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VOCATIONAL TRAINING AND EDUCATION
FOR SMALL AND MEDIUM-SIZE ENTERPRISES

Submitted by the Government of Israel

GE. 67-16700

We regret that some of the pages in the microfiche copy of this report may not be up to the proper legibility standards, even though the best possible copy was used for preparing the master fiche.

I. INTRODUCTION

1. The terms "vocational training" and "vocational education" are used interchangeably in this paper; both terms refer to all measures taken to raise the occupational competence of industrial workers or groups of workers.
2. The criterion for "small-scale" or "medium-scale" enterprises, as used in this paper, is the number of employees, not the amount of capital investment or the volume of production. Enterprises with up to twenty or thirty employees will be considered small-scale; those employing between thirty and a hundred workers will be called large-scale enterprises. Industries that require comparatively few employees because of high investment in automation are not dealt with in this paper. However, this should not be interpreted as an underevaluation of their training problems or of their importance for future development.
3. In most developing countries, automation will play a minor role in industrial development for some time to come. Even in a rapidly developing country such as Israel, there are only seventy computers in use at present; an optimistic forecast for 1970 indicates an increase to about 110. In full operation, they service not more than a few hundred of the 12,000 industrial establishments and workshops. Some of these computers, however, are fully or partially used in Israel's defence system, government agencies etc.
4. An example of a potential but restricted use of automation in developing countries is numerical control. This type of automatic steering is worth-while only in large-scale production; its use is impractical in developing countries where internal markets are small and export trade is limited. This paper, therefore, deals with small and medium-size labour-intensive enterprises that are not highly capital-intensive.

II. MANPOWER IN SMALL AND MEDIUM-SIZE ENTERPRISES

Labour force in small enterprises

5. The functions performed by a small workshop or factory are fundamentally similar to those of a large plant. Because these functions in small enterprises must be handled by few employees, efforts are usually made to employ "all-around" people, or to train new workers to handle more than one job.
6. There is a general tendency to employ workers who are over-qualified for some jobs and underqualified for other duties that they must perform. Often, an employee who is qualified for the skilled tasks of his workshop must also do semi-skilled work. However, the same worker sometimes does not come up to expectations when orders for work have been accepted that require highly specialized knowledge, skill and experience.
7. The management of small enterprises with technical, administrative and business responsibilities very often does not have the skilled manpower in each of these fields. An owner-manager may be an engineer who lacks an administrative and commercial background; or he may be an experienced businessman who must rely, in technical matters, on his technically-skilled workers.
8. In small workshops, there are seldom special foremen or supervisors; one of the senior skilled workers who undertakes his share of practical production also acts as foreman. Furthermore, there are generally no special maintenance men or repair workers. This work is performed by production workers who are often overqualified for daily maintenance jobs but who are not capable of doing complicated repair work. When management has sufficient insight and enough working capital, complicated repair work is assigned to entrepreneurs outside of the organization. Unfortunately, in many cases, small workshops are hampered by lack of funds and, therefore, expensive equipment is often mishandled by incompetent personnel.

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9. Inadequate job performance of personnel in a small enterprise is much more serious than in a large factory where the contribution of individual workers is less important. Mistakes in a large enterprise can be discovered readily through mechanized processes or by fellow-workers who are specialists in the same field.

Labour force in medium-size enterprises

10. In plants and workshops with more than thirty employees, division of labour is more complex than in small enterprises. There is a separation of technical and management functions from administrative and business functions. The definition of "semi-skilled" and "skilled" workers in such workshops or factories is more meaningful than in small enterprises. Because of more extensive use of machinery and equipment, maintenance and repair work is carried out to a greater degree by employees hired especially for such jobs.

11. Workers are often organized into groups of the same trade, for example, with all lathe turners performing together. Or a team may produce a total product by working together or it may carry out a special operation with each man contributing his individual skill. In both cases, there is some form of supervision by a foreman or supervisor who does not take an active part in the work itself.

12. Although long-range planning, including manpower development, is recognized as one of the basic functions of management, medium-size enterprises seldom allocate funds for training purposes.

13. In contrast to small enterprises, there is almost no direct daily contact between workers and management in medium-size plants. Contact is an important factor in worker-management relationship and the lack of it can affect the training of workers.

Vocational training and education for small enterprises

14. In spite of many possible exceptions, most small workshops need a higher percentage of highly skilled workers with a wide range of knowledge and qualities of flexibility and adaptability than larger plants. Unfortunately, in their early

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stages of development, small enterprises are seldom able to contribute very much to the training of the type of manpower they need most. They usually cannot afford the expenses of an educational programme and their labour force is seldom qualified to train craftsmen adequately. It seems, therefore, that this task of vocational education must be carried out mainly by institutions such as trade schools, vocational schools and training centres.

15. Training, however, should not be exclusively institutional. For employment in a small workshop, training can best be completed if trainees are given actual experience of working in a shop under pressure of time and possibly unfavourable conditions, and with obsolete equipment. These experiences are so important that on-the-job training is recommended even in such small enterprises, if there are skilled workers who have sufficient talent to do a good job of training.

16. For successful work in a small workshop, flexibility and adaptability are as indispensable as technical skill. Without these qualities, which should be stressed during the institutional training period, a worker can find himself almost helpless.

17. General education is also valuable to workers in small enterprises. Development of personality can give workers a feeling of responsibility in their jobs and enable them to make decisions wisely and defend their decisions once they are made.

18. As for men who are in charge of small enterprises, often they are found to be as much in need of technical training as the workers. If a man is the owner of a firm and if he lacks technical knowledge, he is in a position of great disadvantage. He probably has secured his job through proven success in business. Poor evaluation of his own abilities can be as harmful to his clients as it is to his workers.

19. Experience in Israel has shown that it is difficult to encourage managers to supplement their knowledge by taking training courses in the same manner as their workers. It is usually a blow to their prestige to admit lack of knowledge that could be corrected by taking the same courses as their workers.

20. Vocational training of workers in Israel is a function of the Department for Youth and Vocational Education, Ministry of Labour. Management training is handled by the Productivity Institute, a public organization that functions under the Minister of Labour but is not a regular administrative unit of the Ministry. The institute does most of its management training in the form of single study days, individual evening lectures, or short courses on highly specialized subjects.

21. Concerning the financing of training activities, there is a significant difference between management-training financing and financing of worker-training. Small workshops are usually not able to pay the full expenses of training for their employees, but it seems to be a question of honour for an owner to pay for his own studies. To ignore such a psychological situation would be to bring the best intentions regarding training to nought.

Vocational training and education for middle-size enterprises

22. In middle-size enterprises, a distinction is made between semi-skilled and skilled workers. In this context, a skilled worker is thought of as one who holds a job equivalent to an apprenticeship in progressive countries. Semi-skilled work, although highly specialized, requires a relatively short training with little or no need for training in related subjects. It requires efficient work techniques that can be applied successfully without an understanding of why they are being used.

23. Semi-skilled training can be given to workers on the job at relatively low expense without previous institutional study. Its advantages are obvious. In the case of a new factory or a new unit within a factory, training of semi-skilled workers should be carried on in the plant, using its equipment supplemented by simple training devices.

24. Training of skilled workers for medium-size enterprises can usually be accomplished efficiently on the job. Less flexibility is demanded from these workers than from trainees in small workshops. No time or material is wasted during their training period. A mutual-interest relationship develops quickly between worker and employer; the trainee becomes productive in a short time and is eligible for wages.

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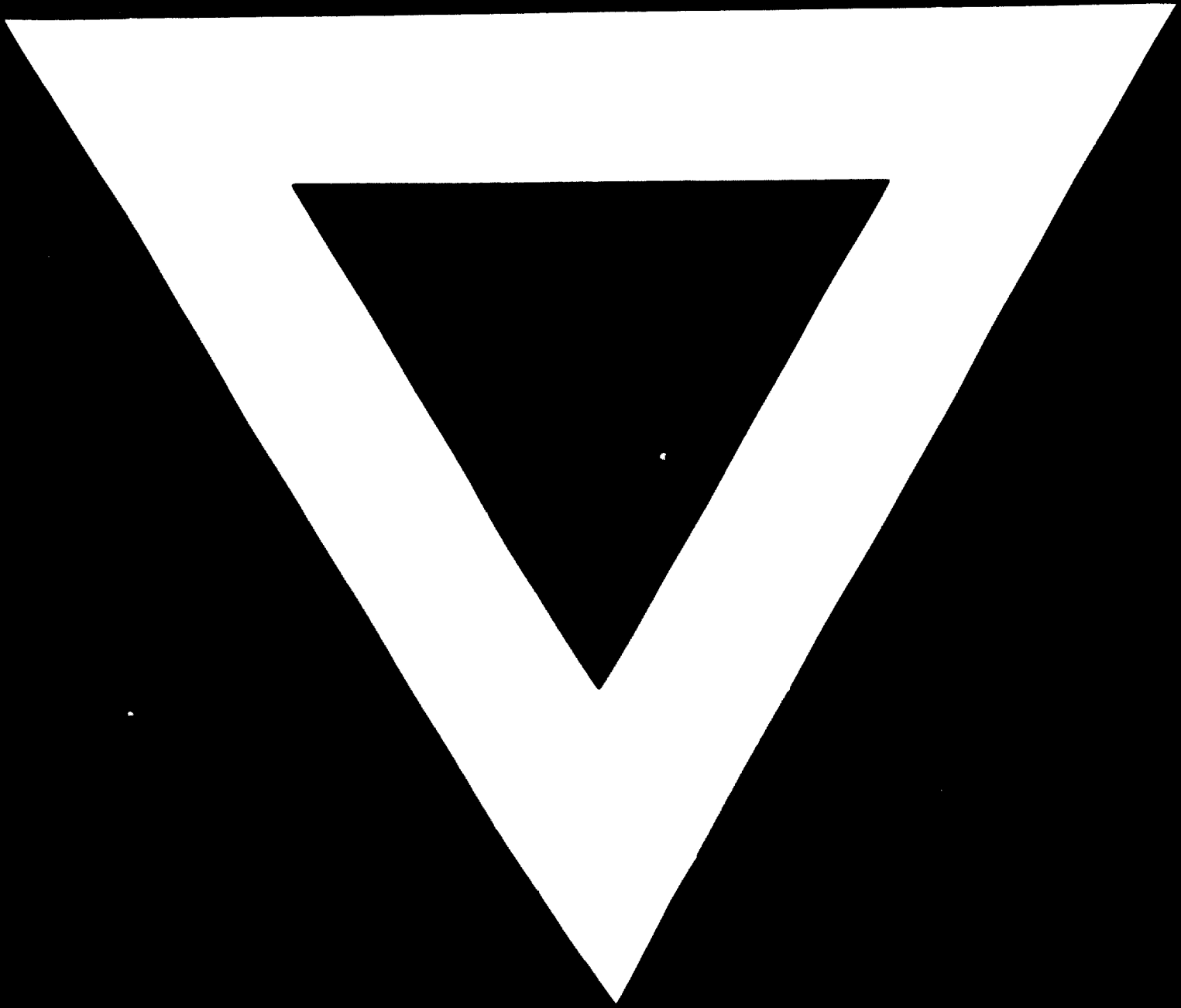
25. On-the-job training can take the form of an apprenticeship suitable for young people, or it can be accelerated training for adults. Medium-size factories should never be so highly specialized that mobility of workers is impossible. If conditions make on-the-job training impractical, institutional courses should be used. The disadvantages are high costs, distance of schools from factories, and the fact that trainees receive a certain degree of over-qualification in order to satisfy the needs of the general labour market.

26. At the middle and senior management levels, a distinction is made between technical personnel and administrators. Technicians and engineers receive training in special institutions. They should not be graduated without receiving some practical work experience. This experience is essential for employees of medium-size enterprises in which technicians and engineers usually perform functions directly connected with production.

27. In medium-size enterprises, the middle-level and senior administrative staff must be quite flexible as they are usually few in number in each plant. They can develop flexibility through part-time education, in the plant if possible, or through institutional training for special courses.

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