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Distr.
LIMITED

ID/WG.104/5
7 September 1971

ORIGINAL: ENGLISH

United Nations Industrial Development Organization

Expert Group Meeting on Packaging
Vienna, Austria, 20 - 22 October 1971

LOCAL PRODUCTION VERSUS IMPORT OF PACKAGING MATERIALS AND READY-MADE PACKAGES 1/

by

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id.71-7075

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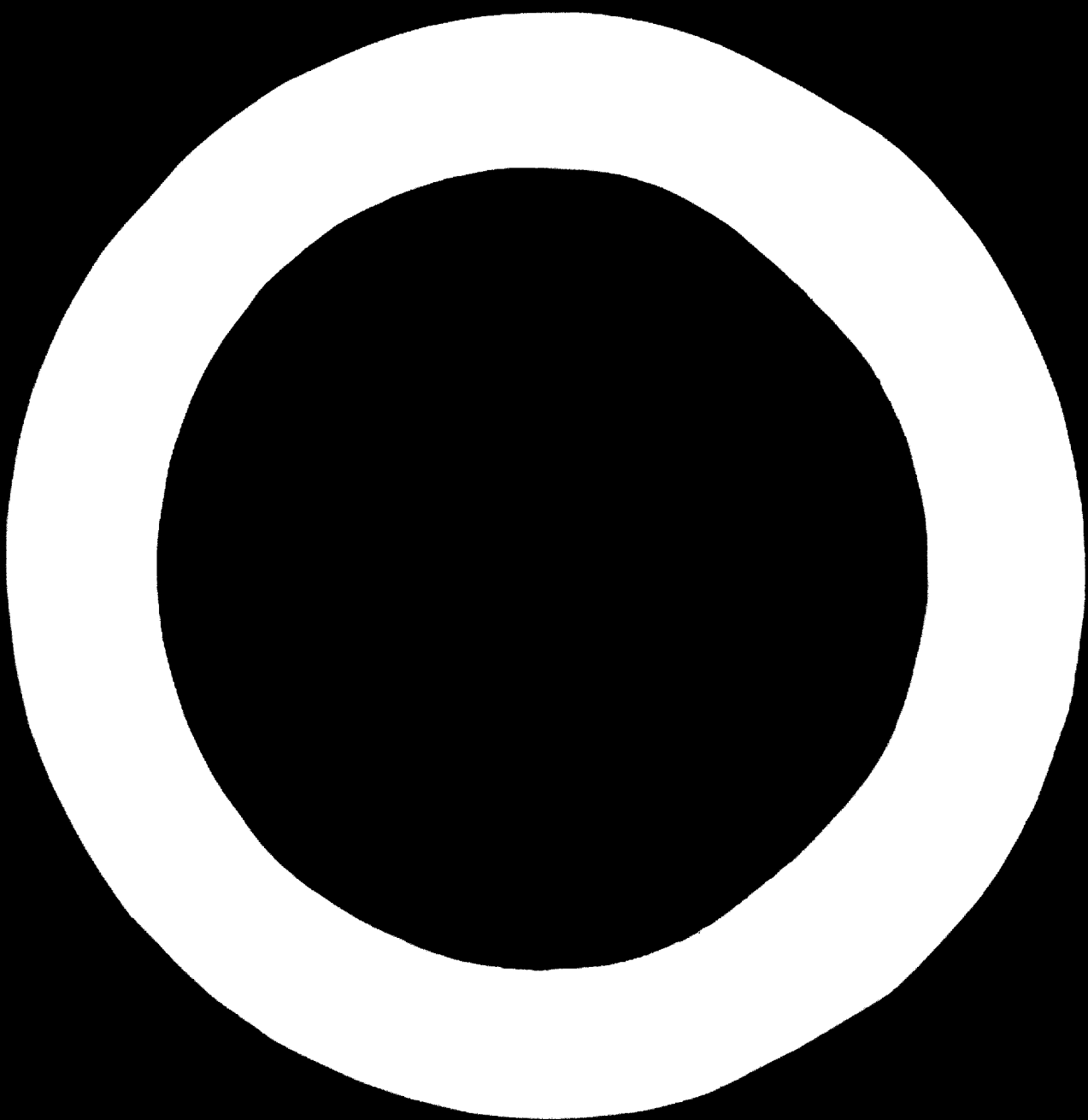

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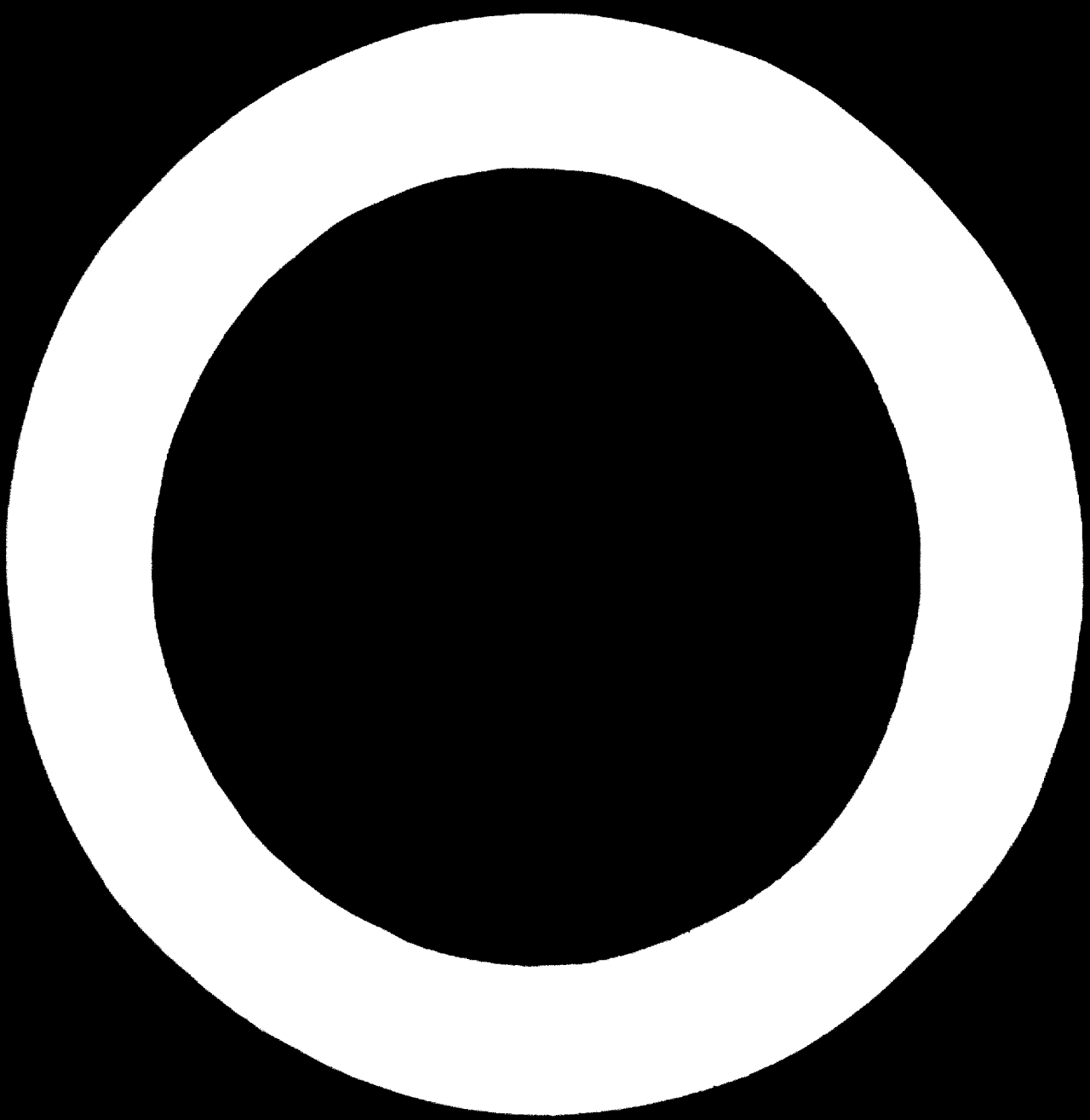


CHAPTER 1

INTRODUCTION

Recent trends in integration of trade and thereby also in industry already contribute to one part of the solution of the problem we are discussing. If we imagine fully integrated trade between all nations, we will probably also see a well-developed diversification of industry in each country more or less depending on local natural resources, availability of raw material, special skills, etc. It may take 10 or 100 years before all trade barriers are pulled down, but I think it would be wise even today to prepare for integration by refraining from unnatural investments purely because of national pride or some other irrelevant reason. My first conclusion is therefore :

Do not consider local manufacturing, unless long-term natural conditions exist

The choice between local production and import may be influenced at least partly or from time to time, by politics, general economic conditions, trade policy and balance, even by labour considerations, but it should never be turned into a matter of national pride and implementation only for the good of the cause. I can think of many reasons for irrational short-term planning. And of course there may be some strategic thinking even in the peaceful field of packaging - a safeguard aiming at self-support during international crisis.

I would like to approach my subject by investigating the following aspects :

A. A country's long-range need of packaging materials and packages from the quantitative point of view = volume aspects

B. The same thing from a qualitative point of view = quality aspects

C. The feasibility of local production

D. Conditions for rational importing

CHAPTER 2

A. VOLUME ASPECTS

The starting point in the discussion is an evaluation of the present and future consumption or requirements for each type of package measured in quantity. This evaluation should be made through a five and ten year projection into the future taking into consideration as many known and predictable factors as possible. Some of these are:

- the development of living standards and GNP
- the development of the industry needing packages for their products
- the rise in home consumption of packed products
- the rise in export of packed products

In most instances these projections have a tendency to get too optimistic. One particular thing which must be avoided is to put too much emphasis on per capita consumption in other countries without a careful analysis of the reasons behind such figures. The results of such calculations should then be worked upon considering the following two aspects:

1. When is the most economical time to invest ? Is the time ripe now, in five year's time or in ten year's time ? Is it more economical to start now, using only half the capacity of the machinery, or is it better to wait for full utilization before investing ?

2. Usually there are roughly three different phases of production:

   a. manual production, inexpensive and slow machinery

   b. automatic, but comparatively slow production, second-hand or light-construction machinery, reasonable investment

   c. full scale automatic production: new and fast machinery, heavy investment.

Quantity predictions should be checked against each of these variables making separate feasibility studies for each alternative along the time axis of the predicated ten year consumption trend curve.

This procedure may seem complicated, but it may well be that it turns out to be more economical to wait for the consumption to reach the level justifying full scale automatic production before an investment in local production is economically feasible. In the meantime it may be more economical to import the products from somebody abroad already using this category of production facilities.

CHAPTER 3

B. QUALITY ASPECTS

A clear distinction between packages for local consumption and for exported goods should be made from the beginning. If we are talking about developing countries, which I believe we are, this distinction is very much more accentuated. Again therefore two basic points to consider:

a. The quality requirements for packaging used locally should not be overestimated, but should be kept on a practical but still efficient level. Among other things this means that the quality should primarily protect and preserve, to minimize damage, wastage and contamination of the goods.

b. The quality requirements for packaging of goods intended for export should on the other hand, never be underestimated. Strength and sales appeal in export packaging are properties which unfortunately are very often over-looked, especially when the exporter is a developing country and the importer an industrialized country with high living standards and tremendous competition for the soul of the consumer, using all the tricks of sales appeal - psychology in retailing.

As a fair rule of thumb it would probably be most effective in most cases to stick to locally produced packages for domestic consumption and import more sophisticated packages for products intended for export. Only in rare cases will it prove economical from an overall point of view to dimension local production at the quantity level required for export packaging.

CHAPTER 4

C. FEASIBILITY OF LOCAL PRODUCTION

Since the quantity aspects have already been dealt with, we shall now concentrate on some new factors which must be studied before a sound decision to invest in local production is possible. I will try to relate each point to the alternative of importing, thus illustrating the different aspects from both sides.

1. Raw materials

One of the basic questions to start with is the local availability of raw materials. Again we find several stages to consider, e.g.

a. wood - cellulose - paper/board

b. oil - monomer - polymer - plastic films

c. iron ore - steel - metal plate

d. sand - glass

The following factors, at least, should be studied:

- the required investment and possible return on investment, when moving from one stage to another
- the added value for each consecutive stage
- the cost of know-how for each consecutive stage
- the labour requirements for each consecutive stage
- the cost added by transportation (import)
- the possibility of exporting eventual surplus capacity

2. Converting

All the above-mentioned factors should also be studied when moving further towards the end product ready-made packages. Following the same pattern, the converting operations could be roughly divided into the following groups:

a. **paper/paperboard:** printed wrappers, multiwall paper sacks, grocery bags, corrugated and solid fibre boxes, folding cartons, coated and laminated paper and board,

b. plastics: films, bags and heavy-duty sacks, laminates, blow and injection moulded packages, vacuum-formed packages, etc.,

c. metal: metal cans, pails, drums, aerosols, etc.,

d. glass: bottles and jars, etc.

Special attention should be paid to:

- whether extensive technical know-how is required in production
- the economic consequences of high-speed mass production (import) versus limited local production
- the differences in the total cost picture considering inexpensive labour + low productivity versus expensive labour + high productivity
- maintenance and spare part service availability
- supply of accessory materials and services, such as printing plates, cutting dies, inks, adhesives, etc.

When studying the feasibility of any converting operation, one should be very careful not to accept capacity and speed figures given by the manufacturers of the converting machines. These are as a rule given for ideal conditions using the best possible raw material, long runs, skilled labour, first class accessory materials, fast and efficient servicing in case of breakdowns, etc. It is difficult to give any overall "adjustment factor", but I believe that manufacturing operations in developing countries must reduce maximum productivity even under ideal conditions by at least 30%, maybe even 50% in some cases, which sounds very unpleasant, but can nevertheless be considered realistic. In this connection, I recommend the use of outside consultants or technical experts, first to run the machines in and train the labour and afterwards to check performance and productivity at regular intervals.

CHAPTER 5

D. CONDITIONS FOR RATIONAL EXPORTING

Let us first look at some typical situations when import of packages or packaging materials is advisable instead of local production in a developing country. Some of the points have already been discussed but are included once more to make the list as comprehensive as possible.

1. The consumption volume is too small to be economically produced locally.
2. Heavy investment is required for local production facilities.
3. The transportation costs for imported goods are small - products are expensive and/or do not require bulky transport volume.
4. Production requires highly skilled workers, extensive know-how and first class accessory materials/maintenance and service.
5. All or the major part of the raw materials must be imported - the value added by local production is low compared with the necessary investment.
6. The packaging specifications are internationally standardized and can thus be produced cheaper by big and specialized units abroad.
7. The products to be packed are mostly intended for export to highly sophisticated markets abroad.
8. The packages are to be used on fast, automatic packing machinery requiring high accuracy of packages and packaging materials.
9. The trade balance conditions favour import from typical packageproducing countries.

At this stage in the argument let us assume that a decision has been made to import all or at least the more sophisticated packages from abroad and that the decision is based upon a truly unbiased and thorough feasibility study. Then we come to the point when we can ask ourselves: Are the users of packages and packaging materials in the developing countries equipped to handle the importation procedure in an effective, rational and economical way ? My experience within this field unfortunately forces me to answer this question in the negative. I think therefore it would be advantageous to set up some points and guidelines about the most important factors to pay attention to in this connection. I believe we can find many things even for UNIDO to do now or in the future within this field.

1. First of all it is a question of education. By this I do not mean an education programme with the ultimate aim of training people to become packaging engineers. This level of education is, as we all know, not even solved in most of the highly industrialized countries. What I have in mind is some sort of a crash course for buyers of packages and packaging materials. According to my experience, the basic principles could be explained in the course of a few days, using specially prepared material such as check-lists, standard specifications, etc. This would probably be an important and worthwhile task for UNIDO with the assistance of the local Packaging Institutes.

2. The most important thing would be to start using some kind of standardized specification sheets to be used by the buyer when communicating with various suppliers. The situation today is that the specifications received from the buyers are so incomplete that the supplier can quote for almost any specification. This in turn leads to an impossible situation for the buyer - offers are impossible to compare and may even not serve the most basic needs. To set up proper specifications, the developing countries need expert help - I hope you will all agree to that.

3. Every country would have the chance of using some sort of testing facilities both for evaluating submitted offers/samples and later on to be able to check delivered goods against specifications. I again wish to point out that I do not mean a full scale packaging testing laboratory, but even a scale for checking the basic weight of paper and board would in many instances be of great help.

4. Particular attention should be paid to finding the most economical material, which as we all know is not necessarily the least expensive one. Runnability and consequently productivity using the right material more often than not covers up for differences in price.

It is very easy to quote for sub-standard materials and get away with the order, but in the long run the economical result in such a case would be unsatisfactory. The buyer, especially in the developing countries, is usually paying little or no attention to this aspect of rational buying of packages and packaging material - the reason being in most cases either ignorance or lack of knowledge. The only thing I can add to this is that it is very easy and convenient to buy at the cheapest price.

5. Enough time should be allocated for the importing procedure. One should realize that this requires much longer-range planning than is the usual practice today. The time required to get the offers in and compare them (3-4 months) together with the delivery-time, often from a faraway country, (2-3 months) makes it virtually impossible to get anything done in an economical and rational way in much under six months especially for a new specification.

CHAPTER 6

CONCLUSIONS

Before I end this paper and start the discussion I would like to point out a very special problem connected with the question of local production versus importing. During th last few years, and even today, it has been a widespread practice for government in different parts of the world to initiate the start of local production and then put up customs barriers against import, thereby creating an unnatural local price level. This of course means it is possible to save on the often scarce supply of foreign currency, but the consequences for the buyers are, of course, not very economical.

A recent example even showed two competitors each setting up a factory to produce packages so as not to become dependent on the other, who intended to hide himself behind a sudden rise in import duties. The first investment would probably have paid off in the long run, but the second investment, which was made in self-defence, resulted in a tremendous overcapacity and very unsatisfactory return on the capital invested for both parties. I am not a great believer in artificial trade barriers and if you call me biased in this respect I accept it, but I think that this particular problem has a very important role to play in connection with the subject which we are discussing now: "Local production versus import of packaging materials and ready-made packages.

HOW TO MAKE A NEW PACKAGING MACHINE PAY FOR ITSELF

Formula

$$\frac{I}{\frac{W1\ S1\ P2}{P1} - W2\ S2}$$

I = investment in new machine

Number of workers	W1 = old method	W2 = new machine
Daily salary per worker	S1 = " "	S2 = " "
Produced units per day	P1 = " "	P2 = " "

Examples: Erecting and closing of folding cartons, old method

Speed 5 units per minute, 300 units per hour = average 2000 units per working day. Requirement 8000 units per day, which means by the old method 4 workers. Speed of suggested new machine 20 units per minute = 8000 units per day. New machine costs US$ 5,000.-.

Two alternative calculations made:

A. Daily salary old method US$ 3,-, new machine US$ 4,- per worker
B. Daily salary old method US$ 8,-, new machine US$ 10,- per worker

A1.

$$\frac{5000}{\frac{4 \times 3 \times 8000}{8000} - 1 \times 4} = 625 \text{ days}$$

B1.

$$\frac{5000}{\frac{4 \times 8 \times 8000}{8000} - 1 \times 10} = 227 \text{ days}$$

If there is a simultaneous need for increased capacity, say from 8000 to 20000 units per day the pay-off time is shortened, because the price of the machine does not rise in the same proportion.

A2.

$$\frac{10000}{\frac{4 \times 3 \times 20000}{8000} - 1 \times 4} = 400 \text{ days}$$

B2.

$$\frac{10000}{\frac{4 \times 8 \times 20000}{8000} - 1 \times 10} = 143 \text{ days}$$

The average annual savings per year during a depreciation period of 5 years can be calculated as follows:

$$(W1 \times S1 \times D) - \left[\left(\frac{I}{T} + R\right) + (W2 \times S2 \times D)\right]$$

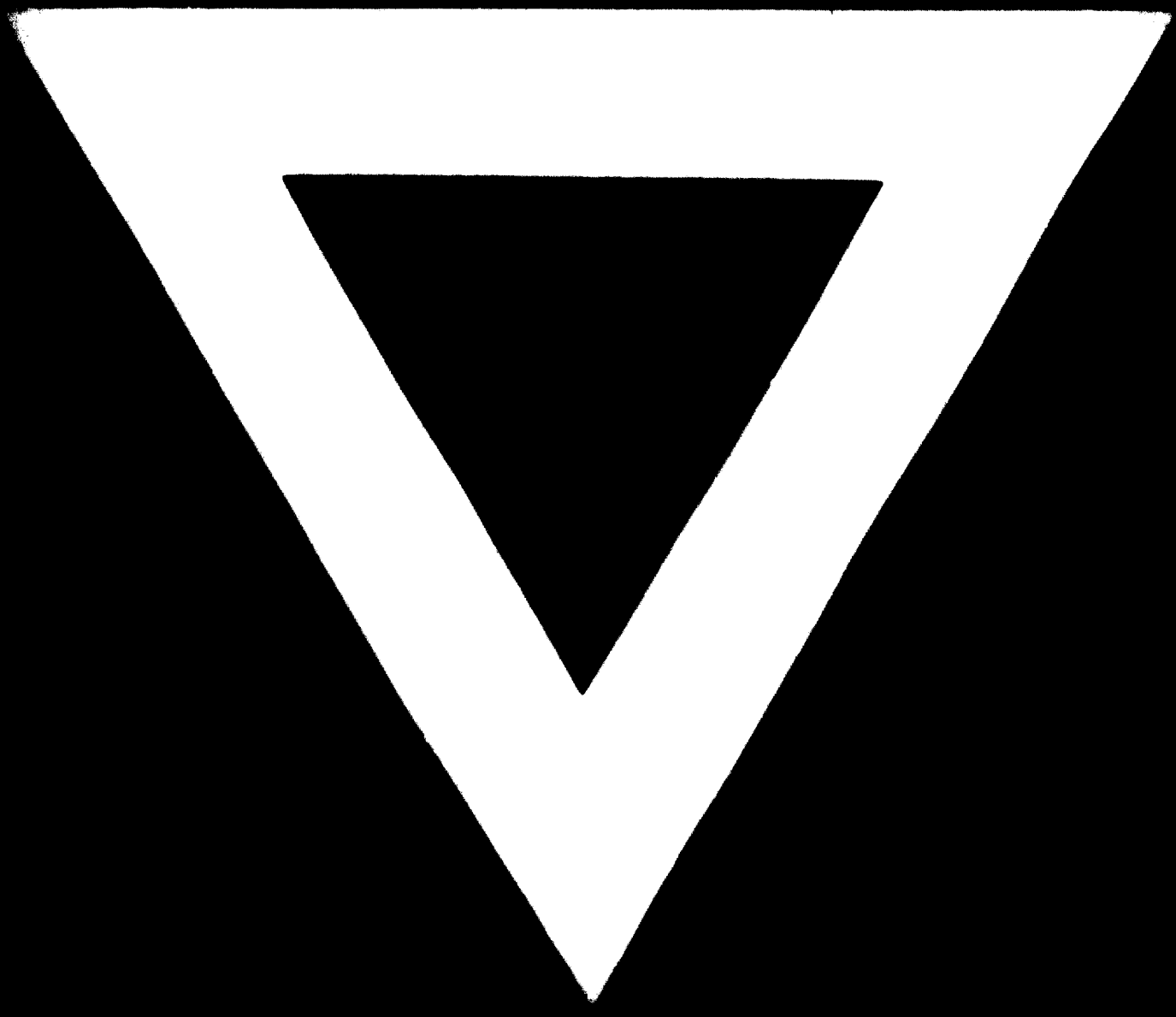
D = working days per year (250)
T = time of depreciation (5 years)
R = rate of interest (10%)

A1 $(4 \times 3 \times 250) - \left[\left(\frac{5000}{5} + 500\right) + (1 \times 4 \times 250)\right]$ = US$ 500,-/year

B1 $(4 \times 8 \times 250) - \left[\left(\frac{5000}{5} + 500\right) + (1 \times 10 \times 250)\right]$ = US$ 4,000.-/year

A2 $(10 \times 3 \times 250) - \left[\left(\frac{10000}{5} + 1000\right) + (1 \times 4 \times 250)\right]$ = US$ 3,500.-/year

B2 $(10 \times 8 \times 250) - \left[\left(\frac{10000}{5} + 1000\right) + (1 \times 10 \times 250)\right]$ = US$ 24,500.-/year



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