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D02935



Distr.
LIMITED
ID/WG.104/6
13 September 1971
ORIGINAL: ENGLISH

United Nations Industrial Development Organization

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

EDUCATION IN PACKAGING: FORMS AND METHODS ^{1/}

by

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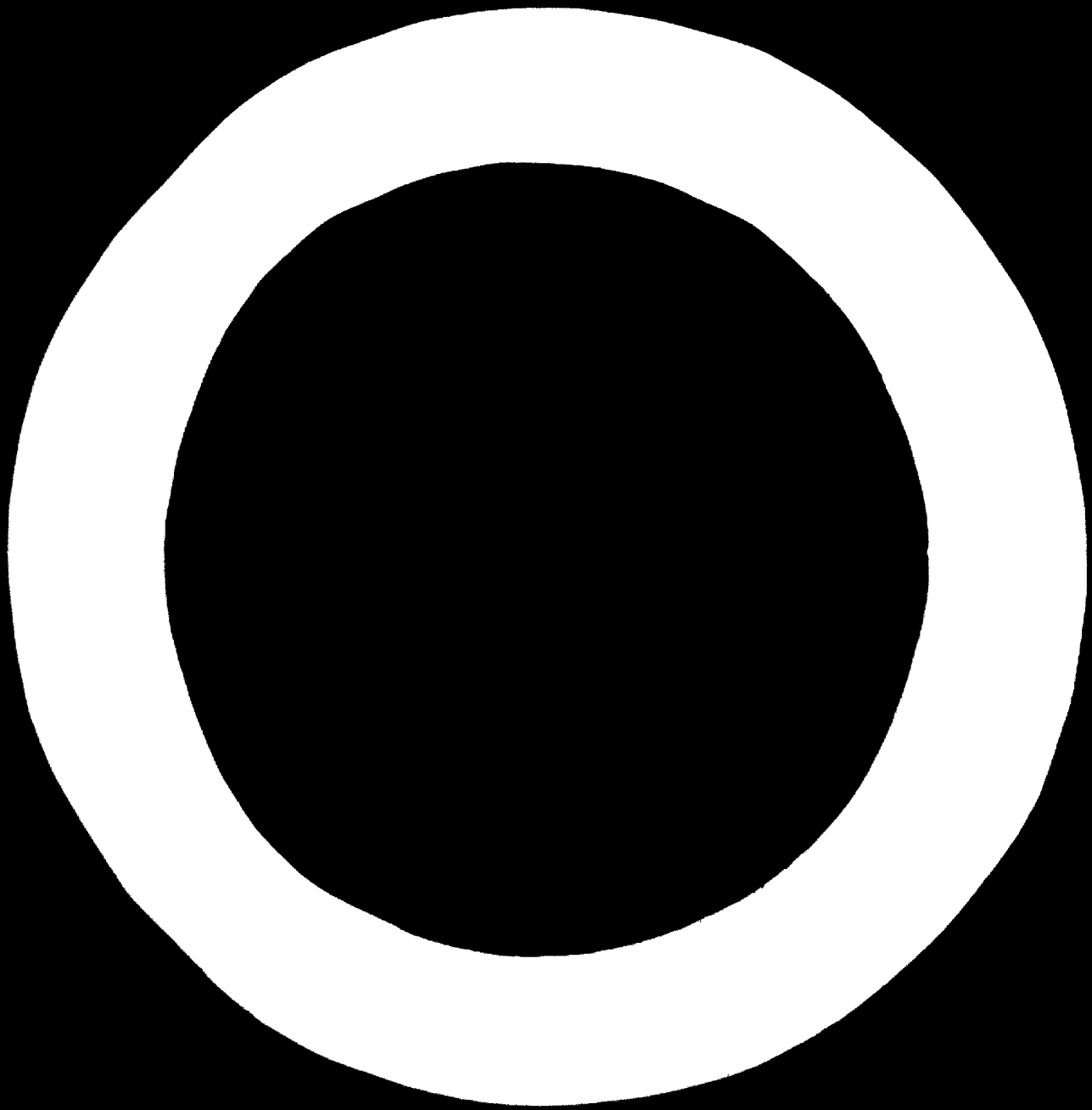
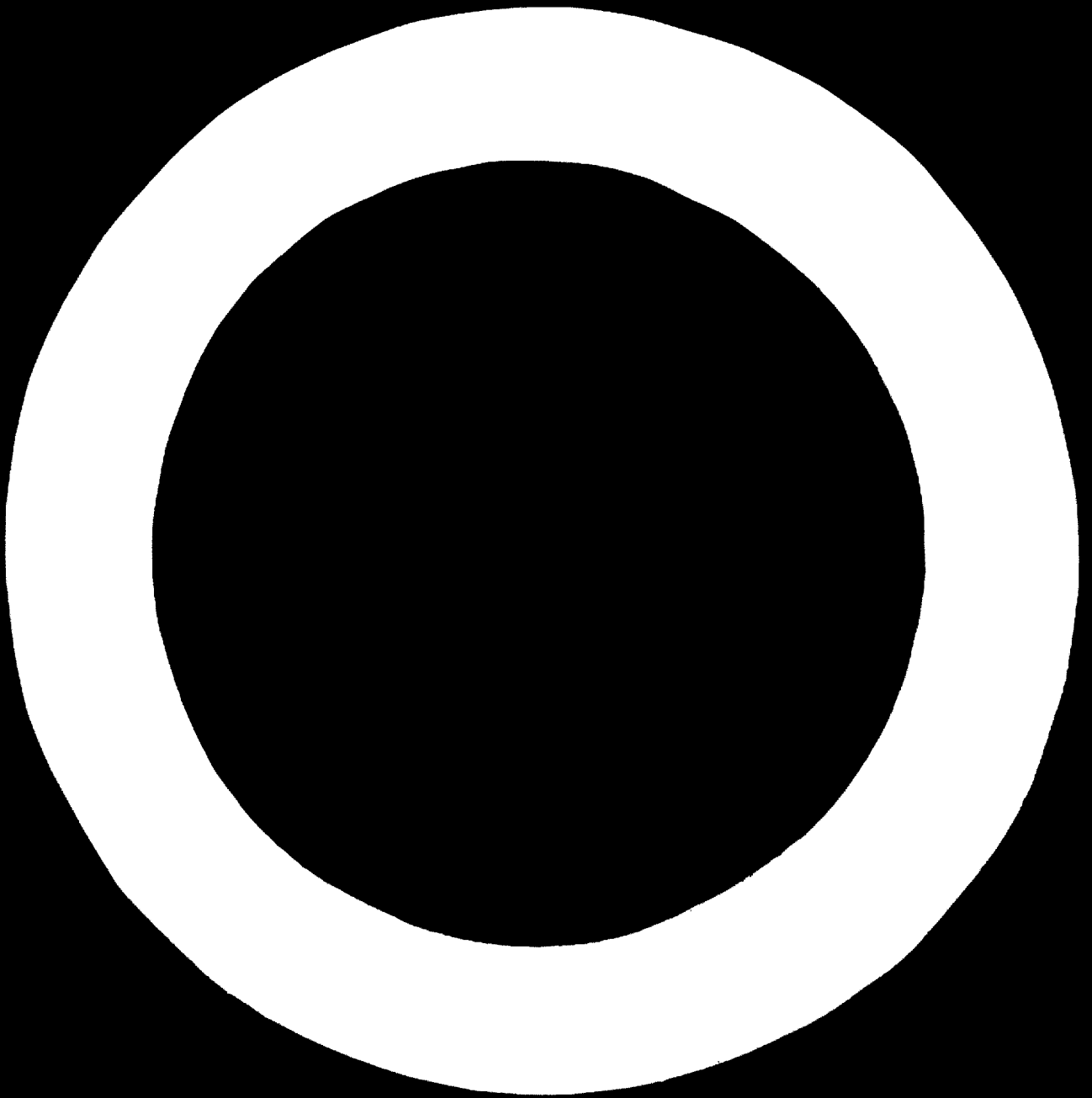


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CHAPTER 1

PRINCIPLES OF EDUCATION IN PACKAGING

Education in packaging is a relatively new idea coming from fact that packaging has become slowly a real science.

Twenty years ago, traditional packaging materials such as wood, paper, board, jute, metal, glass, were used to make containers or wrappers in the simplest form they were produced.

Protection was not too good, but nothing could be done better.

The last world war has opened a wide future for packaging technology, because of the necessity to give a special protection to any type of goods ranging from arms to food and to avoid waste. At the same period, the chemical industry has made important progress.

Furthermore, it has been possible to modify the quality of the traditional packaging materials employing chemical products such as plastics and new materials have appeared such as polyethylene, pvc, polystyrene, etc... From that time it was possible to design a material in view of a very specific requirement, that will give the right protection at the right price for a given job.

This however, necessitates the use of laboratory facilities and the availability of chemists, physicians, with a specific knowledge concerning protection of goods.

These specialists have been formed the hard way and are to-day employed in large packaging manufacturing industries. They are still very few in number and there is a large need for more, not only in the packaging industry, but also in all other industries who have to solve their own packaging problems.

This is the reason why packaging education became a necessity first in the United States and in most of the European countries and to-day in the developing countries.

Principles of education will vary according to aims to be reached and the type of people to be trained. Roughly, there are three categories.

- 1) - Students coming from universities (or with specified grades of attainments to enter a university) :

They will become through general packaging education the future "packaging engineers" (see chapter 3 - paragraph 1)

- 2) - other young people : they will become through a much simpler type of general education foremen in charge of running packaging lines.
- 3) - people already in charge of packaging in companies : they may attend a general education program to become packaging engineers or specialised education programs (see chapter 3 - paragraph 2) in order to know more in their specialities.

As it can be seen, education programs will vary according to aims to be reached : it will include more or less matters, be highly technical or essentially practical.

But generally speaking, education in packaging must be based on the following principles : 1)- use of visual aids (colour-slides movie films). 2)- present samples of packaging materials and packages. 3)- provide demonstrations specially as far as technical characteristics of materials and packages are concerned. These demonstrations will be better arranged if they take place in laboratories. 4)- demonstrate packaging operations in plant, when possible.

CHAPTER 2

IMPORTANCE OF PACKAGING
EDUCATION TO DEVELOPMENT OF INDUSTRY

Packaging industry is facing to-day a highly technological requirement. Products of any kind must be fully protected against lots of hazards for a given length of time and given conditions at the lowest possible price. To-day it is very possible to achieve these goals but only on the basis of scientific research. Only graduated packaging engineers or highly specialised experts will be able to solve these problems.

New materials can only be produced, or new techniques developed by these types of men, which to-day are still in a very limited number and available only in highly industrialised countries.

The clients of the packaging industry, manufacturers of any type of goods : foods, chemicals, pharmaceuticals, hardware, machinery, etc... realise that to-day they have to study their own packaging problems themselves if they want to stay competitive (this for the industrialised countries). If they want to sell, they need to protect their goods at least (this for the developing countries). In both cases, they need packaging engineers.

These are the reasons why these packaging engineers or specialists in packaging have to be formed through packaging education programmes.

CHAPTER 3

GENERAL EDUCATION

1) - School of Packaging Technology

This is the most desirable programme to be compared with any other high technological education leading to a degree of "Packaging Engineer".

It is open to students with specified grades of attainment to enter a university.

Such programmes based on 3 to 4 years study are in existence only in the USA for the past few years, for example at the University of East Lansing-Michigan.

It necessitates the background and facilities of a university or of a college of higher technology.

In the USA "graduated packaging engineers" are now available in very limited number since about 12 months, but this educational system is going on fast and it is believed that by 1975, more than 300 certified packaging engineers will be made.

Programme in the case of a "School of Packaging Technology" includes not only packaging subjects but also high level education on mathematics, physics, chemistry and marketing. (See chapter 6).

2) - One-year educational programme

It is designed for people already in charge of packaging in companies who cannot spend full time in studies. Therefore, this programme includes only few hours every month (24 hours per month being considered as sufficient). It deals only with practical packaging matters. Mathematics, physics, chemistry and marketing as such being excluded. (See chapter 6). Packaging Institutes and specialised centers are generally well equipped to conduct such programmes. This is the case for example in England and in Italy, number of working hours being however different.

3) - Two-weeks condensed programme

It is designed for anybody interested in packaging who needs basic education and is prepared to improve his knowledge by himself with the help of industry, Packaging Institutes, technical persons, etc.

Such programme (given in chapter 6) can be arranged by Packaging Institutes or specialised centers, as it is the case in France for example.

4) - Direct mail education

Any of the above programmes can be conducted by correspondence by a Packaging Institute with, in our opinion, the help of a University or college of higher technology in the first case. However, direct mail packaging education does not exist anywhere in the world. (For suggested programme see chapter 6).

CHAPTER 4

SPECIALISED EDUCATION

It consists of seminars designed for people already working in companies with a sufficient general packaging knowledge (generally acquired by experience). These seminars can be organised by Packaging Institutes or specialised centers, as it is the case in France (for suggested programme see chapter 6).

They generally last 1, 2 or 3 days, according to subjects.

CHAPTER 5

TEACHERS

Teachers can be professional people selected for their ability to explain things and not for their packaging knowledge. This is the case in the USA Military Packaging Schools. This gives excellent results. However, this necessitates that all parts of the packaging course be fully written and that a sufficient number of specialised teachers be used. In addition, there is a limitation : these teachers are generally unable to answer specific questions outside their own programme. This is why the services of professional teachers are better used in a "School of Packaging Technology"; (described in chapter 3). In this case, plannification of a progressive education of 3 to 4 years will compensate this lack.

Teachers can be independent packaging specialists, coming from Packaging Institutes or Packaging Laboratories. Generally, they are specialised, so it is necessary to use a number of them.

Teachers may also come from the packaging industry. They are also specialised and generally very experienced, but in this case, it is to be feared that they are inclined to promote their own production.

CHAPTER 6

PROGRAMMES

For general education

The Education Committee of the European Packaging Federation has completed by 1967 a masterly document entitled "Blueprint for Packaging Education".

Members of this Committee were :

- Prof. Dr. E. Grünsteidl (Austria)
- Mr. Ing. B. Ryant (Czechoslovakia)
- Mr. C. Jensen (Denmark and Scandinavia)
- Mr. P. J. Louis (France)
- Mr. J. Hoffmann (Germany)
- Mr. E. Schmidt (Germany)
- Mr. E. G.O. Ridgwell (Ireland)
- Dr. N. Galletti (Italy)
- Mr. C. Hillenius (Netherlands)
- Mr. J. Lewandowski (Poland)
- Mr. H. W. Paynter (Great Britain)
- Mr. A. Soltan (Poland)
- Dr. L. Sicre (Spain)
- Mr. M. Binkert (Switzerland)
- Mr. A. Greber (Yugoslavia)
- Mr. Moto Kono (Japan)

This detailed syllabus, prepared by the Executive Group for education of the European Packaging Federation, is believed to be the most comprehensive ever published. It marks out for educationists, lecturers and students alike the boundaries and depth of knowledge required by the European packaging technologist who seeks a worthy qualification to denote competence and authority in his work. Although paths of learning and qualifying standards may vary from one European country to another, the aim must be to educate to a level which will ensure universal recognition of the packaging qualification wherever it is obtained.

It is also essential to give guidance on the level of general education required by a student of packaging. The Executive Group has assumed he will have received higher secondary education up to eighteen years of age. At that stage, most European educational systems enable the student with specified grades of attainment to enter a University or College of Higher Technology. We believe that students of packaging need corresponding educational backgrounds (notably in the pure sciences), if they are to pursue their specialist studies successfully. For the more mature student, it will be necessary to substitute equivalent levels of further education and to take heed of knowledge acquired through experience. The student's ultimate success will demand an above-average grasp of his national language and the ability to express himself clearly and concisely.

This syllabus deals with the following items :

- I Introduction to packaging
- II The necessity for packing
- III Principles of protection
- IV Packaging materials
- V Type of packaging
- VI Accessories for packaging
- VII Packaging and production processes of packed goods
- VIII Materials handling, movement and storage
- IX Package testing and development
- X Specifications and quality measurement for control
- XI Transport and insurance
- XII Rationalisation and standardisation
- XIII Legal requirements
- XIV Marking, identification and labelling
- XV Package design
- XVI Economics of packaging
- XVII Applied packaging

Each item is fully detailed so that it can serve as a guide to write a complete packaging course.

It is very close to the actual programmes of the various USA Schools of Packaging Technology described in chapter 3. However, it does not include mathematics, physics, chemistry, marketing but those items are available from universities.

In our opinion the "Blueprint for Packaging Education" is an excellent and unique guide for general education programmes, fully used in the case of "Schools for Packaging Technology" and partly used in the case of one-year education programmes, two weeks condensed programmes and direct-mail education (as described in chapter 3).

For specialised education

The "Blueprint for Packaging" has also to be followed, but in this case just the parts corresponding to the specialities may be used.

Selections of specialities are according to needs of the interested countries. For example, in France, programme of specialised seminars for 1970 is as follows:

Biscuits packaging - Industrial packaging - Laboratory tests on packages and packaging materials - Visual research and attitude survey techniques in packaging design - Packaging of meat - Packaging for shelf stable foods - Printing techniques in packaging.

Audio-visual programmes

They can be used either for general or specialised education. They consist of colour-slides and recorded tapes, covering the entire field of packaging with basic information. They have to be completed with explanations of specialists. Explanations given after each section of the programme and answers to specific questions.

A unique programme has been designed by the Canadian Packaging Institute during a four-years period. It includes 2,300 slides, 24 hours recording and booklets. Programme is as follows :

How to plan a package

Adhesives

Paper and paperboard

Corrugated

Printing processes

Set up and folding cartons

Glass containers and closures

Foils

Paper bags

Metal containers

Tubes, metal and plastics

Aerosols

Foam

Paper containers

Industrial packaging

Industrial tapes

Graphics and communication

Plastics, fabrication and use

Packaging machinery

Packaging films

Exclusive distribution rights for this programme have been given to the "World Packaging Organisation" which offers it for a price of \$ 5,000 to national Packaging Institutes. The French Packaging Institute will be the first center to use it in Europe, starting January 1972.

In-plant training programmes

They consist of theoretical teaching accompanied by practical work. Theoretical teaching may be based on the "Blueprint for Packaging Education" taken as a whole or partly. Practical work may be designed in two different ways :

1) - At school : in this case the school shall be equipped with the necessary machinery. As it is impossible, or too expensive to bring in a central point equipment for all packaging jobs, this system has been used only for specific training. That was the case in the USA Military Packaging School and at the French Packaging Institute for industrial packaging (corrosion prevention only) - in both cases, years ago.

This is actually the case in the USA for education of packaging machinery maintenance specialists.

2) - In-plants : Theoretical teaching, according to all above mentioned programmes can have as complement guided visits in industrial plants. These visits may be of two types : a) - demonstrations and full explanations - b) - demonstrations, full explanations and practical exercises. In both cases, theoretical teaching corresponding to the in-plant education must be previously given to the students (for example : mornings at school, afternoons in plants).

In fact, this type of programme is rarely put into action because of difficulties of organising properly the in-plant demonstrations (reluctance of the industry). However, it has been used with success in the USA. It is believed that such a programme could be greatly improved and simplified by addition to the previous teaching of visual aids (for example, color slides and comments taken from the above mentioned audio-visual programmes and specific movie films). The following in-plant demonstration will be then easier and better accepted by the industry. Such an organisation has never been tried up to now.

CHAPTER 7

RECOMMENDATIONS

For developing countries it is our recommendation that education in packaging be organised at two levels :

- 1) - For people working actually or having to work immediately in industry -
- 2) - For people that in near future should be in charge of education in their own country (formation of packaging teachers). This is, in our opinion, the only way to help in a long run developing countries to become self-supporting.

In order to be realistic and to keep the general programme at a reasonable price level it is suggested that in a first step, educational programme be the same for both categories of people. Future teachers will then have to follow additional courses when possible. They could meanwhile become officers of local packaging centers which by all means will have to be created.

CHAPTER 8

PROPOSED EDUCATIONAL SYSTEM AND PROGRAMME

The system should be of the general education type, condensed programme (see chapt. 3 point 3). Its length may vary from 2 to 6 weeks according to specific problems of the country to be solved. Three years or even one-year programmes are out of question, because developing countries should be able to solve their most urgent problems rapidly and because each of them have to face simple problems, namely protection of goods (mainly food) they produce or distribute. They are not yet involved in the difficult marketing environment which necessitate sophisticated packaging approaches.

The programme should be based on the "Blueprint for Packaging Education" with a selection of items according to the urgent needs of each country, combined with audio-visual aids and in-plant training of type no.2 (see chapter 6)

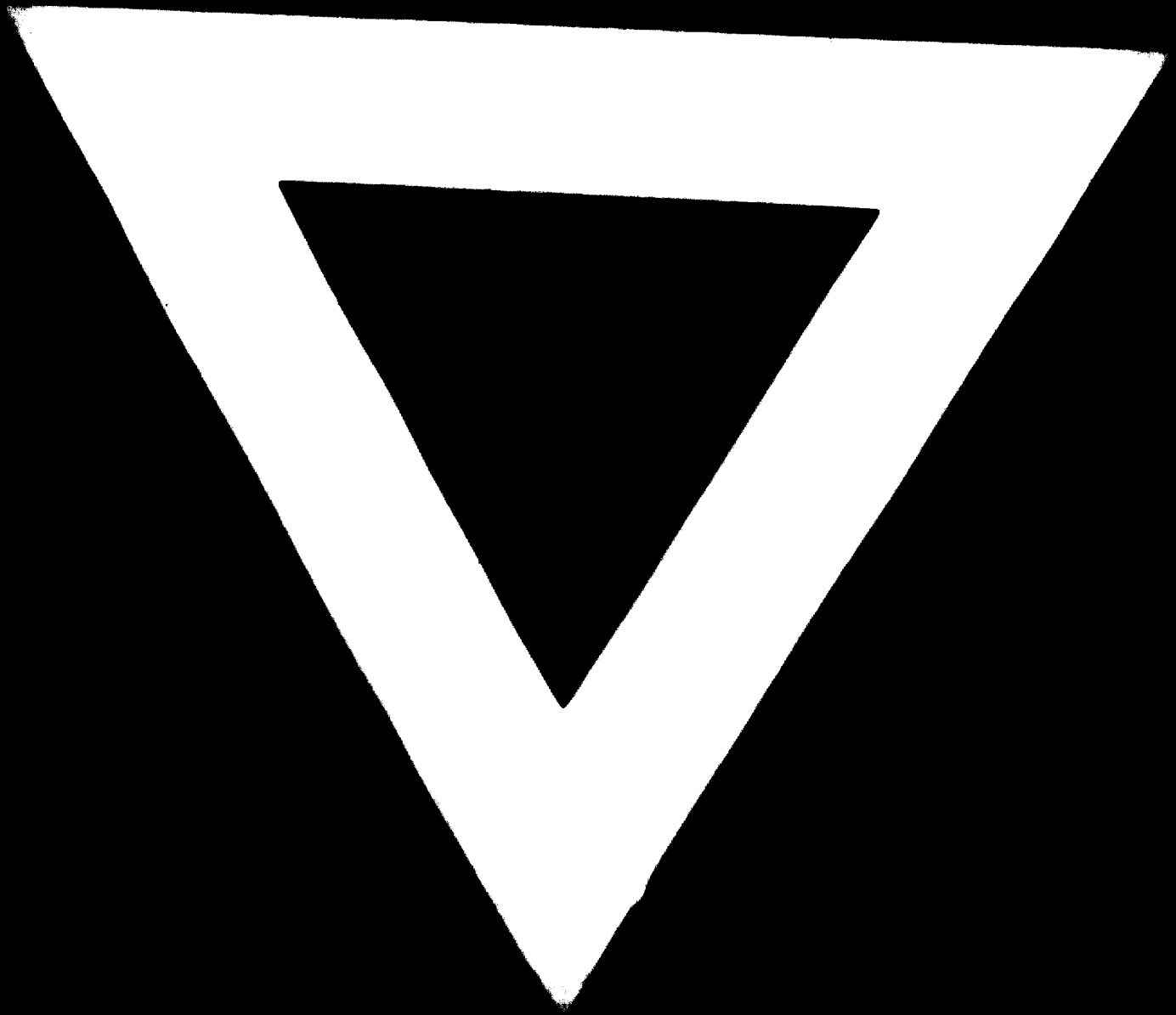
Selection of the items should be made after a brief survey of the situation in the given countries. After review of conclusions further to these surveys, if it is agreeable, the French Packaging Institute is willing to write specific programmes, at no cost, as a personal contribution to developing countries.

It is our opinion that such programmes should emphasize the following points : bulk protection, protection for transit and storage, protection for retail distribution and this in the areas of : foods, pharmaceuticals, chemicals, and maybe some industrial goods, such as spare parts, tools, small equipment, etc...

Following sections of the "Blueprint for Packaging Education" should be in any case dealt with : Principles of protection - Packaging materials - Type of packaging - Accessories for packaging - Packaging and production processes of packed goods - Package testing and development - Marking, identification and labelling.

Teachers, in our opinion, should be selected only amongst the independent packaging specialists available in the European Packaging Institutes and Laboratories, actually involved in packaging education.





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