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UNITED NATIONS INDUSTRIAL DEVELOPMENT ORGANIZATION
Vienna International Centre, P.O. Box 300, 1400 Vienna, Austria
Tel: (+43-1) 26026-0 · www.unido.org · unido@unido.org

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PILOT PROJECT IN PRODUCT ADAPTATION
DP/ROK/72/023

REPUBLIC OF KOREA

Technical report: Manufacture of plastic and metallic toys

Prepared for the Government of the Republic of Korea
by the United Nations Industrial Development Organization,
executing agency for the United Nations Development Programme

Based on the work of A. William Adler, expert in
the manufacture of plastic and metallic toys

United Nations Industrial Development Organization
Vienna

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Explanatory notes

References to dollars ($) are to United States dollars, unless otherwise stated.

The following abbreviations have been used in this report:

EEC	European Economic Community
KOTRA	Korean Trade Promotion Corporation

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ABSTRACT

The Government of the Republic of Korea requested assistance from the United Nations Development Programme (UNDP) for the project "Product Adaptation" (DP/ROK/72/023). This request was approved and the project commenced in 1975. The United Nations Industrial Development Organization (UNIDO) was the executing agency and the Korean Trade Promotion Corporation (KOTRA) was the counterpart.

An expert in plastic and metallic toys was sent to the Republic of Korea on a three-month split mission from 9 to 25 December 1977 and from 7 March to 8 May 1978.

The expert's duties were to formulate a work programme for five local toy manufacturers by giving in-plant assistance and holding seminars.

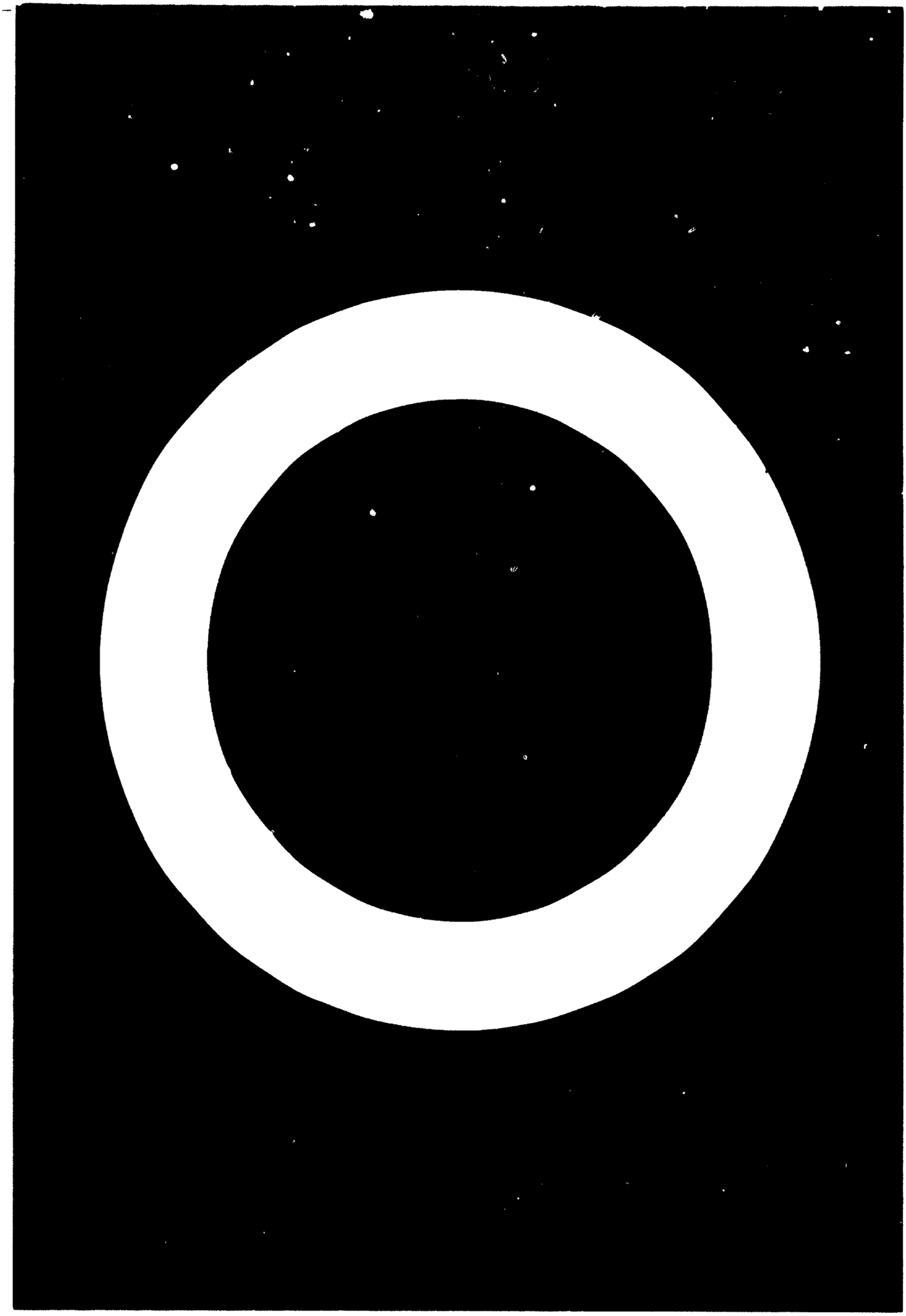
The toy industry of the Republic of Korea is vigorous, aggressive and healthy. However, its growth is impeded by:

Lack of management skills
Inadequate equipment
Lack of production and quality control
Poor production processes
Inadequate plant organization
Insufficient record keeping
Lack of record analysis
Inadequate planning
Absence of a design capacity
Ignorance of marketing
Raiding of key personnel

In looking for quick leaps forward, management often ignores the many small improvements that together will more surely help them to gain the desired objectives.

The expert recommended that:

1. A programme be initiated to develop management skills.
2. Toy designers be trained in needed skills.
3. A file of equipment catalogues be set up and kept current.
4. A market research programme be undertaken by the Toy Exporters Association.
5. Samples of representative toys on the market be assembled at a central point to be available for study by toy firms.



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INTRODUCTION

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An expert in plastic and metallic toys was sent to the Republic of Korea on a three-month split mission from 9 to 25 December 1977 and from 7 March to 8 May 1978 (annex I).

The expert's duties were to formulate a work programme for five local toy manufacturers by giving in-plant assistance and holding seminars (annexes II and III).

The objective of the project was primarily to assist the growth and development of the toy industry in the Republic of Korea by advising companies on technical problems in the manufacture of plastic and metal toys.

In the second part of the mission, more emphasis was placed on improving stuffed toy facilities and on co-ordinating production and sales with special attention paid to design.

One of the greatest obstacles to the future growth of the economy of the Republic of Korea is the increasing tendency of most hard currency countries to restrict their imports of steel, shoes, textile products etc. However, toys traditionally have moved freely in international trade and seem less vulnerable to the growing atmosphere of protectionism. Thus, toys will provide a greater share of needed exports to hard currency countries.

Toy making is an industry that utilizes a wide variety of skills in textiles, plastics, steel components and electronics. Technical demands, however, are much less stringent in toys than in industries that supply the adult world. The toy industry may provide excellent initial training for personnel who can then move on to more demanding tasks. Such an objective would be of great benefit to the country.

I. FINDINGS

Background

The plastic and metallic toy export industry in the Republic of Korea is about 15 years old. Statistics indicate that in 1976 these products accounted for less than 40% of the $76 million in total toy export volume including plastic dolls. The expert saw only three companies that produce important quantities, although there are several smaller ones. The majority of toy exports is represented by stuffed animals. Indeed, the Republic of Korea is presently the primary world exporter of stuffed toys.

All plastic or metal toys for export are made to the foreign buyers' specifications or samples. The tooling is often supplied as well.

In the early 1970s, the Minister of Industry and Commerce financed a plan to combine small producers in a co-operative. The effort was directed by a general. It fell apart when the general was recalled to active duty and the industry has remained fragmented.

There is a recent tendency for large trading companies to finance and seek orders for small producers. One large trading company will support several small toy makers.

The Republic of Korea lost its General System of Preference (GSP) status for stuffed toys in the United States of America because the Republic of Korea provided more than 50% of United States imports of these items. The United States had been the major stuffed-toy market. Duties on stuffed toys are 28% for items priced f.o.b. at less than 10¢ per inch of height and 9% for other stuffed toys. The recent inflation has worked to the advantage of the Republic of Korea in that far fewer toys than formerly fall into the 28% category. Nevertheless, the reinstatement of duties on exports to the United States has stimulated stuffed-toy producers to put greater sales efforts into Europe.

Individual production units are small. Only one company has a production capacity in excess of $12 million. Probably less than five have a capacity in excess of $5 million. Most production capacity is found in facilities with a capacity of between $1 million and $4 million. However, most of the two hundred or so toy producers turn out less than $1 million worth of goods per year.

Companies with capacity or sales over $5 million are, of course, the best organized. However, they all lack requisites for further growth. Only one has proper production procedures but it has no effective design capacity or sales

department. Another has excellent designs and a sales effort that is at least operative but its production methods are crude and quality is attained at high cost. The other companies have almost adequate production organizations, no real designing and rudimentary sales efforts.

The situation is worse for the smaller companies. Many have only one foreign buyer - or at most three. Their "designers" only make up counter samples for buyers. Sales efforts are restricted to entertaining their visiting buyers and answering communications from them. Surprisingly, a few have excellent production methods but these are not transposable to a larger organization. Thus their methods limit growth.

The very small companies for the most part supply minor quantities of products to various trading companies or act as subcontractors for other toy firms.

One important problem is the control of quality at the subcontractors. Inspections are often instituted only after problems have reached the critical stage. There is insufficient instruction of the subcontractor. Systems on the part of trading companies to control output and quality are, for practical purposes, non-existent since these companies know very little about what to demand from the producers. Larger toy companies that use the small facilities as extra production capacity do better in requiring quality, though here too, communication and quality control are usually inadequate.

Despite the above, the spirit to forge ahead and the genuine desire of all concerned to contribute to the national growth have compensated for many of the industry's deficiencies. When these are all overcome, as they will be, the Republic of Korea will become an important contributor to the world's toy trade.

There was a conference with the president and other officials of KOTRA at which it was agreed that the development of toy designs and of marketing programmes at the company level were the industry's most pressing problems.

Companies visited

Stuffed toys

While better off from a technical standpoint than other toy makers, the stuffed-toy producers need a great deal of upgrading in production techniques and quality control practices. Increased efficiency and quality control are more important for this part of the industry than for plastic or metal toy makers.

More hard currency is earned for the country by stuffed toys than by all other toy products combined. The largest market for stuffed toys is the United States. However, the Republic of Korea lost GSP privileges for stuffed toys in the United States in March 1978, which now means a duty of 28% for many of the stuffed toys sold to the United States. Improved quality control and more efficiency of production are vital to overcome as much as possible the new differential between the tariff barrier for the Republic of Korea and that for its principal competitors who continue to enjoy GSP.

Only a few producers have adequate design facilities, and even these can be improved. Designs are the second most important part of making stuffed toys and if buyers stop feeding designs, it will become the most important part. A better design capability can make an important contribution to overcoming the reinstated United States barrier.

One of the largest stuffed toy makers in the Republic of Korea was visited where the highest quality products in the nation are made. Production processes were reorganized to get a better flow of product. Suggestions were made concerning improvement of existing equipment as well as the need for equipment they did not have which they could obtain through a large trading organization that supports these companies. The possible contribution of the companies to the trading organization's marketing effort was discussed. Designs were reviewed. Other products that they could make were pointed out.

On a subsequent visit to this factory, it was noticed that the recommendations made had been implemented and were working well. A new and more detailed survey of facilities was then made.

A marketing conference was held at which the expert explained the functioning of the United States and European Economic Community (EEC) markets.

When the expert reviewed the requirements for production control and drew up production control plans, complete with sample forms to be used for in-plant reporting and explained their use and the benefits to be derived from such a system.

The next step was the institution of a cost reduction programme as there was very poor material control. Counts of many thousands of pieces were being done by unskilled workers in their heads; counts were never recorded at points where material handlers had access to them nor at essential operation points. Merchandise was piled high in great mounds so counts could not be verified which led to easy unauthorized removal of merchandise.

This company is an example of loose management. The lack of systems stems mostly from rapid growth without developing organization. In this, as in many other companies, there has been no adequate reporting system either within the factory or from factory to top management and the idea of internal reporting is very difficult for management to accept. In turn, orders from top management are sometimes not carried out or are misinterpreted so that performance does not meet the objectives intended. This is a limitation on the growth of such firms which, with better organization and more knowledgeable direction, could rapidly become large toy companies.

The factory really needs some training of middle management. The growth of the company has outrun middle management competence. It was pointed out to the president that their training was his responsibility.

Quality control

As in many firms, this company has confused quality control with inspection. There are no quality control standards and hardly any records. This is true despite the fact that what is shipped is of high quality. The quality comes from much rework and some material loss, all of which may be drastically reduced if a proper quality control programme (which has been proposed) finds the cause of rejects quickly so that faulty processing can be corrected immediately.

Plastic toys

A visit was made to the largest plastic toy producer in the Republic of Korea. The recommendations to improve the die-casting equipment, made on a previous visit in December, had been carried out and with information obtained from the manufacturer of the machine in the United States, the process was brought up to satisfactory production levels. Solutions were also offered for vacuum metalizing that made this facility useable for manufacturing, though peak performance will never be obtained because the machinery is so old that the original equipment manufacturer cannot provide replacements for worn parts. It was suggested that modern equipment, which is twice as efficient, be obtained.

A day was spent with this company going over design and marketing. Its position is precarious because of severe deficiencies in these fields. If sound marketing practices can be introduced here, the company may expect a successful future.

Mechanical and plastic toys

A visit was made to a mechanical and plastic toy manufacturer where considerable cost savings in metal toys were achieved by redesigning tools. Rough figures indicated that in going from simple tools to progressive tools for finishing and forming the auto bodies, savings are possible even in the first year. However, the tools would have to be made in Japan and would cost more than present tooling. The plant was advised to confirm the figures with actual quotations.

This plant has a great deal of trouble with polyethylene wheels. The major problems were poor mixing of old and new material, dirt in the mix and poor machine timing, especially inadequate cooling cycles and holding cycles. Other factories must also have these problems. Solutions were available from plastic materials suppliers in the Republic of Korea. This lack of knowledge is endemic in the toy industry. For instance, several toy manufacturers asked for a method of making highly plasticized polyvinyl chloride rigid for slush molding. This was explained at the plant (by the use of dioctyl adipate). However, it is questionable whether personnel will be disposed to do the very careful weighing and mixing required for this method to be sucoessful.

Samples from a second mechanical toy plant were reviewed. The problems seem to be adequate tooling again, with the plant manager probably not aware of alternatives open to him.

Mechanical toy assembly lines tend to uniformity of space given each operator though some operations require more room than others. Thus it is difficult to balance lines. Then material piles up on tables which is a serious problem with metal painted toys because such handling causes scratched paint. On lithographed surfaces this paint is impossible to repair.

Companies near Taegu and Busan

Visits were made to mechanical, plastic and stuffed toy facilities in the southern part of the Republic of Korea near Taegu and Busan. Doll production processing techniques were revised that improved quality as well as costs. Plush toys with mechanical movements were reviewed and errors in manufacture corrected. Conveyor lines were designed into production. The manufacturers were made aware of technically improved or specialized equipment they should consider in their operations. Tooling was disoussed.

General comments

Several factories were visited towards the end of the mission. In the first the equipment and facilities were in a poor state. The only assistance the expert could give was to indicate how profits would grow faster if these conditions were remedied.

The second factory was very small. Methods of manufacture were leading to the distinct possibility that some of the toys produced would be dangerous. By changing the methods, the expert succeeded in eliminating the safety problem while improving production.

The third company had material problems. A system to store and manufacture high quality components with minimum loss was devised. However, implementation of the system promises to be slow. A good deal of time was given to marketing in the United States and Europe.

The fourth company is one of the largest in the Republic of Korea. The production lines are well run but the machinery is inadequate and run down. The equipment required a good bit of study before a plan could be devised to rebuild some units and repair others without appreciably reducing production while changes were made. A quality control department was planned. Suggestions were made to utilize space more efficiently.

The next company was just planning to go into the toy business. Start up problems were reviewed, the projected layout corrected and the staff informed of the machinery they would need, which they had not planned to buy. Finally, there was a production conference at the factory where start up operations and necessary production records were reviewed.

The last company was an old-line plush-toy producer. Many poor shop practices were found and corrected. The company was engaged in most of the proper activities but was not co-ordinating departments or records to get sufficient value from them. The records were revised to increase cost effectiveness.

Production

The equipment and tooling of plastics was much more advanced than that of metalworking. Die sets were lacking. Safety standards could be improved. Metalworking machinery seemed in good condition, though there was no time to make more than a few close inspections. Dies, especially forming dies, may be used beyond their time. Shearing was always clean, indicating well-sharpened tools.

Finished lithographed-metal parts had too many scratches. This problem can occur anywhere in the production process and needs further study.

The industry, for the most part, does not seem to have adequate quality control systems and when there is a press for production, quality control is often forgotten.

Production inadequacies are very largely offset by the hard work and determination of both worker and management. When there are problems, it is not unusual for personnel to put in extra hours. On the other hand it is not easy sometimes to introduce workers to new techniques.

One problem many companies seem to have is the planning of small quantity orders in the plants. Production units for the most part are quite small, prohibiting economies of scale, and the advantages of applying modern production methods are quite limited. Such factories have much more flexibility, can respond more quickly to market requirements and their scale is more likely to be within the ability of management to make decisions for them. However, if the industry is to develop in world competition larger entities will be necessary.

There is a general lack of marketing so that almost all production results from foreign buyers seeking out the producers, which is a severe limitation on growth. Usually buyers must bring samples that the manufacturer copies. The only advantage the manufacturer can offer is price at an acceptable quality level. At present, the advantage is mainly the result of low labour costs, but other countries entering the toy field, such as Haiti in plush and the Philippines in plastic toys, have even lower wage rates.

Equipment

Almost every producer in the Republic of Korea lacks a defined programme to improve production by studying his own methods and by seeking ideas from sources outside the firm. Forward planning, especially sales planning, is little understood. Equipment in the market is not studied until it is needed and then there is no time to do adequate research. This results in buying the wrong equipment or models of the proper equipment whioh do not have the latest improvements.

The producers have a tendency to expand facilities or buy equipment before they plan exactly what they will do with them. Thus factories are built or leased that may be a little too narrow for lines of machines or too short to make in-line operations feasible. In one case a company built a factory and began

operations only to find nine months later that warehouse space would not support production and that the cutting room was inadequate.

A plant that makes an investment in equipment may have to use it for a long time and may very well be at a disadvantage if it is not fully qualified to make the product at the lowest cost.

The industry works at a disadvantage because of government regulations. One manufacturer bought equipment for, and prepared to produce, zinc die-cast toys only to find that his cost of raw material was 20% higher than that of foreign competition because he was required to buy it from a domestic producer. Hong Kong has the advantage of shopping the world while the toy maker in the Republic of Korea is forced to pay the higher price to the only source permitted by the Government. If the local toy maker had made a sufficient study of the market before purchasing the machinery, he might have dropped the project because he would have realized that the difference in material costs was enough to remove him from the world market.

There is not enough diversity of equipment. For instance, all the plants use one type of sewing machine to make stuffed toys but different sewing operations are done best by different machines. Thus no factory uses one-side sewing equipment to close the stuffing hole. This leads to costly hand sewing and tends also to make the toys less uniform. In many facilities even the thread is never varied except for colour. Often cloth-cutting equipment is poorly maintained. The advantages of automatic plastic injection moulding equipment are not understood. Despite the low labour rates in the Republic of Korea these machines would lower production costs.

There is a great reliance on Japanese equipment. While for some work this equipment is excellent, machinery from Europe or North America is better suited to other work. The Japanese machines that are purchased are not always of the latest design so that the most modern improvements are lacking.

There is a tendency to cut corners in the procurement of equipment: machines barely able to meet demands or no machines at all where hand labour will suffice.

In stuffed toy factories there is a great deal of hand stuffing of wadding. Often this is done along with other work and the fluff, which gets on the product, has to be brushed off or blown out of the plush. Stuffing areas are not always kept strictly clean, allowing dirt to accumulate on the stuffing.

Almost no time and motion study is employed where hand labour is required. Managers use the excuse that labour is cheap and they have constantly to be reminded that efficient hand labour is even cheaper.

Records

In general production records are too crude. They do not provide the proper information required by management to make decisions. Where records do exist, management often does not review them intelligently. There is little understanding of standard procedures. Thus, inefficiencies are perpetuated and errors repeated.

Quality control records are not usually kept. This severely limits the manager's ability to make corrections that would eliminate the causes of rejects. The tendency is to accept the costly process of repair rather than immediately revise faulty procedures.

Even where records are fully kept, there is very little sophistication in their use. For instance, often a cheaper material could be used. Though this increases labour, the saving in material may be greater than the loss in labour. Such analyses are important in the toy industry where price is always a prime factor.

Designing

There is a great lack of design staff. Attempts at designs have produced indifferent results. Companies look almost exclusively to the buyers for the designs of products they make. Often the buyers also supply tooling and technical assistance.

Marketing

There is a lack of knowledge of the markets served (annexes II and IV). Products are manufactured by rote to specifications and samples. They are then shipped to the f.o.b. port for transportation to the buyer.

Some directors or presidents have made trips to the toy shows but even these people have not had enough exposure to develop a feel for the marketing systems in advanced economies. Thus, they secure business almost exclusively upon the basis of low labour cost, a precarious advantage since buyers who have been purchasing from the Republic of Korea are already seeking nations with lower labour costs.

Personnel

There seems to be a fair amount of raiding personnel from company to company resulting in the accelerated growth of compensation as firms vie for experienced people. It has happened that management then puts men in positions beyond their competence.

Management seems to range from superior to barely adequate. However, no attempt was made to look into this facet of the industry.

Labour

Each sewing unit of six to nine women making stuffed toys usually has a team leader. However, the leader usually does not face the other operators so that she is unable to provide any effective supervision. The sewing machines are in a line with all the operators facing the same way and usually placed in order of proficiency so that the least capable sewer is farthest from the team leader. Yet, this employee needs the most help. Sometimes there is a personnel problem in developing other configurations on the floor that might produce better material flow, which is often further impeded by crowded conditions.

II. RECOMMENDATIONS

Recommendations applying to the industry as a whole

1. The most needed skills to be developed are management techniques. The industry is only 15 years old and most companies have a history only half that length of time or less. Companies have usually grown from quite small beginnings and management has little formal industrial education. Indeed, the chief executives of some firms do not even know how the toys they sell are made. Much more work remains to be done in the following sectors:

Organization and systems
Production planning
Production control
Production processes
Materials management
Quality control
Material control
Inventory control
Purchasing
Specifications and bills of material
Cost analysis
Cost reduction programmes
Capital investment analysis

In the non-technical areas the following are little understood:

Decision-making methods
Management by objectives
Market analysis
Marketing and merchandising
Co-ordinating sales and production
Short and long range planning
Internal training

It would be impossible to impart these skills to all the toy companies and, in any case, only about six companies could utilize them. The training must be accomplished in the plant since management cannot be expected to take time away from the office for formal schooling. A programme to accomplish half of the above was carried out in one company over a period of seven days with some success. The principles were explained to management and the actual functions

were worked out including the development of organization, the production of reporting forms and standardization of procedure. It is estimated that to do the complete job, between two and two and a half weeks will suffice for one firm on average. Thus the programme should take from 12 to 18 weeks.

The person doing the work should have management experience in the toy industry. It would, of course, be an advantage if he spoke Korean but there must be an understanding of the communication problem if he does not and an excellent interpreter must be available.

2. It is advisable to send personnel to the United States or Europe to learn toy design. These personnel should have received some design training in schools in the Republic of Korea and must speak some English. Before leaving the Republic of Korea they should be thoroughly oriented in the present capacity of the industry, knowing what toys are being made and what plans major toy companies have to produce other toys. Arrangements should be made with a toy design company to receive these personnel as apprentices. The training should be for not less than a year.

The trainees should then be given three months to study products on the United States and European markets. The period must be between December and February so that they can take in:

The United States Christmas toy market
Summer toys sold year round in Florida
The American Toy Fair
The Nuremberg Toy Fair

These personnel then can fill a vital gap in the toy industry.

3. A complete file of plastic moulding equipment, peripheral plastic equipment, plastics, metalworking machines, sewing machines and other equipment used in making toys should be kept up to date at a central location where it would be available to all toy producers. The file should include all issues of the New Equipment Digest (New York, New York). A list of publications and catalogues should be distributed yearly.

4. The industry needs a continuing market research programme that should include:

(a) Visits to the American Toy Fair and the Nuremberg Toy Fair to discover the new toys being offered on the markets and to collect catalogues and price lists;

(b) Subscriptions to Playthings Magazine (United States), Toys Magazine (United States), Das Spielzeug (Federal Republic of Germany), Hong Kong Export Association Toy Annual and other toy publications;

(c) A collection of production and export statistics from Hong Kong and major markets.

5. Samples of representative toys should be collected from abroad for study by members of the industry.

6. Toys are a seasonal business. Production decreases rapidly after September and does not fully recover until April. Toy makers should seek to make products for other industries to fill in the gap. Producers have difficulties identifying items they can make. If they find the items, they do not know how to enter the markets and so need assistance.

Proposed apportionment of the implementation of recommendations

1. The one resource for toy management techniques in the Republic of Korea is the company Dae Hyup. KOTRA may employ the services of management here to accomplish the training of other managers. However, the directors of that firm may object, with good reason, to strengthening its competition. Therefore, it is probable that assistance will have to be sought from manufacturing importers abroad who would benefit from an enhanced toy industry in the Republic of Korea.

2. KOTRA should be responsible for the selection of candidates for training courses and their preparation before going abroad

3. Equipment catalogues and publications should be handled by the Toy Exporters Association, whose personnel understand the requirements and where the files will be best made available to the industry.

4. Market research should be the responsibility of the Toy Exporters Association. There are publications specializing in toy marketing in many countries The Toy Exporters Association should publish its own findings in a monthly bulletin which should also cover local information of interest to the toy trade. In addition, publication of information about the toy industry in English for distribution to foreign markets will stimulate more interest abroad in the producers of the Republic of Korea.

5. It is not possible to collect samples of new products at the toy fairs. Most of the time samples will have to be obtained in the retail market. KOTRA, with guidance from the Toy Exporters Association, should gather these.

6. Products to fill in slow periods in the toy industry are not always easy to find. This effort should be the responsibility primarily of the individual companies. However, they should seek advice and assistance from KOTRA.

7. KOTRA might ask through its official channels that university management courses include a segment on the organization, functions and problems of small and medium-size businesses since some graduates will join such firms. It should be noted that large firms and trading companies often do business with small and medium-size facilities. Their personnel can deal more effectively with these firms if they are more aware of their capabilities and limitations.

Annex I

JOB DESCRIPTION

Project title: Pilot Project on Product Adaptation and Development (DP/ROK/72/023)

Post title: Expert in plastic and metallic toys

Duration: Three months

Date required: 1 May 1977

Duty station: Seoul, with travel within the country.

Duties:

A. The expert will take a 10-day field tour to inspect the technical status of, and to formulate a work programme for, the five designated local toy manufacturers. The expert will then devote approximately two weeks time to each firm participating in this project. However, at the discretion of the expert and in consultation with the manufacturers, one or two group seminars may be considered as an efficient method of tackling common problems in addition to the direct in-plant assistance. The seminars may pertain to the latest conceptional movements of the toy world related to this project aside from technical or technological ways and means for solutions.

B. The prime objective of this project is to improve the quality characteristics of plastic and metallic toys in line with the requirements of the United States market, by utilizing present facilities or other means. Generally the expert's assistance will involve him in solving such specific problems as moulding, electric plating, metal printing, vacuum metallizing, die-casting, plastic injection, material combinations etc.

C. The expert will submit a comprehensive report describing the general technical status (in comparison with United States standards) encountered; the degree of success attained during the mission; the steps which should be taken in the near future by the manufacturers and the types which may be still necessary for completion of the tasks described in this report.

Qualifications: The expert should have a minimum of five years experience as Senior Technical Officer with plastic and/or metallic toy manufacturing firms in United States or the United Kingdom and degree or diploma from a higher academic or professional institution or professional institution in the same countries. English speaking ability is preferable for those who do not speak English as a native language.

Annex II

SEMINAR NOTES - MARKETING

United States toy sales by category, 1977

(Millions of dollars)

	Value
Sales at wholesale	
Total	3,332
Most important volume products	
Preschool toys and playsets	324
Stuffed toys	228
Board games	198
Non-sports action and skill games	125
Mechanical and battery-operated toys	116
Road-racing sets	103
Fashion and action dolls	102
Fashion and action doll accessories and playsets	97
Mechanically or electrically-operated dolls	92
Sports-oriented action and skill games	71
Infant toys	70
Crafts	68
Juvenile sporting goods	67
Plastic models	62
Tricycles	61
Construction toys	60
Metal non-riding vehicles over 6 in. high	54
Metal non-riding vehicles under 6 in. high	54
Cycles, scooters, wagons sleds etc.	53
Housekeeping toys	51
Stuffed dolls	51
Home playground equipment	50
Electric railroads	50
Total	2,207

United States toy sales by item, 1977

(Millions of dollars)

	Wholesale price
Dolls over 13 in.: mechanical/electrical	92
Dolls over 13 in.: other (excluding soft bodies)	11
Dolls, 13 in. and under: fashion	52
Dolls, 13 in. and under: action figures	50
Dolls, 13 in. and under: other (excluding soft bodies)	14
Stuffed dolls (including soft bodies with hard extremities)	51
Fashion-doll clothes, accessories and playsets Action-figure clothes, accessories and playsets	97
Other doll clothes and accessories	11
Stuffed toy animals Other stuffed toys	228
Other animals and figures not stuffed (including puppets)	8
Children's board games (under 12 years)	46
All other board games	152
Sports-oriented action and skill games, not electronic	71
Non sports-oriented action and skill games, not electronic	125
Puzzles	21
Other games	44
Pedal-driven autos and tractors and other pedal-driven four-wheel vehicles	17
Tricycles (plastic) Tricycles (metal rubber)	61
Children's riding vehicles, not pedal-driven	22
Other children's riding vehicles (including scooters, cycles, wagons, sleds etc.)	53
Dolls' carriages, strollers and carts	10
Dolls' houses and furniture (excluding collectors dolls' houses and collectors miniature accessories)	15
Toy trains and equipment, electrical and mechanical (Exclude HO, O, N etc.) Mechanically-powered toys including battery-operated but excluding scale railroads, cars, boats etc.	116
Road-racing sets, accessories and parts	103
No ride, no power transportation, plastic, over 6 in.	17
No ride, no power transportation, other, over 6 in.	54
No ride, no power transportation, plastic, 6 in. and under	1

No ride, no power transportation, other, 6 in. and under	54
No ride, no power transportation, in sets	22
Musical toys and toy musical instruments	31
Infant toys, not classified elsewhere (children to 18 months)	70
Preschool toys not classified elsewhere (excluding infants)	261
Preschool playsets	63
Toy guns, sets and rifles	27
Colouring and picture-word books	29
Juvenile scale sporting goods, inflatables, beach toys, gardening sets, water toys, rubber balls etc.	67
Housekeeping and cooking toys (including tea-sets and play tools)	51
Construction sets (including Erector, Lincoln Legs, Lego etc.)	60
Electrically-operated scale railroads and accessories (HO, N etc.)	50
Operating scale-model cars, boats, planes	-
Static scale-model cars, railroads, boats, planes in kits, not plastic	-
Structural kits, not plastic	
Plastic model kits	62
Crafts	68
Science sets, microscopes, telescopes etc.	7
Juvenile books (under $1 retail)	
Home playground equipment (including indoor slides, gyms etc.)	50
Sidewalk roller skates	6
Wading pools under 15 ft. diameter	6
Electronic games (not video)	21
Other toys	113
Total	2,660

Marketing toys in the United States

Type of toy

Preschool

This has been the best steady growth category of all toys in the United States market since the late 1960s. The preschool population has been declining slightly in the last two years so growth cannot be expected to continue at the same rate. However, the very size of this category provides good opportunities for manufacturers who want to expand.

Preschool toys, as listed below, are usually easier to produce than toys for older children because they are simpler in design. However, great care must be employed to make the toys safe.

Plush toys

Blocks of various sizes and shapes

Music toys

Pull or push toys

Simple plastic vehicles

Playsets

Play telephones and other copies of adult articles the child sees around the house

Stuffed dolls and standard baby dolls also appeal to this market.

Stuffed

Many stuffed toys find their way into the preschool market. However, they are bought for older girls and even girls too old for toys buy the better ones to decorate their rooms. The market is very competative. Design is of great importance.

Games

Imports of traditional American games have found a market in the United States. Checkers, backgammon, and chess sets have found acceptance, however, most new game inventions from abroad have not succeeded. In 1977 there was one notable exception: Tomy of Japan marketed its "Wonderful Waterfalls" which became the most successful new toy in the United States market.

Mechanical and battery-operated

The mechanical and electrical toy category covers a wide range of products. It includes the mechanical and electrical cars made in the Republic of Korea, but this type of product is a small part of the total. The large dollar volume represents special toys that large companies promote on television. These are not good products for manufacturers in the Republic of Korea unless they can manufacture for the United States importers who design the products. Thus it is important to learn which companies make these toys so the buyers may be contacted.

Road-racing sets

Road-racing sets are rapidly replacing electric trains as toys for school-age boys. This is a growing category. Many of the cars are made in Hong Kong. Their electric motors are very small and quite efficient. The cars receive

electricity from metal strips embedded in the roadway. Two children each race a car, controlling it with a hand-held speed control. These toys demand more technical competence to produce than most other toys.

Fashion and action dolls

Fashion dolls are shaped to resemble a girl of about 16 years of age. They are about 12 in. long and can be posed. The largest volume fashion dolls are very heavily advertised on television. One of these, Barbie, was the second most popular toy in the United States market in 1977. Manufacturers who can produce promoted products would do well to make their capabilities known to the United States companies that advertise these toys. The volume is very large.

Action dolls are usually adult male figures. Some have special arms or legs that can replace the normal arms and legs so the figure can perform special functions that a real man cannot. Opportunities in this product are similar to those mentioned for fashion dolls.

There is a somewhat smaller market for fashion dolls that are copies of the famous brands but different enough so as not to contravene copyrights. This is true also to a lesser extent of action figures. Of course any manufacturer can market these. Also accessories and clothes for these dolls are sold by companies that do not make the dolls. This market is wide open.

Other important toys

Housekeeping and cooking toys, play tools, juvenile sporting goods, inflatables, beach and water toys are rapidly growing categories, already over $50 million at wholesale.

Marketing

At present most manufacturers in the Republic of Korea do not concern themselves with marketing as they rely upon buyers who bring products to be copied or made from their designs. This practice results in the loss of many opportunities.

Seeking out the buyers

There are two kinds of buyers who import toys. There is the company that only imports and there is the manufacturer who also imports part of the merchandise he sells. There are three different kinds of companies that only import: the specialized importer, the wholesaler and the retailer.

The specialized importer has importing as his only business. He may search the sales market for toys that sell well which he then brings to the Far East to be copied at a low price. He sometimes has his own design department and brings the designs to the Far East for manufacture. A few of these importers are high quality firms who want only the best quality goods. The great majority want only quality that is at least saleable. They are primarily looking for the lowest possible price. They compare prices between factories and between countries, buying from the maker with toys of acceptable quality at the lowest prices.

The manufacturer who also imports is usually more interested in higher quality because the goods reach the market under his brand name and he needs quality to defend his brand. However, again low prices are his major reason for looking in the Far East. If he cannot get low-price imports, he will make the toys domestically.

The wholesalers and the retailers are looking for two things abroad. The first is better prices. However, they are also looking for saleable merchandise of unusual nature or design or high quality that the local competitors do not have.

Most of the large manufacturers and many of the smaller ones import some products and this is also true of retailers and wholesalers. However, most retailers and wholesalers cannot give the exporting factory much help. They may bring samples of other makers' products to copy but they will also want to see toys designed and made at the factory.

Lists of retailers, wholesalers, manufacturers, and importers exist. These should be studied so that promising prospects can receive literature. The most important ones should be contacted, urged to visit the factory or be visited in the United States by a factory representative.

Getting new business

Sales are only the final step in marketing. Each company requires a regular marketing programme, which must be tailored carefully to the needs of the company. Thus each firm will have a different marketing programme but they should follow certain principles. In general, marketing is done in three steps:

(a) Find the buyer;

(b) Get the buyer interested;

(c) Make the first sale.

The first has already been discussed. The second step, getting the buyer interested, centres upon the question: Why should the buyer purchase from one particular company rather than another? The approach to the buyer should convince him that he is being offered one or more of the following advantages:

Better price
Better quality
More reliable or quicker delivery
More favourable payment terms
Designs that sell better

Marketing in Europe

Much that has been said about marketing in the United States also applies to Europe. This market is only a little smaller than the United States market. However, individual companies buy in smaller quantities. They demand better quality but pay higher prices. The product mix is somewhat different and varies from country to country. It is important to review the trade publications and the statistics of each large country. For instance, the trade statistics of the Federal Republic of Germany reveal the toys that sell the best, as listed below:

Plastic toys
Dolls and accessories
Games
Die-cast toys
Metal toys
Stuffed toys
Wooden toys

The total of this market probably exceeds $500 million and may be almost $750 million. In Japan, more than $1,000 million worth of toys are bought a year.

Designing toys

The very best way to bring the toy buyers to the Republic of Korea would be to develop a good design capability. In addition to this advantage, the designs themselves add to the value of a toy so that the country will have something other to offer besides low prices. This is especially important now because costs are rising in the Republic of Korea.

Some companies have large design organizations with specialists with different skills, but excellent designs can come from one person working, for the most part, alone. Each designer or design group will work in a different manner but they all will have to take into account the following functions:

(a) A market study function. Most new designs come from a good understanding of the market. To find a market need and fill it is the purpose of the designer. To do this he has to know the answers to the following questions:

What is selling now?
What are the market trends?
What factors outside the market are stimulating the customers to buy?
What will they pay?
What will they be satisfied to get for their money?

The designer must consider three customers: the buyer, who put the toy in the store; the parent, who decides what the child may have; and the child, who must enjoy the toy and, most important, be safe playing with it;

(b) A concept function. In light of the market study function, what should the designer be designing? The designer, through the free association of ideas, may conceive the product directly but he may also search for ideas in books, in pictures or in the adult world around him as many toys are copies of this world. The ideas may come from toys already on the market, salesmen, customers etc. The designer must be a good observer and a good listener;

(c) A capability function. Can the factory make it? How much profit will it produce? Can the factory finance development and tooling? Can it be got to market before the idea is outdated?;

(d) A drawing and drafting function. The designer must now consider the product. A good concept is often ruined because the designer did not make the product look good. An idea that is not so good can be made saleable because the design is attractive. The design must be put on paper so management can see it and decide whether to continue with it. Alternate designs will give management a choice from which one or several may be chosen for modelling;

(e) A modelling function. The next step must be the model. This function is as creative as the design. The model must work well. The best idea will fail in the market if the product disappoints the child's expectations. The factory must be able to reproduce the model. If it cannot, the design effort is wasted;

(f) A testing function. Will the buyer like it? Will the parent approve? Will the child prefer it? Models should be shown to buyers and parents. They should be child tested for appeal and durability. Most important the toy must be carefully tested for safety;

(g) A packaging and marketing function. How can it be packaged so that it will ship safely and cheaply? Warehouse efficiently? Display attractively? How is the toy marketed effectively and efficiently?

There are several paths a designer can take. He can improve a product already being sold by his own factory or by a competitor. He can combine in a new way the qualities of toys he sees. He can add a new capability to an existing toy. He can find something completely new.

Market penetration

There are two general avenues of penetration. One is to sell to the buyers who do their own marketing in foreign markets. The other avenue leads the manufacture to enter the markets himself. Before considering these avenues we should note that very many companies in the Republic of Korea do not have the finances, personnel or expertise to make much of an effort to penetrate the large markets. However, there are large trading companies who are well financed and have well staffed sales offices already in place abroad. Some of these companies are ready and willing to help. However, trading companies cannot be most effective in marketing toys without active, intelligent marketing support from the factory. If factory management does not understand the market, how the products are sold and what the competition is doing, the trading company cannot help.

The trading company can also join together the efforts of several small manufacturers thereby gaining many of the advantages of large producers.

The expert suggested that the Korean Toy Export Association be encouraged to get visiting buyers to register and list their buying interests. The information could be published to the entire industry so that interested factories may seek appointments. This technique was used successfully in Japan in the 1950s.

There are some problems in depending on the American Toy Fair, though this exhibition is worthwhile. All the retail buyers go to the Fair. The manufacturers and specialized importers are busy selling themselves and appointments must be made with them. Last year's buyers list should be examined to find the most promising prospects who should receive special invitations.

Entering the market directly is more costly and has greater risks than dealing with importing buyers. There are also advantages in that the manufacturer:

(a) Can learn what the market wants;

(b) Does not depend on a few buyers who move from supplier to supplier and may stop buying at any time;

(c) May be able to get better prices;

(d) Can build up his own name brand;

(e) Has a more secure and more effective sales effort because it is closer to the ultimate consumer.

Selling directly also takes more know how and better organization. It needs more control.

The joint venture

United States importers have invested in and given technical assistance to a variety of factories in the Far East. In order to convince an American importing manufacturer to engage in such an association, the toy manufacturer must offer an advantage to his prospective partner. Cheap labour alone will not be enough. Philippine labour is cheaper. However, low cost is not based only on cheap labour. What really counts is productivity per dollar spent. Other advantages that may be offered can be consistent, acceptable quality and, very important, reliability.

It is probable that producers will do best concentrating on getting help in designing and producing toys rather than financial help since investment requires a permanent commitment that is difficult to get. The American importer tries to move with the market advantages toward the lowest cost economics and these have been changing rapidly.

Marketing investment opportunities or getting orders involving technical assistance is like anything else in marketing:

Find the potential partner
Interest him
Sell him

Annex III

SEMINAR NOTES - PRODUCTION

Most production studies tend to deal with the problems of large organizations. There are few large toy factories in the Republic of Korea. Nevertheless, much can be learned by the small producer of toys if he will read such texts as the Ronald Press Production Handbook. The small manufacturer should look upon the various departments described as functions that should be consciously performed by one or a few men.

Organizing the facility

Most manufacturers produce one or a few kinds of products; eack kind of product will have its own production line. The line should be physically set up according to a few principles:

(a) Each line should be organized so that material moves along it in logical steps from one process to another. All activity on the line should be directly related, as much as possible, to transforming materials into products. Other activities such as movement of materials from process to process should be kept at a minimum;

(b) The work space for each operation should be adequate;

(c) The line should be laid out so that each operation and each operator is easy to control;

(d) The line should be planned so that changeover from product to product is efficient;

(e) Provision should be made for inspection and quality control;

(f) Different work elements should be co-ordinated so the flow along the line is smooth. If products tend to jam up at places, subassembly or subprocessing lines may be required.

It is often a good idea to make a plan of the facility on a wood board or heavy cardboard. Then cut out paper pieces to scale to represent the work places, machines, storage bins etc. These can be placed on the cardboard plan and moved about until the best configuration is arrived at. This exercise should take place regularly, at least twice a year, so that the organization of the plant is continually improved as experienoe is gained in producing the product.

Planning production

Most manufacturers produce job lots of toys as they get orders for them. First, materials are ordered or allocated to the job lot from inventory. Then the amounts of materials ordered and delivery dates are entered on the production control sheet. If there is time, and finances allow it, all the material may be received before starting so that the line will not be stopped by late deliveries, but this is often not practical.

The material is then scheduled through each operation and through packing and shipping. The time each operation is to start and to finish is noted.

Spaoe is left for the operator or foreman to enter the actual start and finish times of each operation when the toy is produced.

Next the operation sheet is filled out. Each operation has its own sheet. Start and finish of the operation from each production plant is entered. This is important so that the same time is not allocated to two or more production plans.

Waste is a most important factor in manufacturing. We often think of waste as the material but if the operator ruins a product, not only is the material lost but so is the labour that went into the product. This gets more serious as merchandise approaches finishing. The labour lost may cost more than the material. Supervision and other overhead costs are also lost.

This may be controlled by a job lot ticket and operator numbers. Each job's material is divided into convenient lots. Each lot moves through the production line as a unit. Each operator counts the work pieces of each lot that he or she passes to the next operator. Sometimes the counting is done by the team leader or foreman. The count is recorded in a designated space on the job lot ticket along with the operator's number. The system takes time to work well but it will reveal where material is being lost. Sometimes just having the tioket brings about improvement. Of course, the cost of using job lot tickets must be weighed against the cost of the waste to be eliminated.

Methods and motion study

Every manufacturer must make cost reduction a regular process in his plant and he should spend the most effort on the costliest elements of manufacture. If his material is costly, he should seek substitutes or lower prices from vendors. However, he has the most control over what goes on in his factory. Each operation for each product may be costed with the help of production control sheets and operation sheets. First, he should search for more efficient methods. He may find these in books, by talking to suppliers of materials and of machinery or by direct analysis of what his factory is doing. Sometimes it is profitable to engage outside experts. Trade publications may be helpful. He, his factory manager and foremen should study each motion made by operators. There are books about methods and time study that are well worth reading. Usually work simplification brings savings; often simple jigs and fixtures speed operations and reduce fatigue.

Inspection and quality control

There are many misconceptions about quality control. Quality control does not mean that the highest quality product must be made. Management determines what quality standards his customers will accept and sets the standards accordingly. The quality control inspector is not responsible for quality to meet the standards. The foreman is responsible. The reason for having a quality control inspector is that the foreman must push the merchandise through his section as fast as possible. Often this can be done at the expense of quality, thus there must be another person to inspect for quality as well. Usually a foreman does not have time to make regular planned inspections or cannot make a close inspection. Finally quality cannot be improved if good inspection records are not kept and studied for the cause of rejects.

The quality control inspector must have a regular routine and inspect a predetermined number of random samplings according to the size of the lot. Then, if too many poor items are going through to shipping, the number of samplings may be increased. He must keep records of exactly why pieces are rejected so corrective steps can be taken quickly in the line.

In addition, it is helpful to instruct operators in the quality standards of the materials they receive for further processing. Now operators cannot pause to inspect but they must look at the pieces as they work on them. If an operator happens to see a substandard piece, he should put it aside for the quality control inspector. Indeed the quality control inspector must see all rejects and record exactly what the defect is so someone may look for its cause. Sometimes there is a 100% inspection by the final operator. Even if the operator repairs the defects it may be advisable for a record to be kept so the cause may be corrected.

Inspection of toys is especially important because of the need to assure that all toys are safe.

Maintenance

Equipment is expensive and getting more so all the time. Even with good maintenance almost all equipment eventually has to be replaced either because of wear or because the factory needs more modern machinery to remain competitive. Replacement cost is part of overhead and should be considered when costing and pricing. It should be noted that the replacement will surely be more expensive than the equipment already owned so depreciation allowed for tax purposes covers only part of replacement costs.

Annex IV

TOY EXPORTS

Table 1. Exports from the Republic of Korea by type, 1974-1977
(Thousands of dollars)

Type of toy	1974	1975	1976	1977 (to end of July)
For riding by children	-	188	822	421
Dolls	2,853	3,061	16,197	12,925
Dolls' parts	432	595	942	932
Vinyl inflatables	95	177	212	249
Stuffed	-	5,977	32,267	27,393
Metal	-	359	1,331	1,268
Wooden	-	136	583	244
Ceramic	-	12	123	115
Trim-a-Tree	-	283	525	2,154
Plastic	-	-	4,285	605
Other	33,558	25,013	18,575	20,478
Total	36,938	35,801	75,862	66,784

Source: Trade Association for the Republic of Korea.

Table 2. Exports from the Republic of Korea by country, 1974-1977

(Thousands of dollars)

Country	1974	1975	1976	1977 (to end of July)
Australia	1,018	1,756	4,085	3,328
Canada	1,928	1,831	4,477	2,934
Federal Republic of Germany	3,848	6,378	7,991	5,932
Italy	2,460	1,273	2,563	2,156
Japan	2,274	2,128	4,147	1,937
Netherlands	920	1,090	1,949	2,239
United Kingdom	1,007	820	3,124	1,277
United States	20,465	18,378	43,392	42,581
Others	3,018	2,147	6,134	5,400
Total	36,939	35,801	77,862	67,784

Source: Trade Assooiation for the Republic of Korea.

Table 3. Exports from Hong Kong by country and area, 1976[a/]
(Millions of dollars)

Country or area	Value
United States	246
European Economic Community	123
United Kingdom	46
Federal Republic of Germany	39
Canada	25
Australia	17
Japan	12
Italy	10
Netherlands	10
France	8
Singapore	7
Belgium and Luxembourg	6
Sweden	6
Denmark	3
South Africa	3
Venezuela	3
Switzerland	3
Saudi Arabia	2
Austria	2
Kuwait	2
Finland	2
Others	23
Total	598

a/ These figures are unverified.

Table 4. Exports from the East Asia by type, 1976[b/]
(Millions of dollars)

	To US	To EEC	Total
Hong Kong			
Plastic dolls	17	13	48
Stuffed dolls	0.4	0.5	1
Other dolls	8	7	18
Metal toys without electric motors	18	5	31
Metal toys with electric motors	0.6	0.1	1
Plastic toys without electric motors	163	78	317
Plastic toys with electric motors	31	7	49
Other toys	10	2	16
Electric motors for toys and dolls	9	7	19
Carnival decorations	10	1	13
Japan			
Children's riding vehicles	3.3	0.046	10
Stuffed dolls	0.5	0.7	2
Other dolls	1	0.5	3
Dolls' parts	0.4	0.4	1
Working models and plastic kits	6	4	14
Toy microscopes	1	1	3
Plastic construction toys	2	1	5
Paper toys	1	2	3
Stuffed toys	3	2	10
Metal friction motor toys	1	1	4
Other metal mechanical toys	1	1	6
Metal electric toys	3	2	16
Other metal toys	10	2	21
Polyvinyl soloride toys	1	1	3
Other plastic toys	17	6	41
Motors for toys	2	1	4
Toy parts	7	6	27
Carnival toys, trioks and magic	7	4	15
Other East Asia			
Dolls	17	3	24
Other toys	36	12	65
			790

b/ These figures are unverified.

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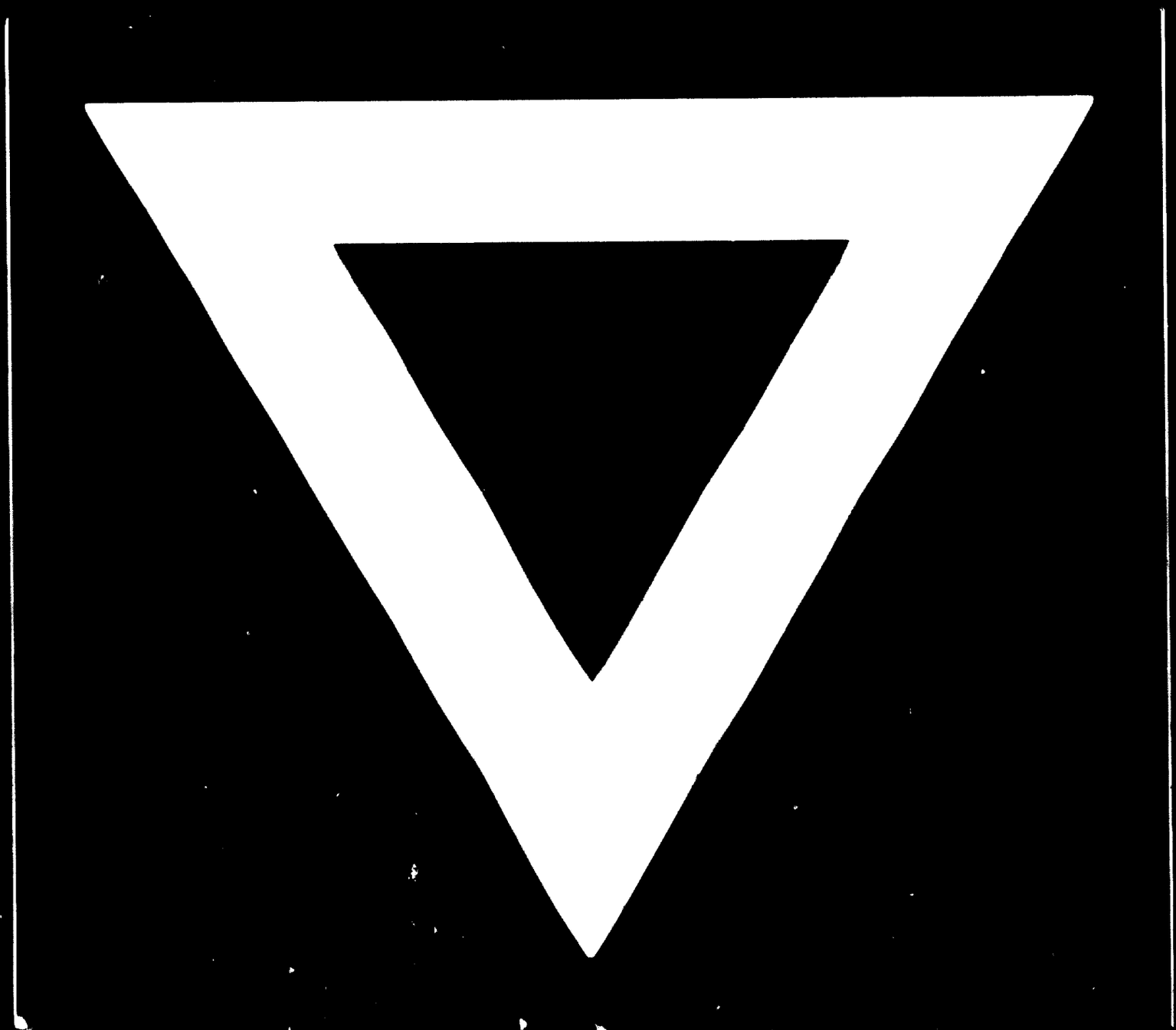

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