marketing in Indonesia

3.36 Product Strategy

Product strategy is one of the most important columns of the marketing conceptions; in Indonesia, product marketing is - in the proper meaning of the term - pioneer marketing.

First, it is recommended that a product manager be engaged, who will be responsible for market sectors. First and foremost, these sectors are those of

Fine paper - printing market
Fine paper - office market
Fine paper - school market and converting market

Packaging paper - industrial market

For new production and marketing sectors it will be necessary to create new task-areas correspondingly.

Within the scope of outside marketing the essential tasks of a product manager are:

- programme layout
- product development
- in the beginning he will also have to stimulate and promote market oriented thinking within the company

within the field of outside marketing:

- ascertainment, above all, of new demands
- ascertainment of specific product requirements
- in the beginning he will also have to make the market familiar with the new innovations of the Indonesian paper industry.

The product manager, in his field, is the connecting link between market and production. In close contact with the consumers, users, and potential customers he will have to explore and classify the demand, product requirements and customer preferences. Within this scope he will also be a pioneer paving the road to absorption and promotion of direct sales, whose share in the distribution should be increased. In collaboration with the salesmen enough trade he will also have to act as a merchandiser.

In addition, he must be well informed about all international developments in the fields of paper products, paper processing and, of course, marketing in order to give impulses both to the market and to production.

During the initial period one of the most prominent tasks of the product manager, for competitive reasons, will be the quality improvement of the Indonesian paper. Here an important instrument both for the development of a better paper quality and for the effective safeguarding against complaints is the continuous statistical factory supervision and quality control.

The way in which such a working model between market and production can be practically employed is shown in the correlation scheme of Printing - Fine Paper in Table 74. The influence of the quality requirements of the customer with respect to the paper characteristics, exercised via the influence factors on the conditions of production, is clearly shown in that Table. What remains to be done is to replace the symbols with the corresponding values. "Quality is the degree of suitability of a product to satisfy the demands of the customer". Here, as shown in Table 75, attempts should be made to arrive at the highest gap between the value of the degree of perfection and the costs which have to be expended on it.

Explanations on this subject were given to the officials in charge of the various factories. Mr. I. Made Dastri from Leipzig later prepared a summary on this matter.

From all these pointers it is easy to understand that the future product manager must be recruited from the production sector and must have gone through corresponding training. Their new tasks will have to be influenced by some thinking along the lines of a free market economy.

TABLE 74

SCHEDULE OF THE CORRELATION SYSTEM OF PRINTING FINE PAPER

REQUIREMENTS OF THE MARKET, e.g. OF THE CONSUMER	FACTOR OF INFLUENCE: CONSTANCY OF THICKNESS	CONSTANCY OF GRAMMATURE	MOISTURE CONTENT	RESIN CONTENT	SHEET FORMATION	CLAY CONTENT	COMPOSITION OF STOCK
STRENGTH					▲	△	△
RUN		△	△				
APPLICATION IN PRINTING	△	△	△			△	
FLATNESS / DIMENSIONAL STABILITY		△	△				
SMOOTHNESS (SATINAGE)		△	△		△		△
PLUCK + DUST			△	△	△	△	△
OPACITY						△	△
DEGREE OF RESIN CONTENT				▲			
PRINTABILITY				△	▲		△
RATTLE						△	△
GLOSS						△	△
APPEARANCE, BY LOOKING THROUGH THE SHEET					△		
RESULTS OF P.M. RUNNING: UTILIZATION OF SPEED AT PAPER MACHINE					△		
▲ LOSSES OF STOCK		△	△			△	
CONSUMPTION OF STEAM		△	△				

RESULTS IN QUALITY OF THE PAPER:

REMARKS:

△ FACTORS OF MAIN INFLUENCE

▲ FACTORS OF MAIN INFLUENCE, ALSO CAN MAKE TROUBLE

CONDITION OF PRODUCTION	CONSTANCY OF THICKNESS	CONSTANCY OF GRAMMATURE	MOISTURE CONTENT	RESIN CONTENT	SHEET FORMATION	CLAY CONTENT	COMPOSITION OF STOCK
BLENDING				▲		△	▲
CONSISTENCY (%)		▲			▲		
FREENESS			△		△		
pH - VALUE				△	△		
FLOW TO AND THROUGH THE HEADBOX		▲			▲		
SETTING OF LIPS	△	△			△		
SPEED OF P.M.		△	△		△		
FLOCCULATION					△		
VACUUM				△			
PRESSURE AT PRESSES				△			
INPUT OF STEAM				▲			
CALANDERING	△						
MOISTURE SPRAYING				△			

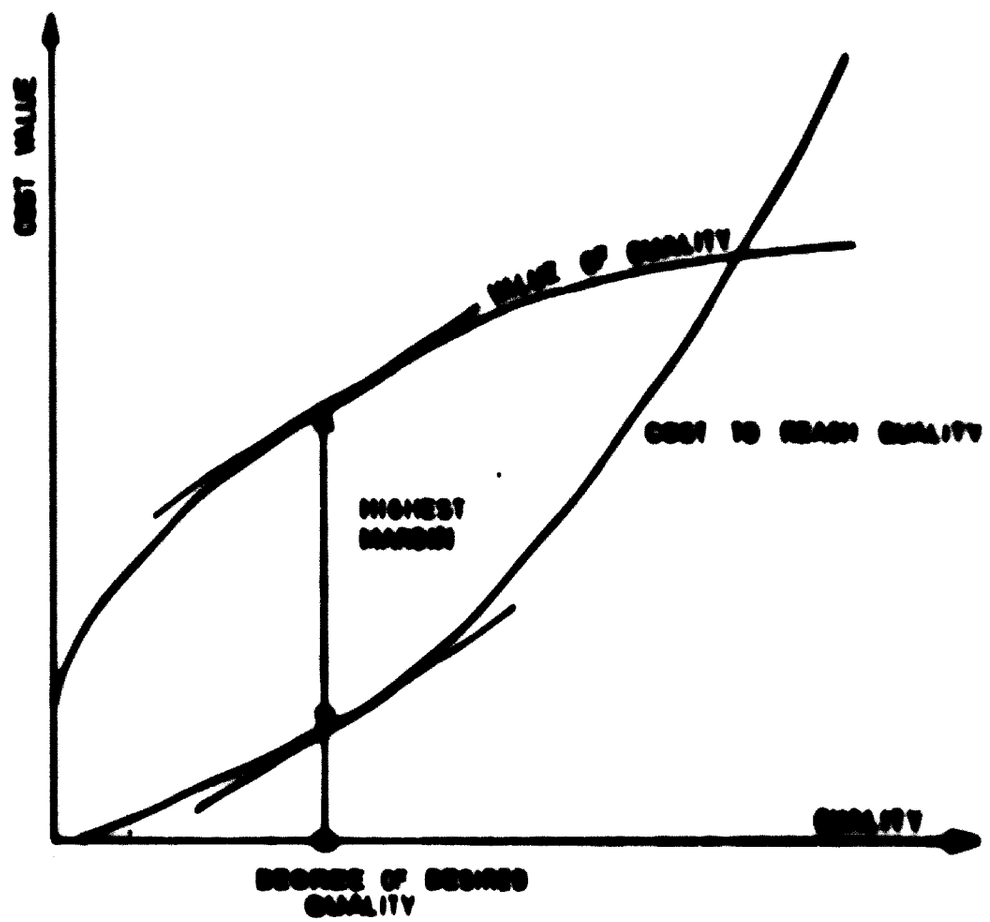
FACTORS OF PERSONAL CONTROL

REMARKS:

▲ ▲ TESTING CONTROL

▲ CONTROL

TABLE 75 | CORRELATION BETWEEN QUALITY AND COST



Annex Assistance in Paper Mill Operation in Indonesia
Assistance in Paper Marketing in Indonesia

3.99 Distribution

The distribution represents the weakest link in the chain of the Indonesian paper mills. To secure the sales, however, the distribution must be developed into becoming a strong link of the new organization. But this must be done very cautiously, for the smooth market connections already existing with the paper wholesalers must not be subjected to any detrimental disruptions.

The author's first suggestion is to employ a distribution manager responsible for the various markets. From this will result his areas of activity and tasks. He will have to engage in a number of point of sale efforts typical within the meaning of sales campaigns. Some of the most important of his tasks will be:

- mobilization of the market for office paper;
- mobilization of the authorities in order to open up new possibilities for purchasing activities (tenders and test tenders by engaging the Indonesian paper industry);
- formation of joint ventures in the sales area with other distributors, e.g. [illegible] van der Steinen Electronic, Toronto, IBM, Dun Antonio and other groups of companies which are already favorably established in the market;
- synchronizing in an operation with the existing paper wholesalers;
- establishing business connections with new business partners above all from industrial quarters;
- classification and evaluation of export possibilities.

There is another consideration in principle that falls in this location should coordination be operated on two planes: one to the consumer? If so, the question is either and how? As far as Djakarta is concerned the author should be "yes" for reasons of better market insight of the wholesale and business sectors, as well as the local processing factories. For other locations, more detailed preliminary studies should be carried out; the same holds true for the question of sales offices and their representatives. The paper wholesalers willing to co-operate should possibly be united to some form of cooperative. Co-operation and joint responsibility could then be institutionalized.

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Assistance in Paper Marketing in Indonesia

3.34 Communication

Considering that Indonesia is still a developing country, we are here chiefly concerned with the problem of raising the factor "a" of paper consumption in the formula (see page 35)

$$C_{pc} = GNP + (a_{pc} \times GNP).$$

In what way and with which means can this factor be raised ? First, it should be noted that this factor "a", which is over-proportional to the growth of the GNP, has its relation to the GNP. Corresponding further development of the gross national product is one of the essential prerequisites. Other factors are

- education and training
- industrialisation
- the consumer's awareness of values, such as
  - the need for information
  - hygiene and
  - beauty.

These factors, which can be more or less influenced by the management of a company, are to be made the prime target of influence if the per capita consumption of paper is to be further increased at an overproportional rate, and it is in this way that the consumption figures estimated in this Report can be pushed upwards.

A great many of the measures to be applied to this end may indeed fall under the competence of other national authorities. Nevertheless, they too can be influenced, e.g.

- by way of a purposive information programme on the cover pages of the exercise-books of school-children, who are the large-scale consumers and future users of paper and paper products, with information on
  - the production of paper;
  - the importance of forests and forestry, as well as the paper industry for Indonesia;
  - the fact that a paper product may keep something clean (packaging paper), but that - in some other case - it must itself be kept clean (exercise-book), and so on;

- by way of government-sponsored use of better Indonesian printing paper for the production of text-books;
- by way of co-operation with both government authorities and private business to promote paper processing companies having a high wage ratio.

Other measures must be directed toward improving the image of the Indonesian paper, above all in competition with imported types of paper. This is most appropriately achieved by increasing, above all, the visible quality characteristics, the make-up and packaging, and the advertisement on the packaging. Here one should take international standards as an example but, at the same time, should develop and maintain a specific, independent character.

In the report-writer's opinion, the measures of direct communication outlined above are the most suitable for Indonesia. Other conventional measures of advertisement may have a supporting effect at some later stage.

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6. ALTERNATIVES AND RECOMMENDATIONS ON IMPROVEMENT OF MANAGEMENT AND ORGANIZATION, INCLUDING PROPOSALS TO THE GOVERNMENT AS FINAL CONCLUSIONS

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4.1 Summarized Remarks about Management

At first, Management will have to be committed to the new form of management, from which will result the first measures to be taken by the Management, such as

- build-up of an efficient organization;
- determination of target planning for the new enterprise with the crucial points of
  - sales planning,
  - new product planning,
  - measures for expansion planning and increase in productivity,
  - long-term expansion planning,
- build-up of controlling bodies which will supervise the adherence to target planning;
- co-ordination of personnel and tasks. Sure enough, Management will often find themselves in a situation similar to a real crisis management, for wherever there are disturbances in the flow of such planning, the Management will have to intervene first and take the decisions necessary for smooth operation.

Further, there are the additional tasks for the juridical and financial substructure of the enterprise in the sense of a foundation planning. At any rate, it will be very valuable if the future Top Management would take a look at other companies of the paper trade in the industrialized countries and, possibly, would ask for assistance in the set-up of the new enterprise and in dealing with the many problems of the tasks lying ahead.

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4.8 Summarized Remarks about Organization

The pointers given herein, of course, can only be of a general nature. In all recommendations on this subject matter, specific Indonesian facts are often to be considered, and the writer wishes to refrain from commenting for reasons of genuine considerateness.

At any rate, long-term organization planning should be set up in the new group of companies. This means that with the organization system to be set up it should be possible to cope also with the various tasks of the enlarged company after expansion, for if all proposals should be realized, this would mean ten times the present sales of the Paper Group up to the end of the 2nd REPELITA.

Concerning the type of organization, a decision must be made whether a system of staffs and central departments or a system of collegiate management is to be chosen.

Since we are here concerned with a quickly changing company with multi-faceted tasks, however, it is believed that a collegial management would be more advantageous for the whole enterprise. For the individual factories it is considered that the employment of assistants offers itself as the proper form of organization.

In any event, there will be a reorganization of the data flow in the future and, hence, all data should, for the purpose of long-term organization planning, be expediently collected and evaluated in such a way that later conversion to electronic data processing can be effected without any major difficulties. This must be accompanied by an early improvement in communication, for smooth operation is jeopardized if telephone calls take hours or even days to be placed.

It is necessary to take the following steps to work out a long-term organization programme:

a) preparation of a listing of tasks

b) preparation of a survey of departments and locations

c) development of an organizational diagram

d) development of a functional diagram

e) preparation of areas of responsibility and job descriptions.

When resorting to a division of work, the responsibility for the execution of the tasks to be completed will increase, whereas a system of collegial management will further the co-operation.

[redacted] Assistance to Pupuk NPK Operation in Indonesia
[redacted] Assistance in Short Marketing in Indonesia

6.3 Summarized Recommendations for Short-term, Medium-term and Long-term Planning

6.31 Marketing Policies

The Staff Department of Marketing and Planning

The short term and medium term tasks of marketing are dealt with in Section 5.11. General Remarks about Strategic Conceptions. The proposals for employing the product and distribution managers are contained in the subsequent sections. Institutionalization of the post of product manager should be arranged together with a market research department headed by a marketing manager. The marketing manager will have the functions of a staff department, i.e. he has advisory functions vis-à-vis the company's top management. His directive powers are confined to his own working group only.

It will be one of the main tasks of the marketing department within the meaning of modern marketing to co-operate closely together with the other departments of the company, as an example the production manager and the production department will co-operate closely in setting up long-term production plans (see Section 6.12).

Experience has shown that it is advantageous to combine the planning department with the marketing group, for the tasks of both departments are present, above all, in long-term company planning. In Section 5.12, The Market of Tractors and Spare Parts, some remarks are given with respect to the tasks of a planning department.

[redacted]

[redacted] Assistance in Pulp & Paper R&D Operations in Indonesia
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Staff Department of Research and Development

[redacted] the [redacted] Department of Research and Development between the staff departments of marketing planning and the great improvement of research and development. [redacted] the role and tasks of the Pulp and Paper Research Institute in Bandung to [redacted] Part II of this Report. Within the framework of rehabilitation and [redacted] the functions of an effective staff department which [redacted] may [redacted] a number of [redacted] like the [redacted] planning but also the management of existing processing techniques. For the purposes of this Study, however, the [redacted] is restricted to the forward moves on the short [redacted] and medium term [redacted] and functions within the scope of the new [redacted] and paper [redacted] and these tasks and functions are summarized hereinafter as follows:

- The development of [redacted] pulps from new fibres and [redacted] and the development of types of paper with improved characteristics [redacted] especially the first phase in the life of this Institute's tasks.

- The Institute should take the leadership regarding standardization of the various types of paper and testing methods. This will [redacted] with representatives of the various types of paper and testing institutes. This will [redacted] with experts interested groups on the one hand and with the paper makers and the laboratories of the individual paper mills on the other.

- While the tasks of the various laboratories should be directed primarily to the improvement of quality control of the factories and to the augmentation of the quality of [redacted] and products developed as well as to experimental testing, the tasks of the Institute are chiefly those of a central laboratory. At this point the writer would also suggest that an inventory be made of all equipment and apparatus available in the laboratories of the factories and the Institute and a meaningful exchange of equipment be carried out prior to purchasing any new equipment to correct the [redacted] The same factory laboratories are [redacted] equipped, others are overequipped.

- Another task of the Institute and source of income at the same time will result from the Institute's examining the paper qualities of imported papers for their correct classification within the scope of new standards to be established for the customs regulations. The Institute will have to take a neutral stand in this matter.

[redacted]

[redacted]

[redacted]

- [redacted]

- [redacted]

[illegible] **Assistance to Paper Mill Operation in Indonesia**
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Sales Division

The sales division is considered to work best as an independent department with equal rights on the level of company management. Pointers on the short term and medium term tasks are contained in Section [illegible], Strategy of Distribution.

With respect to its practical work in the market the new sales division will have to take into account that more than 90% of the paper market is in the hands of the paper wholesalers. Hence the division's first approach must be made rather cautiously and can be justified best with marketing arguments. As an example the following arguments are considered sound and valid:

- Improvement in the quality of Indonesian papers to gain ground in the competition with imported types of paper;
- Personal engagement of product managers in [illegible] with the paper wholesalers to bring them [illegible];
- Build up of a regional organisation of agents and representatives to be able to offer better service. The selection of [illegible] [illegible] should be possible to make use of existing agencies from the wholesalers.

It goes without saying that sales people must possess very high personal and professional qualifications. Today, the job of a salesman is an honourable one and, for the purpose of [illegible] marketing, [illegible] the [illegible] of the Indonesian paper industry [illegible]. All agents and representatives must be trained and prepared for these [illegible] tasks.

The questions of communication and the so-called public relations should, for the time being, be reserved for a personal decision by top management.

[illegible] Assistance to Paper Mill Operation in Indonesia
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6.10 See Product Planning (Specialisation), Planning of Utilisation and Improvement in Productivity and Planning of Expansion

Production planning is a matter for the technical department which, viewed as a whole, will be the largest department with all the elements necessary for every factory.

To carry out the immediate measures of specialisation suggested herein, a

Specialisation Committee

should first be employed. The Committee's tasks are described in the first three paragraphs of Section 1.10.1 General Remarks about the Strategy of Specialisation. They lie in the

quality field,
technical field and
in the costing field.

During the first phase the Committee should compile proposals for direct measures, making use of the results of the statistical operational checks and quality control in the various factories and from the costing sector. Presumably these proposals are likely to be based on those contained in this Report, but these should nevertheless be examined once again, supplemented and worked out in detail.

Here again, for the medium term planning of extension and replacement [illegible], a

Project Planning Staff

must be employed. Since its tasks are both similar and complementary to those of the Specialisation Committee, above all in the technical and costing fields, it would be advisable to arrange and achieve also a congruity of personnel. Detailed proposals on these medium term and long term tasks are contained in Section 1.11 Strategy of Expansion.

Apart from the subdivisions of Production Planning, which is responsible for the planning and organisational flow of production, including order handling and target planning, the field of the Technical Department includes the subdivisions of

Production
Electrical Systems and Mechanical
Engineering (including auxiliary technological
Maintenance

The question of as how far the subdivisions of Purchases/Logistics and Transport are to be jointly handled or whether they are to form separate departments, or whether they are to be assigned to the Financing Department, is more or less discretionary.

[redacted] Assistance to Paper Mill Operations in Indonesia
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4.0 Summarized Recommendations for the Improvement of Financial Management

The Department of the Controller covers the general financial supervision of the accounting and the production supervision in the operational accounting of production control, at which point his responsibility also extends into the field of manufacturing. The short term duties of the controller are listed below:

- Establishing a uniform system of accounting within the companies. To do this, as was explained in remarks to Section 3.11 Strategy of Expansion, measures are also necessary to see that accurate and uniform technical records are kept in the companies and to ensure that they are carefully adhered to. The expert however realizes that this will give rise to a number of difficulties, but in spite of that they must be overcome whatever happens, for only in this way is the top management in a position to take good decisions on the basis of precise records and only in this way can improvements be obtained on the basis of a comparison of the mills.

- The preparation and accepting out of comparisons of mills to certain short term measures to be tackled (Cf. p. 191)

- The direct costing system is also to be set up as soon as possible (Cf. p. 190)

- Direct costing, because of the up to date credit-debit comparison, is the most suitable instrument of the management, especially in the matters of production and sales forward planning and raising profits, to take the correct, that is better, decisions in the shortest time and to take counter-measures. Direct costing is therefore the first step towards effective management.

- The extent to which the finance and credit departments, the legal department and the personnel department should be combined into an independent General Secretariat or incorporated into other departments is again a matter of discretion.

4.5 Proposals to the Government

These constitute a whole range of directly or indirectly supporting measures by the Indonesian state authorities intended to promote the state-owned Indonesian paper industry for the benefit of the country. Essentially, these are measures which contribute towards

- the sustained expansion of production and
- the sustained securing of sales and of their subsequent growth.

The results to be expected from the measures proposed below are

- an increase in the national income in the broadest sense and
- a reduction in the expenditure of foreign exchange.

In particular these are measures to expand production:

Recommendations Regarding the Proposed Merger:

First regarding the concentration, i.e. the merger of all existing Indonesian paper mills. As has been explained in detail in this report, only concerted efforts can enable the paper mills, which are on too small a scale, to survive in the tough competition with the imported paper, can enable most of the existing mills to be further expanded and thus enable the transition to the operation of modern large-scale plant to be prepared and safeguarded.

Procurement of Capital for Extension Projects and New Projects:

As cost analyses have also shown, an extension of existing plants is so very necessary to bring the paper mills out of what, taken together, is a negative balance and to take them over into a positive balance for all the mills. This balance can, by means of supporting measures in the form of a tariff protection, no doubt improve this balance still further, which is proposed, for reasons of an improved investment financing, by means of an import duty. Seen for themselves, however, and that is here the most important fact: all the existing paper mills, even the weakest, can work economically and by careful management turn in a profit up to the end of this decade, at least until the end of the second REPELITA, the modern ones even longer.

If the proposed new investments are to be carried out a total amount, including extension investments, of about

40 billion rupiahs,

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just under 100 million US $, is required under realistic conditions for the period up to the end of the second REPELITA.

How can the financial funds for this and the other measures proposed be raised and made available in the short- and medium-term, and what precautionary measures are necessary to secure the financial aspects in the long term ?

As Graph 76 demonstrates, the paper consumption will rise, with prices remaining unchanged, (basis 1972)

to about 29 billion rupiahs = 70 million US $ in 1974 and

to about 45 billion rupiahs = 108 million US $ in 1978

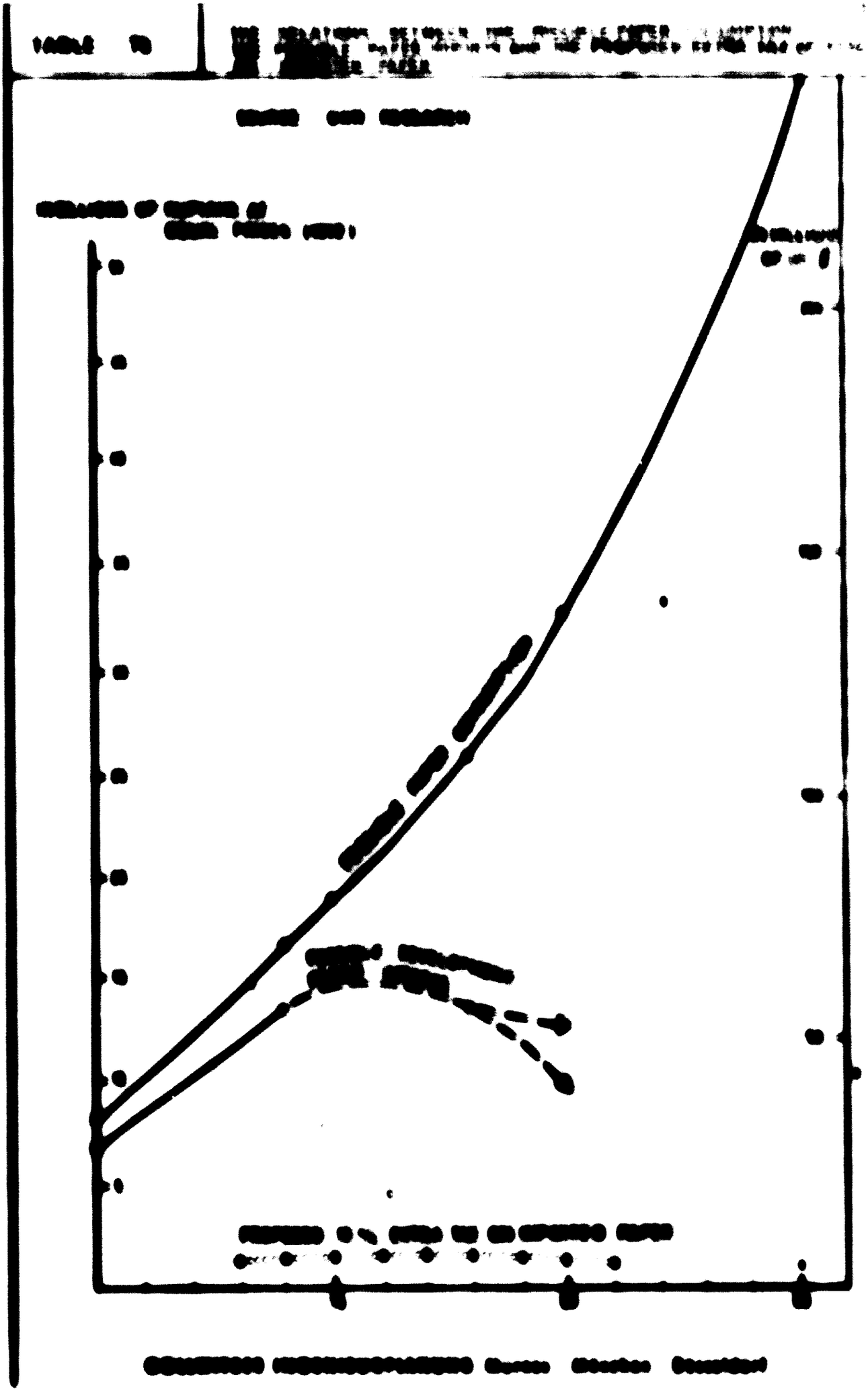
(compare the records on page 140).

The development of the import turnovers will remain only slightly changed in their proportion until 1974 and amount to about 21 billion rupiahs, and as a consequence of the proposed project entering the market, remaining at about the same level, will follow the course of the curve indicated by the dotted line.

If the Indonesian state authorities fix an increase of 10% for all imported paper without exception, this special duty levy, which is likely to add up to some 13 billion rupiahs within the coming two years, can be used to pay in cash for about one-third of the investment costs of the extension projects and the new projects.
A prerequisite for this is that this extra import tax is paid over into a special fund for this purpose.

This special tax of 10%, which the import firms or the domestic market can bear without any serious difficulties, will support, in particular, the price policy measures of the state-owned paper industry, so that it will no longer be at such a great disadvantage in the face of the powerful international competition as has been the case hitherto.

Apart from this relatively unproblematical possibility of raising capital, further ways and means of lowering investment costs and capital costs should be sought, for example, by bringing the credit costs into tolerable limits by lowering the exceptionally high rates of interest.



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Co-operation in the Wood Procurement Area,
Co-operation among the State-owned Companies and
Inter-regional Economic Co-operation

As a supporting measure for expanding the Indonesian pulp industry a number of co-operations are necessary. Most important would be co-operation to solve the various economic problems and co-operation between the pulp and paper industry, on the one hand, and the authorities of agriculture, forestry and transport on the other, to find a consensus on various problems of supplying raw materials. Some of these are problems of regulations, of the infrastructure, of long-term and of realizing transport available, some existing which will on the one hand have to be changed.

In addition, there are also problems between the companies involving the state-owned companies of the Department of the Chemical Industry and other departments of the Ministry of Industry. Of paramount importance here is the supplying of caustic soda, which, as was explained in this regard, made up about 10% of the total costs which is on average roughly 40% above that of the international companies. Joint measures should be taken to secure supplies for companies of paramount importance in Indonesia should such a competitive price. It ought to be generally said that to have an active cost comes from the economy of balance and harmonizing costs by means of large plants like in each pulp mill on the world by operation the most economic kinds of companies.

Co-operations should be designed on both other departments of the Ministry of Industry, above all in the market segments of promising pulps for promising changes, especially for state-owned promising changes and paper processing companies with complying paper and cardboard, particularly in questions of marketing and opening up the market for new kinds of paper. In the market segments for both such paper steps have already been taken in this direction, which, however, should be pursued further to identify the reasons of supplying the market with competing products such as plastic sacks and sacks woven out of plastic thread.

Tasks in the economic sphere of foreign trade could be joint contact partnerships with Indonesian companies in the pulp and paper industry and in the sphere of export promotion.

There is to advocate that the Indonesian paper industry should have the prerogative to determine business policies only, as far as

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[redacted] provide, inter alia on the request of part of the goods produced, to be processed in the country.

Another task within the framework of foreign trade is to be found in the possibilities of co-operation to regional economic areas. Co-operation with the south east Asian countries have also benefit the prospect of a larger [redacted] market emerged also in Indonesia.

Business Strategy

An activity must ensure to protect against the competition with the [redacted] international competitive protective measures should be recommended. In addition to the recommended against competitors, supporting protective duties should be recommended to protect the domestic paper industry, especially against foreign [redacted] In section 5.1.1 on the Market Price Situation and Policy explanations are given.

All imported paper should be checked on the spot by experts from the Exchange Institute to see that the declarations are correctly made. This makes it possible, without causing any great disruption to the continual trade, to organize the various trade [redacted] more the well subdivided ones and to punish offenders. The best way will thus have an extra income through [redacted] which in a considerable degree can be charged to the import duties to be received and

Ideal Sample of Kraft Liner Paper

As was described in section 5.1.1 under "Liner Paper the Ideal Kraft Liner Paper", after a paper should be chosen directly from the store record cards. As was also stated in that section, this paper characterized by the Kraft sign should be compiled by the collection by the testing method, which could be the best, as the market research showed, that statistic have considerable value compared with the method of testing practiced until now.

Further engineering measures can be taken by the Ministry of Education for improving the make up of the executive bodies and the use of better grades of Indonesian paper for test tasks. The advantages of such measures are regarded in sections 5.1.1 under "Ideal Paper Market" and "The Market System of Printing Paper".

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Educational and Training Measures

To ensure the training of new staff the authorities responsible for the Bandung Cellulose Institute should take the appropriate measures and, with outside financial, technical and staff aid, should first set up the Institute on a firm legal basis. The I.T.B. in Bandung can also be approached in the matter of training engineers. Further proposals on this are to be found in Part 4.

On the matter of engaging foreign experts and institutions it should be added, even from the report-writer's own point of view, that the Indonesian Government authorities should see to it rather themselves and, if possible, beforehand that the co-ordination is improved.

[redacted]

[redacted] Assistance to Pulp & Paper Operation in Indonesia
[redacted]

A.1 Targets for the Indonesian Pulp & Paper Industry Regarding the [redacted]

A.11 [redacted]

The Government and those who are to be charged for a reasonable time to come are, as also held down in the "directives", the following:

Goals: Research and Development
Aims: Production of Chemicals and Engineering Services
Lectures and Training
Publications

In fact the activities cover the fields:

- Pulp & Paper Chemicals
- Pulp & Paper Pulp
- Pulp & Paper Mill
- Rehabilitation of the environment

All the given proposals are made only for the fields of pulp & paper, which chiefly involve process, i.e. short- and medium-term problems. This does not rule out any future expansion of activities into other complementary fields, such as, for example:

- fields of paper processing such as
  - coating
  - printing (paper as a vehicle for print)
  - packaging

  and then the corresponding plastics and so-called plastic papers
- [redacted] in connection with paper research and
- in connection with the use of plastic foils and plastic threads, problems of extraction techniques

The proposals for incorporating the Institute as a small department of the new group are described in more detail in Section A.12.

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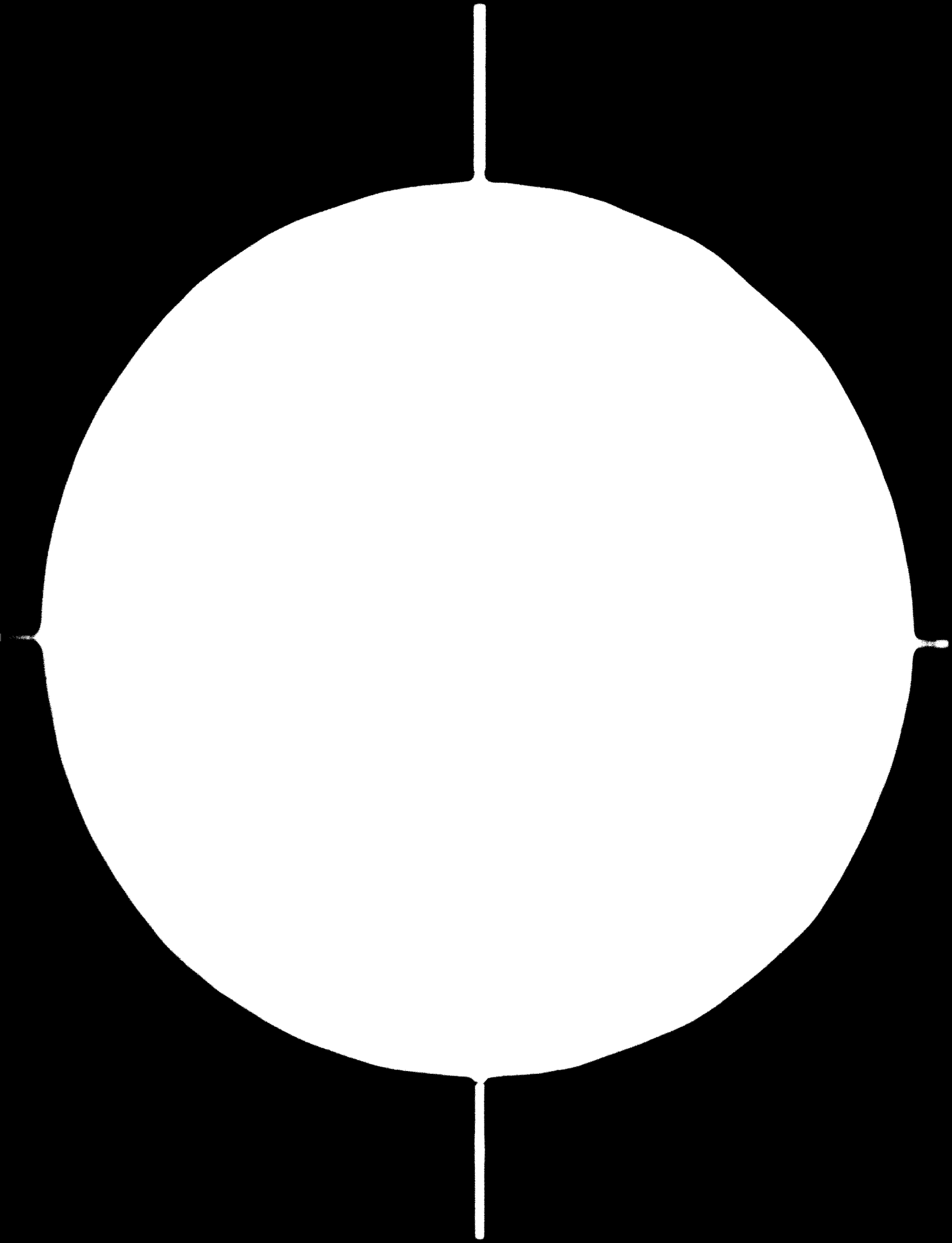

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5.12 Actual Targets for the Co-operation with the Indonesian Paper Industry

5.12.1 Research and Development Programmes

Selection of fibrous raw materials and pulp processing programme:

Of prime importance here is the use of domestic fibrous raw materials for the purpose of producing paper. First it is a question of selection. A few basic remarks on this are called for. First the availability has to be established. The compilation below gives only one idea on the use and on further investigations. This compilation cannot and does not claim to be complete and it must be supplemented.

In addition to questions of occurrence, transport, of the growth cycle and second growth, of debarking, chipping and storing, questions as to the suitability for paper materials as bleached or unbleached pulp, semi-chemical pulp, cold soda material, ground wood, etc. should be examined. At the same time questions of mixed cooking or of subsequent blending should also be looked into. New fields of application, such as fluting, board and hardboard, are also to be considered. These investigations must be subordinated to priorities, in order to obtain the necessary findings as quickly as possible and should be appraised by the Planning Department with regard to their technical and economic chances of being turned into projects and carried out.

The following research and development projects are at issue here:

1) Improvement of the straw digestion process in Letjes, Blabak and Padalarang. The starting points and the requirements are different in these plants. They have already been dealt with in earlier discussions and the production requirements can be gathered from the proposals made in this report; the ways and means of tackling the systematic and controlled improvement of production are described in section 3.23 Product Strategy.

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2) Improvement of the bamboo digestion processes especially in Banjuwangi and in Gowa. The same comment applies to this as in the previous point. Here it is especially important to consider mixed cooking and blending.

3) Using, among other things, bagasse for the proposed newsprint project and for the project for simple corrugated paper.

4) Using, among other things, tropical hardwoods or plantation woods for new fine paper and kraft paper projects, including the use of market pulp and market ground wood for the existing paper mills (see the proposals for Martapura in the report).

Raw Material	Suitability for (bleached) Pulp	Suitability for Ground wood	Occurrence	Remarks
1. Wood which can be used in forestry:				
Pinus merkusii	excellent	excellent	North Sumatra scattered over Djawa	Necessary to make precise survey of forest stocks
Agathis	good	good	scattered over Kalimantan and Djawa	
2. Timber from tropical forests:				
Meranti	useful	?	Kalimantan	Necessary to take stock and make further investigations
Mangrove	useful	?	Kalimantan and other islands	
Nipah				
Rosella				
3. Wood which can be used in plantations:				
Rubberwood	useful	?	Kalimantan Central Sumatra	Necessary to take stock and make further investigations
Eucalyptus	good	useful	Planting should be considered	
Plants:				
Bamboo	can be made good use of in mixtures	---	limited plantations	Improvement of digestion investigations into mixtures
Kenaf				
4. Plants which can be used agriculturally:				
Rice straw	can be made good use of in mixtures	---	Djawa and other islands	Investigations into mixtures
5. Industrial Residue:				
Bagasse	can be made good use of in mixtures	---	East Djawa	Improvement of digestion investigations into mixtures
6. Waste Paper:	good	---	in towns only paper processing works	Recording

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Paper Making Programme:

At first - for the time in which there is still no actual paper technical college available - it is a question of tasks which have to be carried out with a

Product Development Team

of the paper mills. Now that, as a result of the report-writer's proposals last year, the first steps have already been taken in this direction, the most important duties of this Team are summarised once again:

1) Improvements to the pulp grinding of short fibrous raw materials. Altogether this is a long-term programme of great importance, since by far the largest part of the domestic raw materials are of a shorter kind. Here the assistance of other pulp and paper institutes and machine factories should be sought.

2) Improvements in the pulp composition by blending with other fibrous raw materials.

3) Mucilage check investigations in the paper mills.

4) Investigations to improve the wet strength in the wet end section of the paper machine, especially in the case of the short-fibered raw materials.

5) Compiling an overall study to improve the purity of the surface property and of the whiteness of all Indonesian paper, in order thus to be able to put paper which has a better appearance and make-up on the market.

6) As a suitable basis the records of the statistical operational and quality controls which are continually being made in the mills can be used. It is therefore recommended that the staff of the Institute help to set up and supervise these statistical checks.
Cf. also section 3.32 Product Strategy.

In conclusion the proposal is also made at this point to change the name into "Cellulose and Paper Research Institute".

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Chemicals and Allied Product Programme:

Special bleaching chemicals and other auxiliaries for the Indonesian paper mills are already being manufactured in the chemical plant of the Institute. Experiments to produce CMC and other materials are being made. Programmes of this kind seem worth promoting in any case, and a study should be carried out to find out for which other digestion and auxiliary chemicals the Institute can provide some or all of the help in producing. It is also suggested that all the relevant foreign suppliers be asked this question and that any further decisions should be taken after that with the responsible purchasing departments of the paper industry. This is necessary in particular to lower the disproportionately high share of the costs of chemicals. See also section 4.5 Proposals to the Government, Co-operation among the State-owned Companies.

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5.12.2 Education and Training Programme

Proposals have already been discussed in Indonesia for the use of staff and material funds of the Institute for the education and training of the engineers, the technical staff and the laboratory workers; further references are to be found in section 4.5 Proposals to the Government, on training new staff and 4.31 Marketing Planning on the staff department Research and Development.

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5.13 Paper Standardization Programme

As explained in the preliminary discussions, the Cellulose and Paper Research Institute should take the initiative in sponsoring a paper standardization for Indonesian paper. This should be co-ordinated with the competent authorities, the Indonesian and international standardization boards and with other interested economic bodies and the paper industry. Concrete proposals have already been made to the Indonesian counterparts on the ways and means of tackling this, and documents have been handed over or sent in. This is further referred to in section 2.23.1 under the discussion of qualitative analyses.

Part of the work of the Institute is also the proposed use of the Institute to provide neutral expert opinion and to supervise and adhere to the regulations relating to the protective duties (cf. section 4.5 Proposals to the Government on protective customs duties).

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5.14 Equipment Recommended for the Paper Research and Development Department

A first proposal has already been submitted to the management of the Institute.

For the first procurements which are urgently required for the paper testing laboratory the following testing equipment is proposed in addition to the air-conditioning plant to be supplied in Indonesia:

(As the information on this equipment was obtained in Germany, the prices are quoted in DM free the German place of despatch without packaging and other charges.)

I.	Laboratory equipment	
1.	Jokro Mill	DM 21,260.--
2.	Brecht-Holl Classifier	DM 9,055.--
3.	Sheet Making Machine, ZBTF	DM 10,335.--
4.	Freeness Tester, Type SR 1	DM 1,350.--
5.	Freeness Tester, Candian Std.	DM 3,100.--
6.	I.G.T. Printability Tester Model AIE	DM 6,600.--
7.	2 Quachant Balanees Model QW 200	DM 754.--
8.	2 Bample Cutter P.S. 100	DM 394.--
9.	Brightness Tester	DM 760.--
10.	P.H. Meter, Type 111, complete with standard electrodes for ordinary measurements and paper surfaces	DM 1,405.--
11.	Stiffness Tester according to Schlenker	DM 1,420.--
12.	Abrasion and rubbing tester, System OSER	DM 2,525.--
13.	Sunfree Pyrometer M 103	DM 590.--
14.	Mierosege Projector, Type 4014/B	DM 10,907.--
	Laboratory equipment	**DM 70,455.--**

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The following remarks are made on the pilot plant equipment which, depending on the appurtenances with DM 150,000.-- to DM 200,000.-- for the plant can probably be bought on the above-mentioned terms. As in Martapura, Kalimantan, an operational plant run by the Cellulose Institute with a smaller paper machine is available, the paper machine to be established in Bandung can be kept smaller in its appurtenances. This enables fundamental statements to be made on the suitability of new raw materials for the manufacture of paper and on the effect of mixing raw materials and the use of ancillary materials with sufficient operational safety. And this is adequate for the tasks of the next few years, especially because a plant for experimental purposes which is technically operational is available in Martapura.

Below the proposed equipment for setting up a paper pilot plant:

II.	Pilot Plant Equipment
1.	Complete paper machine
2.	Hydra pulper
3.	Refiner
4.	Screener and Centri-cleaner equipment
5.	Pumping equipment
6.	Control and regulating equipment

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5.2 Targets of the Cellulose and Paper Research Institute of Bandung in Co-operation with ECAFE, and other Targets

The possibility of employing the Cellulose and Paper Institute in conjunction with the tasks of the ECAFE countries lies in the fact that so far there is no comparable institute in this economic area. The tasks of this organisation must come from there, and since the report-writer has had no actual insight into the range of these tasks he would, in all fairness, prefer not to comment on this aspect.

It must be said on the aspect of the possible willingness of this Institute to carry out tasks assigned to it of a supra-regional character that in principle there is a readiness, if the following conditions are fulfilled:

Firstly: the excellent facilities for the pilot project for the production of pulp and testing must be completed by the proposed paper-technical equipment.

Secondly: Experts from other internationally recognised institutes or central laboratories of major pulp and paper mills should give the Bandung Institute support in the initial stage.

In conclusion, the following suggestion should be made. The position of the Bandung Cellulose and Paper Institute can, seen on an international scale, lead to new and interesting tasks, as a result of its equatorial location, for evaluating problems involving paper and packaging techniques for tropical zones.

Munich, November 30, 1972

GOLLWITZER INGENIEURPLANUNG & Co.
ppa.
(Rahmstorf)

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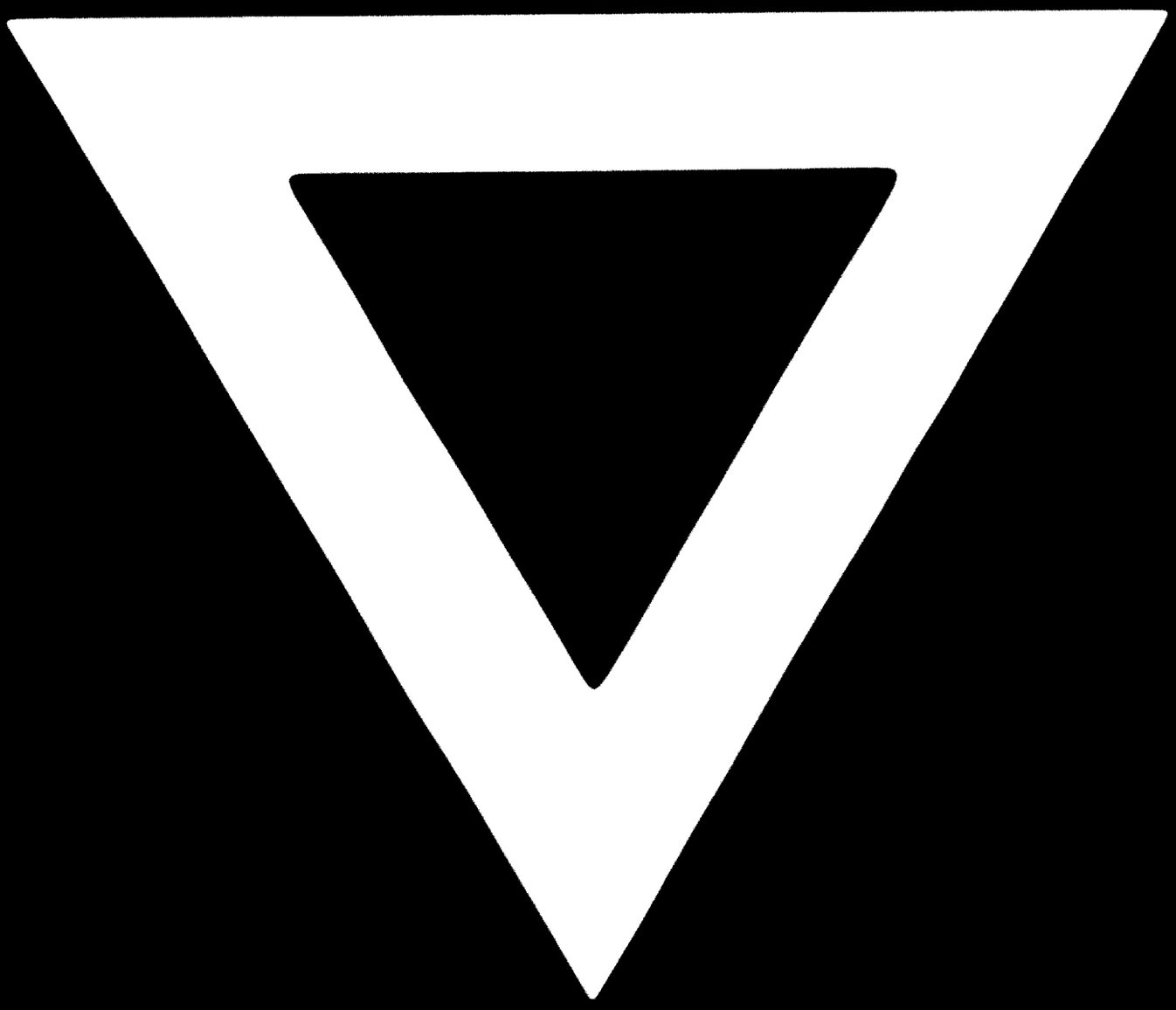

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