CHAPTER I
CHANGES IN THE ENVIRONMENTAL CONDITIONS AFFECTING THE HUMAN RESOURCES DEVELOPMENT SYSTEM

The technological progress, the ageing of workforce, the growth of the service sector and the continuing internationalization are underlying causes of the changes in environmental conditions affecting the human resources development (HRD) needs. The occupational capacities asked for and demanded from workers are undergoing great changes. From now on it will be very important to make accurate assesments of the environmental changes affecting HRD needs so that this HRD can be actively carried on in the future.

(1) How occupational capacities will be affected by microelectronics (ME) and other aspects of the technological progress

1. Recently, both production and administrative departments have witnessed a rapid expansion of ME technology. a) Because of this it has became necessary to learn programming and handling of electro mechanical machines such as CNC machine tools, industrial robots and office automation (OA) equipment like personal computers, word processors. (Figure 1-1, 2, Chart 1-1) b) The introduction of ME-based equipment saves effort and consequently relocation of jobs will follow. Therefore it is necessary to develop skills that corresponds to these relocations (Figure 1-3) c) The introduction of automated equipment also makes necessary maintenance skills of the equipment as well as adaptability to the changes in the process before and after. Further,much importance must be attached upon the transmissions of manual skill competence for the planning of improvement and development of production systems. (Figure 1-4, 5)

2. Concerning the impacts of technological progress upon

skills some opinions have been expressed, that especially in production departments the development of ME-based and other modern technology will lead to a polarization of tasks into demanding jobs requiring high levels of skills on one hand and monotonous low-level jobs on the other hand. However, job content is not only determined by changes in technology. The personnel policy of each company will greatly affect the outcome. The polarization -assumption is not firmly backed by evidence; rather it looks like the task-allocation pattern becomes more versatile at worksites where CNC tools, etc., have been introduced. The workers' jobs cover not only simple button-pushing and inspection but also more complicated tasks of planning, adjustment, preventive maintenance, diagnosis, programming and other tasks requiring knowledge and skills. Generally speaking the technical development up till now has led to more compounded and high-level tasks and skills (Figure 1-6). Therefore the basic type of worker required by employers has changed from the hitherto now prevalent specialized latheman or fitter who has high level of skill at the specific job to a worker with broad occupational capacities which enable him to to solve various problems of each situation by using scientific and technological understanding of the tasks. This kind of flexible, broadly skilled worker is often called a "technician" in Western countries.

3. As the mechanization and computerization of routine tasks continues the general clerical staff is required to be able to collect, process and analyze information and utilize the information system fully for the routine decision making (Figure 1-2).

4. Further, in both production and administrative functions there will emerge forces that make the control of work difficult. For example, in the case of completion of computerized control systems, either independently developed or developed with close cooperation from outside, those people who participated in the planning of the system have a full understanding of the structure and operation of that system.

However, for those people who are assigned the task of operating the system, after the completion of the system it exists only as a "black box". A precise understanding about how one's own work is located in relation to the system is lacking and work morale is decreased. Consequently the workers are apt to lose proper cue to find out ways for development and improvement of the system. In order to prevent this from happening, it is necessary to train all those whose work is somehow related to the computerized system, even though they might not use it directly, to understand the whole structure and function of the system.

(2) The existence basis of small and medium sized enterprises changes

1. Untill now, small and medium sized companies have been located at the bottom of the dual economic structure, often seem as if suffering from low productivity and unfavourable working conditions. However, there are not a few companies in this category, that have demonstrated an inherent manoeuverability and been able to respond quickly and accurately to technological progress or changes in the market structure. Many new groupings of small enterprises have been born around new technology. If the flexibility that much of the new technology brings with it can be applied and the technological ameliorative force strengthened, it is likely that small and medium sized companies will be able to develop even further.

2. In contrast to the large companies that make efforts systematically to their HRD in the long term, the situation with small and medium sized companies is far less satisfactory although there are marked exceptions to this rule. Generally speaking, the material and human resources are limited, and not only classroom training but also job-rotation and small group activities are weak and inactive (Table 1 -3, Figure 7,8). In large companies the reallotment of jobs and responsibilities follows the pattern mentioned before, in which the introduction of new technology means higher skills and more versatile tasks.

On the contrary, in smaller companies a trend towards narrower job content can be observed. The reasons for this difference according to company size are, naturally the differences in the kinds of products, but the basic reason is derived from the difference in the weight put on the increasing of employee skills and abilities.

3. In response to the technological progress, the HRD of small and medium sized companies must be increased. Otherwise the polarization of work skills will go on and smaller companies' reliance on unskilled labour will be stronger. In such cases adapatibility to change will further decrease (Figure 1-9).

(3) Changes in career patterns due to the ageing of workforce and how to ensure the work morale of older workers

1. As the working population ages rapidly, the postponement of retirement has become the trend and the age structure of the workforce has changed drastically (Table 1-4). Accompanying these changes, it has became increasingly difficult to plan the HRD according to the conventional pattern, which is based on job rotation and acquirement of broad experience and subsequent promotion. Above all, the company organization makes it impossible to promote every one of the large number of people hired during the period of rapid growth to foreman or manager posts.

2. As a countermeasure to this situation, it becomes necessary to plan for a change in personal intentions; ignoring the goals of becoming supervisors, people should be content of becoming specialists and professionals. Therefore, companies should introduce work function based competence systems. A strong professional identity and ability should be developed in those trained for specialized first-rate capabilities (Figure 1-9).

Further, it will be necessary to transfer people to related companies, establish special companies for older persons,

utilize employment contracts of shorter working hours and take other measures to vitalize the use of an aged workforce (Figure 1-10, 11, 12).

3. Especially in the case of white collar workers, hitherto the opportunity to change tasks has been a strong motivator for HRD. However, it has become increasingly difficult to rely upon the method of expecting spontaneous self-development of occupational capacities in connection with personnel shuffles, alterations and promotions because of an insufficient number of posts. If it cannot precisely be defined, what kind of role is expected from older white-collars, any HRD efforts will turn out badly.

4. In order to be able to cope with ME and OA, large numbers of older workers show even higher level of intention to learn new technologies than younger people. However, there has been an increase in the number of people who fear that they will be left behind in the technological progress (Figure 1-13, 14).

Until now it has been generally thought that expectations concerning job and authority allotment based on seniority have been marked motivators for work. If the misgivings of many elderly employees come true and if there are an increasing number of those who cannot follow the technological progress, there will be adverse effects on the motivation and morale of not only the older workers, but the whole working population as well. This problem is a source of increasing anxiety.

(4) Changes and expansion in the area of HRD in the service economy

1. Due to the growth of the service-economy, distribution, banking and finance, education, information, equipment maintenance, leisure related business, and other parts of the tertiary sector gain more weight in the economy as a whole. This trend also affects occupations within the secondary sector, where research, information management, market research, advertisement and other functions related to information handling in a broad sense will increase (Figure 1-15).

2. Accompanying these changes, restaurants and catering, the leisure industry, supermarkets and other fields will be targets of an increasing standardization and manualization of operations and an increasing number of jobs in this sector will be mastered after only a short period of training. On the other hand, in the field of education, information handling, survey research, merchandising based on market analyses, etc., long term training and practice are necessary and there is an increasing demand for people with such qualifications. The training of this kind of service industry specialists will become a more and more important topic.

(5) Changes in women's employment patterns

1. Due to the declining birth rate and a smaller workload of child-and housecare accompanied by changing attitudes and expectations towards the employment of females the periods women are employed have become longer. Following this trend and considering women's career routes there is a necessity to implement HRD here also.

2. The number of women, who return to the labour market after bringing up their children is increasing. Retraining in work skills and attitudes is necessary for them (Figure 1-16).

(6) Instruction methods of technology transfer are inadequate

1. In order to diminish trade friction and enhance technological cooperation with developing countries, Japan should participate fully in various international activities. The hitherto prevailing goal of "catching up with the West" is already achieved and outmoded. Now there is a necessity to promote technological transfer. In Japan the transmission of skills and knowledge has been done mostly by OJT, therefore training and instruction methods for technology transfer are markedly lacking. Consequently the need to develop effective training and instruction methods has arisen. In this case it is important to combine Japanese OJT methods with the various

methods of the receiving country and thus develop, what is called "the third culture".

2. Further, it is essential to adapt the skill level to that of the receiving country. For example, in big companies where the welding skills and functions have been robotized, technical cooperation in the field of welding could be handled over to employees of subcontracting firms. Here also transferring skills other than those needed in the daily production activities is required.

3. In order to promote technical cooperation, improvement of language skills and understanding of the partner country's culture is essential. For example, it should be understood in the context of technical cooperation that there are countries where there is not a prevailing habit of seniors teaching their skills to their juniors.