

A COMPARATIVE STUDY OF APPRENTICESHIP SCHEMES
IN SELECTED DEVELOPING COUNTRIES

Thesis for the Degree of Ph. D.

MICHIGAN STATE UNIVERSITY

MOON YONG LEE

1972



3 1293 10266 4079

ABSTRACT

A COMPARATIVE STUDY OF APPRENTICESHIP SCHEMES IN SELECTED DEVELOPING COUNTRIES

By

Moon Yong Lee

This study was undertaken to identify implications and possible generalizations arising from the comparison of apprenticeship schemes in India, Japan, Kenya and Nigeria. Some implications of the findings for Korea are considered in the conclusion.

The major aspects of an apprenticeship scheme examined by this study are: linkage between the apprenticeship system and the educational and training system, location of different types of apprenticeship programs, employment status of apprentices, educational attainment of apprentices, apprenticeable trades, organization of instruction, trade tests, recruitment and training instructors, and sponsors. The data for this study were gathered from research reports and government documents.

The major findings of this study were:

1. Vocational and technical education is regarded as pre-vocational preparation for an apprenticeship.

Vocational training in institutes also tends to be regarded as the pre-vocational.

2. Large industrial establishments run independent apprenticeship programs. National apprenticeship schemes either organize or assist the apprenticeship programs in small and medium industries. The enrollment in the both sector is small. A vast number of apprentices are trained in indigenous apprenticeship programs.

3. If an employer is obligated to take more apprentices into his establishment than he needs, he is likely not to provide the apprentices with gainful employment during and after the training. If an employer is not obligated to pay apprentices with wages and to employ them upon the completion of the apprenticeship, he is likely to take a larger number of apprentices in than he actually needs; apprentices become cheap laborers.

4. Actual educational attainment of apprentices is becoming higher than that which is required either by legal provision or by industry. This phenomenon exists in both more and less developed countries.

5. Developing countries are in the process of broadening public apprenticeship schemes by adding new trades to the list of unauthorized apprenticeable trades. Also, apprenticeship is broadening its scope to include emerging trades and service trades.

6. As apprenticeship becomes formalized it emphasizes classroom instruction and basic training, both functions of formal schools. The training institutes of the ministries of labor have recently added these functions.

7. More developed countries use trade tests to promote national standards for skills. Less developed countries use them as a ritual for job control.

8. Instructors are recruited within industrial establishments. Prolonged training of instructors in training institutes is not welcomed by industries.

9. Major financial and other assistance by governments are provided to apprenticeship programs in small and medium industries.

In view of both the limited absorptive capacity of school leavers by modern industries and the limited resources for education and training in Korea, this study suggests the promotion of indigenous apprenticeship programs. The major recommendations for the new policy are:

1. The policy should be the one that establishes industrial extension services for indigenous industries. No additional training institutes or no expansion of present training institutes should be attempted.

2. Assistance to apprenticeship programs in modern industries should be minimized.

3. Employment of apprentices should not be controlled by government. Government's supervision should be limited to preventing abuse of youths by employers.

4. Vocational education and training in schools and institutes should be confined to pre-vocational education and training and no attempt to simulate the industrial process in schools and institutes should be undertaken. The schools and institutes should provide classroom instruction for indigenous apprenticeship programs.

5. Curriculum standards for apprenticeship programs should be adapted to changing educational attainment of apprentices.

6. No attempts should be made to enforce a licensing system for instructors of apprentice training.

7. Governments' efforts should promote directly the indigenous industries and encourage the completors of apprenticeship training to create their own business.

8. No rigid legal standards for training and tests should be enforced; the tests should be in the form of national skill competition.

A COMPARATIVE STUDY OF APPRENTICESHIP SCHEMES
IN SELECTED DEVELOPING COUNTRIES

By

Moon Yong Lee

A THESIS

Submitted to
Michigan State University
in partial fulfillment of the requirements
for the degree of

DOCTOR OF PHILOSOPHY

Department of Secondary Education

1972

679477

ACKNOWLEDGMENTS

I would like to express my appreciation and gratitude to the members of my dissertation committee: Drs. Wilbur B. Brookover, Harry S. Case, Maryellen McSweeney, and the Chairman of my dissertation committee, Dr. Cole S. Brembeck. A special appreciation must be given to Dr. Brembeck who has provided me with apprenticeship training under him.

I would also like to express my appreciation to Dr. Frank Guldbrandsen for his editing work. I wish to thank Dr. Bernard Wilder who has given many suggestions in the writing of my thesis. I thank Mr. Sang C. Kang also for his assistance in searching for data. I want to thank Deborah Ensign, Wilma Hahn, Ruth Hefflebower, and Betty White for their dedicated services, without which my work might have not been completed on time.

Last, and not least, I want to thank my mother, who has encouraged me to undertake a life long education, my wife, who supported our family living while I am studying in the United States, and my children, Chul joon, Hae sook, Hae suk, Hae ran and Hae yun, who have endured painful lives.

TABLE OF CONTENTS

	Page
ACKNOWLEDGMENTS	ii
LIST OF TABLES	vi
 Chapter	
I. INTRODUCTION	1
The Purpose and Intent	1
Need for the Study	3
Definition of Terms	8
Apprenticeship	8
Traditional Versus Modern Apprenticeship	9
Indigenous Apprenticeship	9
Skilled Worker	10
Training Versus Formal Education	10
Work Experiences	10
The Selection of the Countries of the Study	10
Method of Study	12
Limitations	12
Organization of Presentation	13
II. APPRENTICESHIP PROGRAMS IN INDIA	14
Background Description	14
Economy, Manpower and Education	14
Wage Structure	17
Organization of Industrial Education and Training	19
Apprenticeship Scheme	22
A Brief History of Apprenticeship in India	22
Recruitment of Apprentices	28
Incentives	31
Distribution of Apprentices by Industry and by Trade	32
Organizing Curriculum	33
Basic Training	34
Work Experience	35
Trade Tests	37
Recruitment and Training of Staff	38
Sponsors of Apprenticeship	39

Chapter	Page
An Example of the Development of an Apprenticeship Program	41
Problems Observed by Writers	46
Summary	47
III. APPRENTICESHIP IN JAPAN	51
Background Description	51
Economy, Manpower and Education	51
Wage Structure	53
Organization of Industrial Education and Training	57
Apprenticeship Scheme	60
A Brief History of Apprenticeship	61
Recruitment of Apprentices	62
Incentives	63
Distribution of Apprentices by Industry and by Trade	64
Organization of the Curriculum	65
Trade Tests	69
Recruitment and Training of Instructors	70
Sponsors of Apprenticeship	73
An Example of Apprenticeship Training	75
Problems Observed by Writers	76
Summary	81
IV. APPRENTICESHIP IN KENYA	84
Background Description	84
Economy, Manpower and Education	84
Wage Structure	86
Organization of Industrial Education and Training	88
Apprenticeship Scheme	91
A Brief History of Apprenticeship	91
Recruitment of Apprentices	93
Incentives	96
Organization of Instructional Program	96
Illustration of Teaching Method	99
Size of the Program	99
Trade Tests	99
Recruitment and Training of Instructors	101
Sponsors of Apprenticeship	102
Example of Apprenticeship Training	103
Problems Observed by the Writers	106
Summary	107
V. APPRENTICESHIP PROGRAMS IN NIGERIA	110
Background Description	110
Economy, Manpower and Education	110

Chapter	Page
Wage System	113
Organization of Industrial Education and Training	115
Indigenous Apprenticeship Scheme	119
Recruitment and Selection of Apprentices	119
Indentives and Conditions of Apprentices	120
Distribution of Apprentices by Trade	121
Organizing the Curriculum	122
Trade Testing	124
Instructors	125
Sponsor	125
An Example of Apprenticeship Program	126
Problems Observed by Writers	129
Summary	130
VI. A COMPARATIVE ANALYSIS OF COUNTRY SCHEMES	132
Organization of Craftsmen Training	132
Location of Apprenticeship Programs	135
Employment Status of Apprentices	138
Educational Attainment of Apprentices	141
Recruitment of Apprentices	146
Apprenticeable Trades	148
The Organization of Instruction	148
Trade Tests	150
Recruitment and Training Instructors	151
Sponsors of Apprenticeship	153
VII. IMPLICATION FOR KOREA	156
Vocational Training in Korea	156
Application of the Implications	158
BIBLIOGRAPHY	167

LIST OF TABLES

Table	Page
1. Number of Locations, Trainees and Instructors in 1964 and 1966	59
2. Wages of Apprentices in Tokyo Sitawa Electric Company	64
3. Educational Attainment for Entry to Apprenticeship	94

CHAPTER I

INTRODUCTION

The Purpose and Intent

This study analyses common traits and characteristic differences among the apprenticeship schemes and programs for the training of craftsmen in selected developing countries--India, Japan, Kenya and Nigeria. Implications and possible generalizations arising from the analyses are sought. An application of the implications and generalizations to the Korean situation are attempted. It is hoped that this effort will contribute to selecting choices of institutions for the training of craftsmen which will enhance effectiveness in the use of resources for the education and training of craftsmen.

Apprenticeships which train skilled workers in industrial trades are the major concern of this study. Specific variables or components of the apprenticeship schemes compared are: linkage between vocational education and apprenticeship, location of apprenticeship programs, characteristics of apprentices, employment status of apprentices, apprenticeable trades, organization of institution, recruitment and training of instructors, trade tests, and sponsors and financing of apprenticeship schemes.

An apprenticeship can be evaluated from many points of view, such as a system of job control, as an instrument of manpower policy, as a ritual, as a method of vocational training, and as a phenomenon of the labor market. A limited review of the literature reveals two common points of view among authors: apprenticeship as the method of vocational training and as a phenomenon of the labor market.¹ This study takes the two points of view (of the above mentioned variables) as the general frame for evaluating characteristics.

Labor economists observe an apprenticeship system in relation to changes in other systems. Authors agree that economic and technical change are major factors which relate to an apprenticeship system.² A change in the educational system is another factor.³ Cost-effectiveness consideration is an important factor for an evaluation of an apprenticeship system.

¹Literature reviewed for this purpose is: International Training Information and Research Center (CIRF), European Apprenticeship (Geneva: I.L.O., 1966), p. 13; David J. Faber, "Apprenticeship in the United States: Labor Market Force and Social Policy," in The Center for Studies in Vocational and Technical Education, The University of Wisconsin, Research in Apprenticeship Training (Madison, Wisconsin: The University of Wisconsin, 1967), p. 4; Kate Liepmann, Apprenticeship (London: Routledge and Kegan, Paul, 1960), p. 1; and Stewart Scrimshaw, Apprenticeship (New York: McGraw Hill, 1932), p. 3.

²CIRF, Ibid., pp. 50-51; Faber, Ibid., p. 3; Liepmann, Ibid., pp. 1-2; and Scrimshaw, Ibid., p. VII.

³Scrimshaw, Ibid.; and Liepmann, Ibid.

The meaning of the common traits and the characteristic differences of the variables of this study are drawn within the frame of the changes and considerations, in addition to the general points of view of evaluation of an apprenticeship stated above, where they are applicable. This study, however, does not attempt to measure the variables. Therefore, the meanings drawn are hypothetical ones.

Need for the Study

This study confined itself to studying craftsmen apprenticeship. Such professional workers as medical doctors, lawyers and teachers undergo certain types of apprenticeship training. And their apprenticeship training is worth an examination from the perspectives of both cost-effectiveness and industrial relations. However, the most critical problem as recognized by the authorities of manpower planning in Korea is the education and training of craftsmen. The manpower authorities estimated a need for a large additional requirement of craftsmen for both the last decade and the forthcoming decade. Most of the public resources for skilled manpower training is diverted to an expansion of facilities for the craftsmen training. The effectiveness of such expansion is, however, not examined. The craftsmen training efforts are dispersed among ministries and are sometimes duplicated. A choice of an effective craftsmen training scheme or method is needed in Korea.

No one denies the need for training youths in productive occupations. There is, however, disagreement on the strategy or method of training. Some view the essential need for a large scale technical and vocational education within the school system at all levels.⁴ Others, however, disagree with that opinion. For example, Foster, observing the Ghananian experience, argues that massive reforms in the whole education system which aim at training skilled workers have rarely brought the consequences that were anticipated. Technical and vocational education must be developed outside of schools, closely integrated with on-the-job training and with the actual manpower requirement indicated by the labor market.⁵

Bowman, reviewing historical and contemporary evidences on the substitutability between education and training on-the-job, pointed out substitution inelasticity between learning in schools and on-the-job training. She also hypothesized that schools are suited to provide adaptability training for subsequent on-the-job training.

⁴T. Balough and P. O. Streeten, "The Planning of Education in Poor Countries," Economics of Education I, ed. by M. Blang (Middlesex, England: Penguin Books, 1968), pp. 383-395.

⁵P. J. Forster, "The Vocational School Fallacy in Development Planning," pp. 396-423.

She does not suggest any need for intermediate training between education and on-the-job training.⁶

Maton's⁷ study of skilled workers of manufacturing undertakings in Belgium and Argentina substantiates Foster's thesis which emphasized the need for training skilled workers out-of-school. He found that the value of the period of formal (full-time) education at lower cycle of secondary education and/or training has a comparatively high utility, and any further education or training has comparatively low value for the training of skilled workers. This takes into account the comparative utilities (in time) of part-time training and full-time technical and vocational education. He found a narrow difference in utilities between the two. He concluded that, even for the lower cycle of the secondary education and training, part-time training is much cheaper than full-time education because there is no loss of income for students, and there is a reduced danger of giving too much of the wrong type of training.

⁶Mary Jean Bowman, "From Guilds to Infant Training Industries," Education and Economic Development, ed. by C. Arnold Anderson and Mary Jean Bowman (London: Frank Cass and Company, 1966), pp. 98-129.

⁷J. Maton, "Experience on the Job and Formal Training as Alternative Means of Skill Acquisition," International Labor Review, Vol. 100, No. 3 (September, 1969), pp. 239-259.

The preceding arguments indicate that full-time vocational and technical education within the school system has not been successful in achieving what it intended.

Nations all over the world are conscious of the limited role of schools in preparing youths for skilled occupations. It is recognized that there is a gap between full-time education and employment in skilled occupations. The Education Commission of India has reported past failure of vocational and technical education and emphasized the need for some forms of training experience within undertakings prior to the entry into skilled occupations.⁸ Among European countries full-time vocational education was criticized as being too far removed from industrial requirements.⁹ In the United States, it has long been advocated that full-time vocational education should be supplemented by apprenticeship. Full-time education is not a substitute for 'learning-while-working' experience.¹⁰ In Latin American countries a greater emphasis is laid

⁸Ministry of Education, Report of the Educational Commission 1961-66 (New Dehli, India: Ministry of Education, 1966), pp. 360-370.

⁹CIRF, European Apprenticeship (Geneva: International Labor Organization, 1966), pp. 10-11.

¹⁰Stewart Scrimshaw, op. cit., p. 10.

upon an expansion of apprenticeship programs for the training of skilled workers.¹¹

This brief review suggests that the principle of apprenticeship--"combination of work and education"¹² as a viable method of training of skilled workers-craftsmen and technicians is increasingly recognized. However, apprenticeship as a method of training skilled workers has its problems. Traditionally, apprenticeship was used as a means to exploit youth labor and restrict entry into skilled occupations. However, these principles are subject to re-examination.

This study adopts an international comparison as the approach. A skill training system cannot be separated from history, the social structure, institutions and values of a country, but in the present century the problems which face developing countries are so similar that many of the ways of dealing with them may also be similar. Even if we recognize cultural difference among countries there is undoubtedly much to be learned from the experience of others.

¹¹Eugene Stanley, Planning Occupational Education and Training for Development (New York: Praeger Publishers, 1971), pp. 2-3.

¹²Scrimshaw, op. cit., p. 10.

Definition of Terms

Apprenticeship

The definition adopted for this study is that of the Bureau of Apprenticeship and Training, the United States Department of Labor, supplemented by parts of the definition of the International Labor Office. The Bureau states that "Apprenticeship is a method of training workers on the job for a specific length of time at predetermined rates of training pay for a specified range of skills in one particular occupation with stated hours of classroom instruction under a written agreement between the trainer and the trainee."¹³ Apprenticeship provides " . . . the transition of adolescent from full-time education to . . . work."¹⁴

Unless otherwise stated, apprenticeship in this study means formal apprenticeship. Non-formal apprenticeship has the substance of formal apprenticeship "except

¹³Bureau of Apprenticeship and Training, Setting up an Apprenticeship Program (Manpower Administration, the U.S. Department of Labor, 1966), p. 1. Other writers on apprenticeship agree with the concept. See for instance, Scrimshaw, Stewart, Apprenticeship (New York and London: McGraw-Hill Book Co., 1932), p. xiii; and Liepmann, Kate, Apprenticeship (London: Routledge and Kegan Paul, 1960), p. 1.

¹⁴CIRF, International Labor Organization, Europeans Apprenticeship: Monographs, Vol. 1, No. 2 (Geneva: I.L.O., 1966), pp. 10-11.

the formality of an agreement and the provision of classroom teaching."¹⁵

Traditional Versus Modern Apprenticeship

Scrimshaw compares vividly the old and new apprenticeship.

The old apprenticeship was the only form of education for the masses. Formerly the apprentice lived in the home with his master and performed many menial tasks after working hours; today the apprentice goes to his own home after working hours. Formerly most of the working hours of the boy were spent within the confines of the small shop; now industrial activity is carried on largely in factory organizations. The apprentice of yesterday learned the secrets of the trade from his master, but today these are available through books and schooling. But today it is a matter of national concern.¹⁶

Indigenous Apprenticeship

This term denotes non-government initiated or non-government sponsored apprenticeship.

¹⁵Stewart Scrimshaw, Apprenticeship (New York and London: McGraw-Hill Book Co., Inc., 1932), p. 24.

¹⁶Ibid., pp. 9-10. For similar comparison, see the U.S. Bureau of Apprenticeship and Training, Apprenticeship: Past and Present (Washington, D.C.: United States Department of Labor, 1964), pp. 1-2.

Skilled Worker

The term skilled worker used in this study denotes craftsmen in industrial undertakings.

Training Versus Formal Education

This study differentiates training from formal education. An essential dividing line between the two is that "training (is provided) during employment or . . . after at least a tentative commitment to a particular type of employment"¹⁷ where education is provided without it.

Work Experiences

This term will be used to indicate a part of training. Industrial, Vocational, and Technical--all three terms will be used interchangeably.

The Selection of the Countries of the Study

This study included apprenticeship schemes of countries with different stages of industrialization. Japan is now experiencing a matured stage of industrialization, and she is next door to Korea. The economic cooperation between the two countries is becoming closer. We could learn much from the organization and operation of her apprenticeship scheme for a future development of the

¹⁷Eugene Staley, Planning Occupational Education and Training (New York: Praeger Publishers, 1971), p. 81.

apprenticeship scheme in Korea, since Japan has been able to supply craftsmen with her apprenticeship scheme. Especially the paternalistic relationship between employers and apprentices, and employers' preference in employing apprentices from among the completors of middle schools are worth an examination. The latter is especially so because Korea has the same school ladder system as does Japan.

India is selected as a subject of this study since she started a planned national development earlier than Korea. Also, she is experiencing the problem of unemployment of school leavers which is similar to Korea. She has developed a planned national apprenticeship scheme prior to the initiation of the apprenticeship in Korea. Her experience in the operation of the scheme would provide a reference for which Korea could undertake a reform of the apprenticeship scheme.

Kenya was chosen since the recent development of her apprenticeship scheme has been achieved with foreign assistance, and the accompanied with the imported scheme are the problems in adjusting it to the indigenous system of craftsmen training. The industrial training system in Korea which also receives foreign assistance might involve similar problems.

The Nigerian indigenous apprenticeship system was introduced because it might provide a hint for a

re-examination of the importance of the indigenous apprenticeship in Korea.

Method of Study

This study will analyze common traits and differences of apprenticeship schemes of India, Japan, Kenya and Nigeria.

1. Data Used: This study is based upon a series of reported findings of research in the countries under consideration. Included also are the reports of government and international agencies. A list of these reports and documents will be found in the Bibliography.

2. Comparing data: The schemes of the countries represented by the data above are compared on the aspects presented in the purpose of this study. Common traits and characteristic differences are provided. Implications and generalizations are attempted.

3. An application of findings to the Korean situation: The analysis of the cases of this study are summarized and on the basis of these findings, suggestions and recommendations are made for the improvement of the industrial skill training scheme of Korea.

Limitations

The factors which limit a generalization of the result of this study are as follows:

1. The sources of data of this study are published reports.

2. This study observes mainly the schemes of the apprenticeship of the respective countries. The observations of the operation of the apprenticeship scheme are not randomly selected ones. Therefore, what this study observes may be different from the actual operation of the schemes.

Organization of Presentation

The foregoing presentation outlines the problems of this study and gives an indication of the approach used and its limitations.

Chapters II to V are devoted to the description of country cases. The background of a country which is relevant to this study and the apprenticeship scheme of the country are described for each case. Also, the problems encountered by the scheme are presented.

Chapter VI describes the common traits and differences. Implications and generalizations are presented.

Chapter VII presents summaries of findings and their implications for the apprenticeship training scheme of Korea.

CHAPTER II

APPRENTICESHIP PROGRAMS IN INDIA

Background Description

Economy, Manpower and Education

Since the early 1950s the process of planning economic development has been practiced by India with the objective of raising living standards. Throughout the successive plan periods industrialization and agricultural development have been given a high priority for enlarging the supplies of essential mass consumption goods such as textiles, sugar, drugs, kerosene, and paper. The metals, machinery, chemicals, mining, power and transport industries are essential for a sustained economic growth.¹⁸ For maximum agricultural development, production of such good as fertilizers, insecticides, agricultural implements are indispensable.

According to the Fourth Plan, (1967-1971), approximately 60 percent of the total investment was to be placed in power, small industry, organized industry, mining, transport and communication. The size of the proposed

Government of India, Planning Commission, Fourth Five Year Plan, 1966, p. 16.

investment was more than double that of the Third Plan in the same sectors.¹⁹ Nevertheless, authorities revealed that the number of the unemployed is likely to increase, in spite of a large number of new jobs created. During the First, Second and Third Plans, 31.5 million jobs were created. However, unemployment rose from 5 million at the end of the First Plan (1956) to 10 million in 1966. In addition, there were some 16 million persons estimated to be visibly underemployed.²⁰ It is estimated that unemployment would reach 21 million at the end of the Forth Plan (1971) and 60 million in 1978.²¹

A disturbing phenomenon which has developed during the Third Plan is that unemployment among the educated and skilled persons is rising. The number of the educated work seekers, those having matriculation or higher qualifications, increased from 800,000 in 1964 to one million in 1967. A majority of these persons (72%) were without any work experience or vocational training.²² The Employment Exchange figures show that even the number of unemployed craftsmen is increasing. In 1961 there were 11,500 graduates

¹⁹Ibid., p. 42.

²⁰National Commission on Labor, Report of the Study Group of Employment and Training (Delhi Samrat Press, 1969), p. 115.

²¹Sarda Mitra, Youth Challenge Unemployment (New Delhi: New Generation Publications, 1969), p. 3.

²²National Commission on Labor, op. cit., pp. 118-119.

of industrial training institutes registered in the employment exchanges. The figures had risen to 65,000 by 1967. On the other hand, the number of registered graduates placed in employment through the employment exchanges has remained static, around 6,000 for the period of 1965 and 1967. This leads one to the conclusion that the growth of fresh openings even in respect to skilled workers has not been adequate to take care of the increased output of such personnel.²³

Another feature of the employment market for craftsmen which reveals a paradoxical situation is that while India has unemployed skilled workers, there is, at the same time, a shortage of persons possessing critical skills. For example, at the craftsmen level, trained electricians, fitters, moulders and turners have been reported to be in short supply by a number of states. This imbalance, the national Commission reports, may be due to lack of mobility which stands in the way of optimum utilization of available human resources. Another reason contributing to this situation may be the unattractive terms and conditions of work offered by employers.²⁴

²³Ibid., p. 120 and p. 127. The national average proportion of unemployed persons registered with the Exchanges is 42.2 percent. Therefore, actual unemployment of trained craftsmen will exceed the figures.

²⁴Ibid., pp. 121-122.

Wage Structure

Since her independence, India has proclaimed the equity principle in wages. The First Five Year Plan (1951-1956) formalized the principle: "All wage adjustments should conform to the broad principles of social policy that disparities of income have to be reduced to the utmost extent."²⁵ The Fourth Plan maintains the policy: " . . . the need for standardization of wages and for narrowing of wage differentials should be kept in view. . . ."²⁶ In general, a very large part (75%) of wages is accounted for by dearness allowances.²⁷ Thus wage differentials are kept at a minimum. The reduction in the wage differential is limited, however, to workers within each occupation.

Further there is a lack of any relationship between wages and occupational level. Bhatt explained that the lack of relationship is due partly to the peculiar manner in which wages are determined. He also found that wages are related to caste and education and that caste and education are significantly correlated.²⁸

²⁵Government of India, Planning Commission, First Five Year Plan, 1951, p. 182.

²⁶Government of India, op. cit., p. 393.

²⁷Bhal J. Bhatt, Labor Market Behavior of Factory Workers in Bombay (Industrial Relations Research Institute, The University of Wisconsin, 1968), p. 40.

²⁸Ibid., pp. 40-41.

Further, a vast disparity in incomes, Butani points out, exists between high level and skilled jobs and that situation constitutes a serious draw back to production.²⁹ In addition, Butani characterized India as a "non-incentive" society. He argues that the mass of the people just do not have the opportunity for vertical mobility outside of a few selected occupations. The large mass of workers and technicians have to do the jobs that come their way.³⁰ Bhatt also observed a very small degree of vertical mobility: cases where a worker moved from unskilled to a skilled category were indeed very few.³¹

Even horizontal mobility is for the most part absent. Among middle classes, loss of employment is considered a great disaster because opportunities do not exist across the country. The aggregate supply of labor exceeds the aggregate demand for practically every vocation. In many occupations wages are still low.³²

²⁹D. H. Butani, India of the 1970s (New Delhi: Promilla & Co., 1970), p. 27.

³⁰Ibid., pp. 26-27.

³¹Government of India, op. cit., pp. 55-56.

Organization of Industrial Education
and Training³³

Semi-skilled and skilled workers are now trained principally in the Industrial Training Institutes (ITI), of which some 356 exist, with a total capacity of 113,000, under the Ministry of Labor and Employment. In addition, facilities exist in technical high schools (there are 103 junior technical schools with a total potential capacity of 18,000), in artisan training centers under the Ministry of Community Development, in the programs of the Khadi and Village Industries Commission, in a number of private and government trade schools, and in the technical streams of the multipurpose schools designed to give a vocational bias to the students in preparation for their training as skilled workers. Outside this institutionalized training, a proportion of the present labor force is also trained either on-the-job or through the traditional type of father-to-son training. This, in its organized form, is controlled under the Apprenticeship Act.

The Ministry of Labor and Employment has recently revised the syllabuses of the different courses of the ITIs and the nature of the training to be offered. This

³³This section summarized Ministry of Education, Government of India, Report on the Education Commission 1964-1966 (New Delhi: Government of India Press, 1966), pp. 371-373; and National Commission on Labor, Report of the Study Group on Employment and Training (Delhi: Samarat Press, 1969), pp. 82-84.

has been done to meet criticisms that there was over-production of trainees in certain skills, that the type of training offered was not sufficiently practical in character, and a closer cooperation between training programs and industry was needed. It has, in addition, been suggested that the courses of study should be re-designed, not only to include more detailed job specifications, but also a greater amount of general education. Matriculation³⁴ is a prerequisite for training in some of the trades offered and middle-school pass³⁵ for the majority of trades. The minimum age of entry is 15 years, and the duration of training is one to two years varying by trades. The ITI training merges with apprenticeship in industry. The time spent in training in ITIs can be waived from the total period of apprenticeship training.

The other main forms of full-time technical education for skilled workers is the junior technical school

³⁴Ten years or 11 years of school education and the passing of matriculation examinations.

³⁵The completion of the eight years of primary school education. In India, the stages and duration of education varies among states. A general pattern is, however, discernible: the primary stage of education comprises grades of one to four or one to five, the middle stage includes grades of five to seven or six to eight, and grades above the middle stage constitute the secondary stage of education, usually up to 10th grade. One year of pre-university courses or the equivalent follow the secondary education. First degree courses come after the school education and last usually three years. A science graduate or engineering diploma holder undergoes the first degree courses or the equivalent. A graduate engineer undergoes five years of engineering college education.

and the technical high school. Both accept children after the primary stage and normally offer a three or four year course of training which combines general education and technical training, including workshop practice. A study conducted by the Planning Commission shows a high wastage rate in a number of junior technical schools, and that a significant percentage of those leaving do not enter employment but rejoin the educational stream, either in polytechnics or pre-university courses.³⁶ The trainees of these institutions are at a disadvantage in comparison with those coming out of the ITIs since, on the ground of insufficient workshop practice, they are not given the equivalent exemption as the trainees in ITIs for entry into further training under the Apprenticeship Act.

Because the existing institutional training imparted in ITIs and in the technical high schools could not simulate industrial conditions and environment and was not production oriented, a scheme for apprenticeship training in industry was launched. Under the scheme employers in specified industries are obliged to train a certain number of apprentices in each designated trade according to prescribed national standards. Apprenticeship facilities must be provided by industry. Non-compliance or violation of the provisions of the Apprenticeship Act of 1961 by employers, whether in private or public sectors, is an

³⁶National Commission on Labor, op. cit., p. 86.

offense. But the Act is being implemented with the cooperation of employers.

During the first five years since the enactment of the Apprenticeship Act, there was considerable progress in the implementation of the apprenticeship training program. At the end of 1967, 35,000 apprentices were undergoing training in 40 trades in about 2,900 establishments of 195 industries in public and private sectors. The target proposed in Draft Outline of the Fourth Plan in 1966 has been fixed at 100,000 training places for apprentices in various industries.

Apprenticeship Scheme

A Brief History of Apprenticeship in India³⁷

Apprenticeship in India has existed for many years. Two large Indian organizations which have long been providing this type of training are Indian Railways and the Ordnance Factories. More recently a number of modern industries, such as fertilizer, petroleum, machine-tool and air-craft industries have established apprenticeship schemes. However, the great bulk of industry, both large and small, made no provision for systematic apprenticeship

³⁷The brief historical description of this section is mainly based on F. J. Pidgeon, "Apprentice Training on a Continental Scale: India," Training for Progress (Geneva: ILO, CIRF) Vol. 5, No. 2 (1966), pp. 8-14.

training for their workers. They relied on the trained persons in other establishments which undertook a systematic apprenticeship, or on the hope that some of the workers on the shop floor would acquire skills by watching other workers. With rare exceptions, such as those already mentioned, the apprentice training was unsystematic and bore little relationship to the needs for skilled manpower.

The government's first move was to try to encourage industry to train apprentices on a voluntary basis. In deciding on an expansion of apprenticeship training, Indian authorities assumed that systematic apprenticeship would evidence a number of advantages over institutional training:

1. The apprentices would be trained from the start in an industrial atmosphere. They would thus be under no illusions about their future work and dropouts would be few and would occur at the beginning of the training.

2. While minimum national standards of skill would be established for each trade, an employer would be able to train an apprentice to a higher standard of skill should this be necessary for the particular work he was to undertake. It would therefore be possible to match the skill acquired during the training to the requirements of the employer.

3. Since the training would take place in industry it would train young people who already lived in or were prepared to move to the neighborhood of industry. This would be an additional factor in reducing the dropout rate.

4. The employer could anticipate his future requirement for various types of craftsmen and train apprentices to fulfill these needs.

5. The expense of the training would largely fall on industry and less on the government, and as the number of apprentices increased it would be industry which bore the greater part of the additional cost.

Under the assumptions the National Apprenticeship Scheme was launched by the Ministry of Labor in 1957. An employer who accepted apprentices for training was paid a subsidy which was intended to compensate him for the time taken up by the training and for material used, or spoiled by apprentices. The apprentices themselves received a modest stipend paid by the government.

Practical implementation of the scheme soon showed up organizational as well as technical problems which would have to be solved if the system was to work. One of the first to be encountered was concerned with inter-ministerial coordination. Three separate ministries were seeking the cooperation of industry for training facilities: the Ministry of Labor, which had initiated the program, the Ministry of Education and the Ministry of Steel and Heavy Industries.

The Ministry of Education needed facilities for the practical training of graduate engineers, of persons who have been trained to technician level, of graduates

of junior technical high schools. It had introduced its own scheme for these persons and was approaching employers and asking for practical training facilities at the drop-floor level. The Ministry of Steel and Heavy Industries, for its part, was responsible for three large steel plants then being built in India, and was seeking facilities for the training of the craftsmen who were to be employed in the plants.

The three ministries were in fact in competition with each other for the favors of industry. It was thus possible for an employer to assure each ministry in turn that he was fully committed to providing training for the other two and, in this way, to avoid undertaking any training at all for the government. Clearly, there was a need for closer inter-ministerial coordination than was provided by the National Council for Vocational Training which normally met only once a year. The answer was a small Inter-Ministerial Coordinating Committee, which was set up in 1959 and has continued to function ever since, preventing overlapping between ministries in their arrangements for practical training in industry as well as in other matters.

There were other difficulties, too, which soon indicated that a voluntary scheme was unlikely to be successful in training large numbers of apprentices in industries which had previously not done any such training.

The employers who were prepared to cooperate were usually those who already operated apprenticeship schemes. In some cases they engaged apprentices under the national scheme in addition to their usual apprentice intake. This led to the existence in certain undertakings of two groups of apprentices who were being trained to different standards and were subject to different conditions of service and pay. In other cases the employer ceased recruiting their normal apprentice intake and only took apprentices under the national scheme. This, in effect, defeated the government's expansion policy and at the same time meant that government was now subsidising training which had previously been paid for the employers.

By the middle of 1958 it was already clear that some measure of compulsion would have to be introduced, and work was started on drafting of a new apprenticeship law. One of the starting points was a thorough study of apprenticeship legislation in all those countries where such legislation was already operative. The various features of the different national laws were examined to see which had been found useful in other countries and which features might be applicable to conditions in India. A first draft of the new legislation was prepared.

It covered the following points among others:

1. Designation of suitable trades and apprenticeable trades

2. Qualifications for admission to apprenticeship--
age, education and physical fitness
3. The period of apprenticeship
4. The number of apprentices to be engaged by an
employer in relation to his labor force
5. Provision for the basic training of apprentices
6. Provision for related instruction
7. Pay of apprentices
8. Exemption of apprentices from certain existing
labor legislation (in the Act an apprentice is
defined as a trainee not as a worker)
9. Hours of work and leave of apprentices
10. Compensation in the event of injury
11. Employer's obligation to keep records of
apprentice training
12. Settlement of disputes between apprentices
and employers
13. Proficiency tests and granting of certificate
of proficiency.

A special feature of the bill was a provision that regulations would be issued from time to time which would enable the Ministry of Labor to determine various matters, such as appropriate duration of apprenticeship for different trades, numbers of apprentices to be trained, and designation of apprenticeable trades.

The timing of the legislation was fortunate. Employers were beginning to find that the supply of trained manpower was the major bottleneck in increasing production. In the ten years immediately following independence, their major shortage problems had been machines and materials, but by the time the apprentice bill was being drafted these shortages had been partly overcome. Many employers welcomed the bill, particularly those who were already training apprentices and were the heaviest losers from poaching of skilled workers practiced by employers who had no training programs. The Apprentices Act was passed by parliament and approved in 1961.

One of the first tasks was to make the standards provided in the act known to employers throughout the country. The Study Group on Employment and Training in 1969 reported that so far the effort has been devoted to selling the idea of apprenticeship.³⁸

The following description presents both the standards and their implementation.

Recruitment of Apprentices

The Apprentices Act provides the minimum qualification as the following:

A person shall not be qualified for being engaged as an apprentice to undergo apprenticeship training

³⁸National Commission on Labor, op. cit., p. 83.

in any designated trade unless he (a) is not less than 14 years of age and (b) satisfies such standards of education any physical fitness as may be prescribed. Different standards may be prescribed in relation to apprenticeship training in different designated trades.³⁹

Based on the provision above, the Ministry of Labor and Employment determines appropriate qualifications of entry for apprentices by trade. Matriculation is a pre-requisite for training in a few trades and completion of middle school for the other trades.⁴⁰ The National Commission on Labor reported that the entry qualifications for admission as apprentices do not bear much relationship with the hiring practices of industries.⁴¹ The Commission also reported that work is in progress for the use of aptitude tests in the selection of apprentices under the Apprentices Act.⁴²

Different ratios of apprentices to workers other than unskilled workers in different trades have been prescribed under the Apprentices Act.⁴³ Admissions are

³⁹Labor Statistics Bureau, Indian Labor Year Book, 1967 (Simla: Labor Statistics Bureau, Ministry of Labor and Employment, 1967), pp. 366-367.

⁴⁰Ministry of Education, op. cit., pp. 371-372; and O. P. Agarwal, "Chemical Fertilizer," Training for Progress (Geneva: ILO, CIRF) Vol. 7, No. 2 (1968), p. 7.

⁴¹National Commission on Labor, op. cit., p. 86.

⁴²Ibid., p. 24.

⁴³Labor Statistics Bureau, op. cit., p. 179.

allowed as and when vacancies for apprentices occur in establishments or according to seasonal and other factors prevailing in the industry.⁴⁴

The main purpose of industrial training has remained the supply of skills. However, the major clients of the training have been changing reflecting the shift in the location of the critical unemployment stratum of population. During the Second World War it was used to develop skills for increased production. After the war, the scheme was remodelled to train "ex-servicemen," to train "displaced persons" and the, presently, to divert multitudes of the unemployed school leavers to skilled jobs.⁴⁵ Current apprenticeship as well as other types of training is undertaken under the condition, on the one hand, of a limited number of jobs available compared with the school leavers⁴⁶ and, on the other, of a shortage of skilled workers. Thus intake of apprentices on the basis of the prescribed ratio by the government creates a situation where more apprentices are trained than can be absorbed by the industry.⁴⁷

⁴⁴National Commission on Labor, op. cit., p. 87.

⁴⁵Ibid., p. 16.

⁴⁶In 1967, of the total registered unemployed which constitutes 42% of the total unemployment, 12% is placed during the year. See Ibid., pp. 6-7.

⁴⁷Ibid., p. 86.

Incentives

Apprentices are paid a stipend according to the minimum rates set by the Ministry of Labor. Stipends admissible to apprentices and the proposed rates are:⁴⁸

	As of 1967 (per month)	Proposed for the future (per month)
During the first 6 months of training	Rs. 40 50	40% of the wages of skilled worker
During the next 6 months of training	Rs. 50 60	50% "
During the second year of training	Rs. 60 70	60% "
During the third year of training	Rs. 70 80	80% "
During the fourth year of training	Amount equal 100% to wages as skilled worker	"

If an apprentice is injured in an accident arising out of and in the course of his training as an apprentice, his employer should pay compensation.⁴⁹

However, employers are not obliged to offer employment to apprentices upon completion of the apprentice training.⁵⁰

⁴⁸Ibid., pp. 86-87.

⁴⁹Labor Statistics Bureau, op. cit., p. 367.

⁵⁰Ibid., p. 368.

Distribution of Apprentices by Industry
and by Trade⁵¹

Apprenticeship facilities must be provided by industry under the Apprentices Act, 1961. Under the Act 'industry' means any industry, trade, business or occupation in which any trade may be specified as 'designated trade.' The scope of the Act is wide and can be extended to any field of industry to regulate and control training of apprentices. The target proposed in the Draft Outline of the Fourth Plan in 1966 was fixed at 100,000 training places. As of 1967, 35,000 apprentices in 40 trades of 195 industries.

Engineering	40,000
Construction	20,000
Mining	3,500
Steel	5,000
Cement	3,000
Textile	5,000
Printing	5,000
Leather	1,000
Handcraft, Sports Goods	3,000
Hotel and Catering	3,000
Bank and Commerce	5,000
Misc. Industries	1,500
TOTAL	100,000

⁵¹National Commission of Labor, op. cit., pp. 83-84, and p. 158.

In order to attain the target and to meet the requirements for all types of industries and occupations, the Government of India made efforts to include new industries and new trades in the Act. Such a diversification and intensification was, moreover, necessary because any further expansion of the places for apprentices training in the existing engineering trade was not possible since the growth in engineering industries is stagnating.⁵² The following new industries were subjects of study for identification of new trades to be designated under the Act: chemical, electronics, power, agricultural mechanics, painting, film, research, hospital services, ready-made garments, glass, and plastics industry. Further, special attention was paid to providing apprenticeships in small-scale industries.

The number of trades apprenticeable, thus, increased from the initial 14 trades in 1963 to 40 in 1967, and further diversification was planned.

Organizing Curriculum

Training syllabi for both practical workshop training and the related theoretical instruction are prepared by trade committees and determined by the

⁵²Ibid., p. 154, Appendix XIII (B). The number of seats remaining unfilled in the engineering trades increased during the course of First, Second, and Third Five-Year Plans, 5.8% in 1956 and 22.1% in 1967. This is indicative of a comparative diminishing demand for skills in the engineering trades.

Ministry of Labor in New Delhi in consultation with the Central Apprenticeship Council. Bearing in mind past experience when the syllabi of Industrial Training Institutes were being prepared, and difficulties encountered in trying to assemble trade experts from all over India, trade committees of apprenticeship were formed in major industrial cities. The Mechanical Engineering Committee, for example, met in Calcutta the Electrical Trade Committee in Bombay, and the Automotive Trade Committee in Madras. The syllabi are published by the Government of India.⁵³

Before 1968 syllabi for 50 trades were laid down. The typical duration of apprenticeship training is three years, except in the case of millwright maintenance/mechanics, tool and die makers and mechanics (earth-moving machinery). There it is four years.⁵⁴

Basic Training⁵⁵

The period of basic training is one year, except in the case of four-year courses then basic training is two years. Employers having 500 or more workers have to make their own arrangements for basic training. Those having less than 500 workers, bear 50% of the cost. The

⁵³Pidgeon, op. cit., p. 14.

⁵⁴National Commission of Labor, op. cit., pp. 83-84.

⁵⁵Ibid., pp. 84-85.

other 50% is borne by the Government, subject to an approved limit. The content of the one-year craftsmen courses in the ITIs and the one-year basic training in industry are identical and, therefore, arrangements have been made for imparting basic training to apprentices in almost all trades at the ITIs.

For the required basic training in trades not taught at ITIs:

1. State Governments have been requested to introduce additional trades training;
2. Arrangements have been made with industrial establishments to impart basic training;
3. Efforts are being made to open basic training centers in textiles, chemicals, at polytechnics, technological institutes, etc.;
4. Arrangements have been made at ITIs to give basic training in certain designated trades and non-ITI trades.

Work Experience

Charting apprentices' work experience was designed to ensure that each apprentice receives all the work experiences he should, according to the syllabus, for his particular trade. Arrangements to rotate apprentices among employers on a group training basis to give them all-round training is provided.

The following example of a special apprentice training course in instruments mechanics illustrates how the syllabus is organized and implemented in an apprenticeship training program.⁵⁶

The principal activity of the training institute's new process control section is a compact course of three months duration which covers the entire field of instrumentation, as regards both theory and practice. The course differentiated according to level of education of the trainee: technicians (completed secondary education), supervisors (University degree with a science degree) and graduate engineers. All the trainees admitted to these courses should already have completed recognized training or have equivalent theoretical and practical skills and knowledge in one of the fundamental trades such as benchfitting, machine shop practice or welding or as an electrician or an engineering draughtsmen. Trainees who have passed the course are (expected to be) reasonably well prepared to go into a plant and practice their trade.

The (instruction) section consists of two units: a pilot plant and a workshop. Simulated factory conditions have been created in (the pilot plant) . . . the course syllabus applied in the pilot plant is designed to ensure that each trainee learns to overhaul, calibrate and commission every instrument and other pieces of equipment used in the pilot plant. He is also taught to design new instrumentation schemes by redrawing the lines and reconnecting the instruments to other parts of the plant. . . . (The workshop) is a well equipped instrument workshop with all types of testing and calibrating equipment for both pneumatic and electrical instruments . . . For practice work the trainees begin constructing simple electronic circuits which they produce from components. When they mastered these exercises they are taught systematic fault locating procedures on actual circuits on instruments in the pilot plant and on old relay circuits. . . .

. . . The selection of practice jobs for the trainees and the level of theoretical instruction are adapted

⁵⁶Om Prekash, "Process Control Instrumentation," Training for Progress (Geneva: ILO, CIRF), Vol. 7, No. 2 (1968), pp. 12-16.

to the training requirements, educational level and practical experience of each group of trainees. (Practical instruction consists of) about 100 different standard experiences. . . . A group of helper and technicians . . . were trained in dismantling, assembly and installation work on selected instruments only, and in overhauling pressure gauges and flow-meters. Emphasis is placed on the trainees employing the proper tools and methods and learning the names of the commonest parts requiring replacement and repairs. The practical work and exercises are accompanied by instruction on the various aspects of instrument technology. Trainees are given the manufacturer's instruction manuals about every instrument they handle and are taught to follow these instructions. Theory take up two hours each day (total: 200 hours) throughout the course.

Trainees are regularly taken round the factory during their course. Sometimes they stay at the plant for a full day to study in detail various installations and maintenance jobs being carried out by the staff of the instrument department.

All members of the teaching staff have long practical experience in the instrument department of the factory. There is a training officer who is a graduate in engineering with ten years of factory experience, an assistant training officer, also an engineering graduate with four years practical experience, an instrument technician who has passed the intermediate examination in science and has acquired five years of practical experience, and a helper who has been working for five years as a mechanic.⁵⁷

Trade Tests⁵⁸

Every apprentice who has completed the period of training should appear for a test conducted by the National

⁵⁷Ibid., p. 15

⁵⁸Bureau of Labor Statistics, op. cit., p. 368; and National Commission on Labor, op. cit., pp. 60-61.

Council for Training in Vocational Trades to determine his proficiency in the designated trade in which he has served his apprenticeship. Every apprentice who passes the test is granted a certificate of proficiency in the trade by the National Council. The Director of Training, as the Secretary of the National Council, arranges for question papers to be made up by a Central Board of Moderators consisting of three technical members of the Craftsmen Sub-Committee of the Council, two representatives of engineering associations. The Director of Training acts as chairman.

Local examiners appointed by State Directors conduct and evaluate tests and answer books. Result sheets are prepared by the examiners and copies of the results are finally sent to the Directorate General of Employment and Training who then issues National Certificates to successful trainees.

To promote healthy competition among trainees and to stimulate absorption of instruction, annual skill competitions are held at State and All-India levels.

Recruitment and Training of Staff⁵⁹

The apprenticeship instructors are being trained in six Central Instructor Training Institutes (CTI) which

⁵⁹National Commission on Labor, Ibid., pp. 76-79.

have been set up in different parts of India. Candidates sponsored by individual undertakings in the public and private sectors are eligible for admission to the institute.

The training program is carried out in two phases of six months each. The first phase is devoted to development of skills and removal of deficiencies in skill, trade theory, workshop mathematics and drawing. The second phase is devoted to the development of instructional and evaluation ability.

The final trade test is held in Trade Practical, Trade Theory, Principles and Practice of Teaching, Workshop Calculations, Science and Reading of Drawings. Sessional work is also taken into account and marks awarded for it.

In addition to regular courses, short-term courses of 3 months and 6 weeks duration are being conducted to train workshop instructors for catering to the needs of the industries under the Apprenticeship Training Scheme.

These facilities, however, are not extensively used by industrial establishments in the public and private sectors. These establishments usually recruit instructors from among their staffs.

Sponsors of Apprenticeship

Both the Government and employer share responsibilities of apprentices training. The appropriate government agency provides such assistance as mentioned below:

1. The Government may grant loans to the employer who establishes independent apprenticeship program. The loans are on easy terms and repayable in easy installments to meet the cost of the land, construction, and equipment for separate workshop buildings.

2. The Government either provides public training facilities for the basic training of the apprenticeship program in an undertaking which employs less than 500 workers, or fifty percent of the cost incurred in the basic training is borne by the Government.

3. The Government provides such services as provision of standard curriculum, teacher manuals, instructor training and other aids.

Every employer who establishes apprentice training has the following obligations in relation to an apprentice:

1. to provide the apprentice with the training in his trade in accordance with the provisions of the Apprentices Acts and rules made based on the Act;
2. to ensure that qualified instructors are placed in charge of the training;
3. to provide operating costs; and
4. to pay every apprentice not less than the minimum specified in the apprenticeship contract.

An Example of the Development of an
Apprenticeship Program

The following description of the apprenticeship programs at both Namrup and Gorakhpur fertilizer plants illustrates how modern industry in India undertook apprenticeship programs at the initial stage.⁶⁰

The Fertilizer Corporation of India was planning to set up new plants at Gorakhpur and Namrup in the early 1960s. At the planning stage of the new plants, two other fertilizer plants at Sindri and Nangal were already in operation and one was under construction at Trombay.

Namrup is located in a rather inaccessible area in the state of Assam which has seen little industrial activity. Gorakhpur is located in a predominantly agricultural area of the state of Uttar Pradesh. Both plants have been set up along with the collaboration of foreign firms.

In the beginning, experienced and senior staffs were drawn from the two plants already in operation mentioned above. The main staffing problems of the Corporation have been caused firstly by the pace of the expansion program of the Corporation and secondly by the problem of adapting to changing technology. While a considerable part of the resources in money and machinery could be found abroad,

⁶⁰O. P. Agarwal, "Chemical Fertilizer," Training for Progress (Geneva: ILO, CIRF), Vol. 7, No. 2 (1968), pp. 3-16.

it was difficult to mobilize sufficient technical manpower for the rapidly growing needs of the Corporation. The problem was aggravated by a parallel expansion of activity in the private sector, and the Corporation has inevitably been competing in the employment market for levels and types of skill already in short supply.

The staffing problems faced by the Corporation were in two categories: those which are applicable to any development scheme in a developing country; and those which derive from the specific situation in the area. One of the main reasons for setting up plants in areas such as Namrup and Gorakhpur was to provide employment locally. Living in backward areas, however, the local people available for jobs did not always have an appropriate technical or educational background. Most of them had only a farming background, and were quite unfamiliar with industrial work.

Beyond obtaining the nucleus staffs from the parent plants which were already in operation under the FCI, the new plants at Namrup and Gorakhpur had to depend largely on training apprentices for recruitment. Emphasis was placed on instituting their own apprenticeship training programs. FCI already had well-organized training institutions at Sindri and Nangal. The need for additional facilities for apprentice training at the two new plants was, nonetheless, recognized since the facilities at the

parent plant will not meet the training need for the present and future plant expansion program of FCI.

The FCI, however, decided the training could be better organized initially at one or other of the two parent plants and then transferred to the new sites as soon as possible. This was done because skilled manpower should be available at the time when it is needed. Another reason for the quick action was that the projects were committed to employ a large number of "oustees," the persons whose lands had been acquired to set up the plants. Because these people had a very inadequate educational background, they had to be started as unskilled workers; they also had to be trained quickly for semi-skilled and skilled jobs, since the scope of unskilled work beyond the construction stage becomes very restricted.

The Corporation estimated that the following categories and numbers of skilled workers must be met through training various categories of apprentices by the time the new plants went into operation:

<u>Level of Skill</u>	<u>Gorakhpur</u>	<u>Namrup</u>
Graduate engineer to be trained for managerial positions	63	53
Science graduates and engineering diploma holders to be trained for first-line supervisors	45	56
Secondary-School leavers for operator and technician positions	345	190

The Corporation laid the first priority on training operators and technicians. It reckoned that three years time was needed for obtaining the required operators and other technical staff. For the Namrup project which was originally scheduled for operating in 1965, the Corporation recruited the first batch of trainees early in 1962 and sent them to Nangal for three years of training. The first year they were given basic training in the workshops and laboratories of the training institute. The apprentices were then assigned individually to a specific trade for specialization and received intensive training on the job under the joint supervision of the training and shop floor staff. For the final year the apprentices received their training at the Namrup plant. From 1966 the Namrup plant opened its own training institute.

The institutes set up at both Namrup and Gorakhpur have facilities for institutional training in general machinshop practice, fitting, welding, smithy, carpentry, electricity and chemical laboratory work; etc. Qualified training staff are available for giving related theoretical instruction, for which there are appropriate classroom and library facilities. Each institute has been equipped to accommodate 150 trade apprentices on the basis of an intake of 50 trainees per year. Their actual capacity is more limited, however, since the trainees cannot be

recruited locally and there are only limited hostel arrangements for those recruited outside the area.

The training staff at these institutes consists of one superintendent who is in charge of the institute, and a number of training officers and supervisors responsible individually for different aspects of the institutional and in-plant training of apprentices. Institutional training in various trades in the training shop is imparted by trade instructors under the supervision of a training officer or supervisor. The number of trade instructors is determined on the basis of a pupil:teacher ratio of 15:1, with at least one instructor for each individual trade. There are some eight or nine instructors at each of the Namrup and Gorakhpur training institutes.

Generally the two institutes selected instructors among persons with a good academic record and a minimum qualification of a diploma in engineering or in the trade, or with a science degree plus a few years of industrial experience or experience in teaching or trade training. In addition the institutes sometimes "borrowed" persons from the plants provided they have similar qualifications and a few years experience in a particular trade. For senior post, such as superintendent and training officer, a degree in engineering is essential, with considerable experience in a senior supervisory capacity in the plant as well as in training functions, including supervisory and management development.

For the on-the-job training in the plants, trainees are placed under the shop supervisors, e.g. a foreman or "chargemen" and jointly supervised by shop supervisor and training staff.

Problems Observed by Writers

The National Commission on Labor pointed out the following as problems in regard to apprenticeship training:⁶¹

1. Surveys of apprenticeship training facilities have not yet been carried out at very large number of establishments;
2. Many establishments have not engaged apprentices in compliance with the provisions of the Act;
3. There is lack of basic training facilities in non-ITI trades. The provision of such facilities at ITIs, Polytechnics, etc., is time-consuming;
4. Stipends admissible to apprentices are inadequate, particularly in the case of such trainees as have successfully completed ITI training, as they could earn much more if employed even as semi-skilled workers. The fixation of these stipend rates has resulted in devaluation in the market value of the ITI trainees and has adversely affected their prospects of employment and morale;
5. Different ratios of apprentices to skilled workers in different trades have been prescribed under the Act. Insistence on engagement of apprentices on the basis of these ratios in certain areas and trades creates a situation where more apprentices are trained than can be easily absorbed by the industry; and
6. Entry qualifications for admission as apprentices do not bear much relationship with the qualification generally insisted upon by industries for appointment of apprentices.

⁶¹Ibid., pp. 85-86.

O. P. Agarwal⁶² observed in his study of apprenticeship of fertilizer plants that there are certain critical trades where special emphasis and efforts are required to train larger numbers. These are chiefly the instruments mechanics, operators, welders and fitters.

Pidgeon said that one of the major jobs that lie ahead is the provision of adequate training for the staff required for running the apprenticeship program, both for the training officer in industry and the government official.⁶³ Coupled with this is the need for maintaining and improving the training of the instructors responsible for the basic training of apprentices.

Summary

In India a vast number of school leavers are idle. Even for the trained skilled workers, the growth of fresh openings in modern industries has not been adequate to take care of an increased output of such personnel. The wage structure and other employment terms as well as the higher demand of training and experience required by employers discourage school leavers to engage in skilled occupations. Both factors affect employment of school leavers. The majority of the graduates of secondary technical schools are not employed in the jobs in which they

⁶²National Commission on Labor, op. cit., p. 10.

⁶³Ibid., p. 14.

are trained. Many of the matriculates who are additionally trained in Industrial Training Institutes are required to be trained further in apprenticeship programs of undertakings. Furthermore, a youth who is trained in an apprenticeship program which is sponsored by the National Apprenticeship Scheme is not assured of employment after his training. The only sure way to a successful employment in skilled occupations is through the training provided by the apprenticeship programs in large industrial undertakings. And the seats in the programs are extremely limited. An enforcement of apprentice-craftsman ratios by government is likely to reflect a national manpower projection which usually overestimates additional skill requirements actually required by industries. Also, the fact that employers are not obligated to employ the completors of apprenticeship, and that they are subsidized in the form of training allowances of apprentices by the National Apprenticeship Scheme, induce employers to take in a larger number of apprentices than their skill requirements for the purpose of using them as a source of cheap labor. They both sometimes create a situation where more apprentices are trained than can be absorbed by industry.

The legal status of an apprentice is trainee and not worker. Apprentices are expected to be trained mostly in trades of engineering industry, where there are 40 percent

of the government planned seats; and in construction, 20 percent. The Indian government has also planned to provide apprenticeship programs in such service industries as hotel and catering, and bank and commerce. India is trying to diversity apprenticeable trades as new industry and trades develop. A further study is being undertaken to identify new trades to be designated in such industries as agricultural mechanics, electronics, research, hospital services, and the plastics industry. Training syllabi of different trades are prepared by the Ministry of Labor with the help of the trade committees of apprenticeship. The typical duration of apprenticeship training is three years, one year of basic training and two years of specialized training. Large undertakings have to make their own arrangements for both basic training and work experience and bear all the costs. Small undertakings are subsidized 50 percent of the costs for basic training by government in case they provide the basic training. Otherwise Industrial Training Institutes provide the basic training. Trade tests are centrally controlled and every apprentice is obliged to take the test, and apprentices who pass the test are granted a national certificate. Elaborate training institutes for apprentice instructors have been set up. These facilities, however, are rarely used by industrial establishments in the public and private sectors. Undertakings usually recruit instructors among their staffs.

The apprenticeship scheme in this country is designed to formalize and control indigenous apprenticeship programs in undertakings, large or small. It appears that the major concern of the scheme is to enforce apprentice-craftsman ratios which intend to employ more apprentices. Along with the enforcement, government pays apprentice allowances and subsidizes training costs of the small scale undertakings. The formalization has already shown the tendency to produce "unemployed apprenticeship leavers," another wastage of scarce resources.

CHAPTER III

APPRENTICESHIP PROGRAMS IN JAPAN

Background Description

Economy, Manpower and Education

Japan has achieved a rapid economic expansion since the mid-1950's. This expansion has been mainly due to the growth of the secondary industry. The new Economic Social Development Plan is designed to attain a moderate growth with stability and its principal strategy is to enhance the effectiveness of the whole economic structure. The plan forecasts a moderate change in the respective proportions of each sector of industry. The major element for growth, however, will continue to be the secondary industry. Consequently, additional manpower requirements arise in this sector, as well as the need for higher quality skills.⁶⁴

The rapid expansion of the economy in the past years brought about an increased demand for skilled manpower and there developed an acute shortage of skilled workers. New school leavers are in particularly short

⁶⁴Keijai Kikaku Cho, ed., Keijai Shakai Hatgdeu Keikaku (Tokyo, Siseido, 1967), pp. 52-56, 156-158 and 167-168.

supply, since they are in especially keen demand by employers, because their direct and indirect wages are relatively low and they are more adaptable than older workers to changing technology. During the past few years the demand for junior high school leavers has been four to five times their supply.⁶⁵ According to the report of the Ministry of Labor, the shortage of youth manpower amounts to more than one million every year.⁶⁶ Many of the vocational training centers and industrial apprenticeship schemes were not able to recruit the planned number of trainees.⁶⁷ The Economic Planning Board estimates that the shortage in the youth labor force will become even more acute in coming years. The shortage is due, in addition to other factors, to an absolute decrease in the youth age group, stemming from the low birth rate in post war Japan and to the rapidly increasing proportion of young people who continue their education.

Currently about eighty percent of both male and female graduates of junior high schools proceed to full-time high schools, and about 28 percent of the male and 19 percent of the female graduates of senior high schools

⁶⁵Ibid., pp. 19-20.

⁶⁶Ministry of Labor, Present Situation of Vocational Training in Japan (Tokyo: Ministry of Labor, 1965), p. 1.

⁶⁷International Labor Office, Vocational Training in Japan (Geneva: ILO, 1966), pp. 17-18.

continue their education in colleges and universities. During the later half of 1970's, the Economic Planning Board estimates, these rates will climb, due to the economic prosperity of the nation.⁶⁸ The impact of the changes in educational attainment of the youth population has already begun to influence the labor market of Japan. Employers are now employing displaced workers and migrants from rural areas to adjust to the shortage of the youth in the labor force during the transitional period. They are employed as temporary workers and trained for a brief period. Industry has begun to recruit numbers of senior high school graduates as apprentices, whereas previously recruiting was confined to middle school graduates.⁶⁹

Wage Structure

Marked labor shortages resulting from the unusual economic growth of past few years, and substantial technological progress and structural shifts of industry have influenced the wage structure of Japan. Because of competition for labor, wage differentials between large and small firms have narrowed. Starting wages for new school graduates have also become fairly uniform regardless of the size of the firm. Age differentials in wages have been reduced substantially due to an acute shortage of youth labor force.

⁶⁸Keijai Kikaku Cho, op. cit., pp. 18-22.

⁶⁹I.L.O., op. cit., pp. 17-18.

However, age and length of service in a firm are still major determinants of the wage system in Japan.⁷⁰ These are the major ingredients of the so-called Nen Kô system. "The institution of Nen Kô is the lifetime commitment system to a firm in which wages and benefits of employees advance primarily on the basis of age and years of service in the firm."⁷¹

Beneath the institution of Nen Kô is a complex of values inherited from the distant past. It may be said that the institution is compatible with traditional values derived from paternalism, family-ism, and reciprocal obligations between superior and subordinate carried over from the agrarian society of Tokugawa feudalism.⁷²

Legal provisions make the institution survive. The Minimum Wage Law of 1959 does not specify any minimum rates but instead concentrates upon procedures for setting them. The law clearly intended that there should be differentials in minimum wages, influenced by the cost of

⁷⁰ Solomon B. Levine and Gerald G. Somers, "Youth Employment and Wage in Japan," Industrial Relations Research Institute Reprint Series, No. 132 (The University of Wisconsin, 1970), pp. 172-173 and 178. Table 11-4: For example, in 1966, the indexes for men in manufacturing firms with 1,000 employers or more show a rise in basic wages of about 4 times between workers under 18 years of age with one year service and workers 40-49 year-old with 30 years or more of service.

⁷¹ Ibid., p. 164.

⁷² Ibid., p. 168.

living of workers, wages of kindred workers and normal capacity of industries to pay wages. An inter-enterprise agreement among employers is the major method of fixing minimum wages. The amendments to the Minimum Wages Law in 1968 provided for use of wage councils but Japan's experience to date does not indicate that the array of minimum rates have seriously affected the wage structure.⁷³

Unions, especially in large enterprises, tend to perpetuate the Nen Kô system. Collective bargaining in Japan tends to be decentralized at the enterprise or plant level. Wage minimums or even starting rates for new school graduates do not tend to take the center of the collective bargaining stage. Far more important are the general wage increases for the enterprise union membership as an entity. The reason for this is that enterprise level unions cater to their membership and therefore seek to prevent major upsets in the wage and benefit structure that apply to their respective members. A principal focus of unions is to maintain the established wage differentials.⁷⁴

With the development of the shortage of new school graduates in recent years, the rise of educational levels, and the inculcation of democratic ideas, young workers in many cases have exerted pressure upon their unions and

⁷³Ibid., pp. 166-167.

⁷⁴Ibid., pp. 170-171.

management to grant wage increases based on their higher abilities and greater skills. Yet it is not all that clear that the young workers "want theirs now." As they gain seniority, they appear increasingly content with the Nen Kô system and with gradual change in the wage structure of the enterprises.⁷⁵ In other words, young workers view their starting wage as part of a total income package lasting until age 55, in which low starting wages are offset by high final wages. Further, they are assured of permanent employment.

Employers in Japan are willing to accept this system and make lifetime commitments because low wages to young single workers and low rates of labor mobility make extensive training a sound investment, thereby permitting a growth of skills to parallel an increase in wages. In addition, employers can be assured of a high degree of commitment in the work force. For additional workers, employers recruit laborers on a temporary basis and these laborers do not profit from the permanent employment system.⁷⁶

⁷⁵Ibid.

⁷⁶Ibid., p. 168.

Organization of Industrial Education
and Training⁷⁷

Vocational and industrial education and training is provided after compulsory education, which is nine years of schooling. Vocational education is provided by vocational high schools and its principal purpose is to train entry technicians and assistant technicians. Vocational training can be provided either in public centers or within business undertakings. Public vocational training is classified into "basic" and "specialized." Basic training for the period of two months to one year takes place in general vocational training centers operated by the prefectural governments or, at the request of the prefectural governments, in comprehensive vocational training centers operated by the Employment Promotion Project, which is financed from unemployment insurance funds. Most of the trainees are junior high school graduates or workers wishing to change their occupations. Specialized training, lasting two years, is provided in comprehensive vocational training centers, and most of the trainees are junior high school graduates.

Vocational training within undertakings is provided by employers for the purpose of enabling their employees

⁷⁷Ministry of Labor, op. cit., pp. 4-6, is the major basis for description of this section.

to acquire skills under the apprenticeship scheme. Apprenticeship training is provided in two forms, one is authorized apprenticeship and the other, non-authorized. Authorized apprentice training is provided either by individual, large undertakings and cooperatives, or by joint training programs run by small and medium sized undertakings. Non-authorized apprenticeship provides training for operatives or one-skill workers for a shorter duration than the authorized three year apprenticeship. The "basic public vocational training is aimed at specialized training at a level between semi-skilled and skilled, and approved apprenticeship at the skilled level."⁷⁸ The following table shows the number of training locations, of trainees, and of instructors of the four types of vocational training programs in both 1964 and 1966 (see Table 1).

As shown on the table, the number of trainees in public vocational centers suggests a tendency toward reduction. Enrollment in independent apprenticeships also show a reduction, whereas cooperative apprenticeships reveals a gain.

Coordination among the training programs is well established. An employer who provides approved apprenticeship training for a person who has completed a course in a

⁷⁸K. Inoue, "Group Training in Japan," International Labor Review, Vol. 98 (July 1968), p. 41.

TABLE 1.--Number of Locations, Trainees and Instructors in 1964 and 1966.^a

Types of Vocational Training Locations	Number of Locations		Number of Trainees		Number of Instructors	
	1964	1966	1964	1966	1964	1966
General Voc. Training Centers	297 ^b		80,785 ^b		3,470 ^b	
Comprehensive Voc. Training Centers	55 ^b		39,515 ^b	41,000 ^c	1,551 ^b	
Independent Apprenticeship	461	438	32,413	28,797	8,112	7,380
Cooperative Apprenticeship	559	599	47,445	54,749	23,740	25,570
Non-approved Apprenticeship				42,000		

^aRetabulated by this study based on both Ministry of Labor, Present Situation of Vocational Training in Japan (Tokyo: Ministry of Labor, 1965), p. 10. Table 2 and p. 27, Table 17, and Klnoue, op. cit., p. 41.

^bPlanned numbers for 1965.

^cAs of 1967.

public vocational center may omit some subjects and shorten the training period. For instance, those who enter apprenticeship after one year of basic training in public vocational training centers, are given two years of specialized public training.

Some of the junior high school graduates who are receiving apprentice training attend evening classes or follow coorespondence courses at technical senior high schools. Principals of these schools may recognize the studies these apprentices have completed in certain technical subjects in approved training facilities that have been designated by the Minister of Education. In these cases the apprentices are allowed technical senior high school credits in the subject concerned. This arrangement enables apprentices to obtain a technical senior high school diploma.⁷⁹

Apprenticeship Scheme

Apprenticeship training, as we have said, is provided either under government authorization or under the non-authorized form. In either case employers take initiative in and responsibility for the implementation of the apprenticeship. The approved or authorized apprenticeship by the government should meet the standards set by the Vocational Training Law of 1958. The standards set

⁷⁹Ibid., pp. 47-48.

out certain minimums concerning recruitment and incentives, apprenticeable trades and curriculum, training period, trade tests, recruitment and training of instructors. The following section describes both the standards and their implementation.

A Brief History of Apprenticeship⁸⁰

The vocational training system in Japan has developed over a period of many years. In addition to meeting needs for skilled manpower, it has two main purposes. The first is to enable people who need employment to acquire the skills which will help them to obtain it. Such people are usually young and their training takes place in a vocational training center or in industry under a system of apprenticeship. The second main purpose of the system is retraining. The first system of vocational training developed in the form of apprenticeship and its importance was recognized by the enactment of a law in 1916 to protect apprentices from maltreatment by employers. The efficiency of the apprenticeship system was further improved in 1940 by the enactment of the Ordinance of Apprenticeship in Factories which both increased the number and improved the quality of apprentices. During the past ten years the economy has grown rapidly and what was a problem of unemployment has become one of labor shortage. One result has been reduced

⁸⁰Ibid., pp. 6-7.

wage differentials among large undertakings and an improvement in working conditions in small and medium undertakings. There has also been an improvement in working conditions in small and medium enterprises, and a consequence of the change has been an increasing labor mobility. Employers engage additional workers on a temporary basis during rush periods and discharge them when their services are no longer required. It was noted that in most undertakings there is a clear distinction for training purposes between permanent and temporary workers, the latter only receiving a short, on-the-job training for their immediate task.

Recruitment of Apprentices⁸¹

The minimum educational attainment for admissions to approved apprenticeship programs is graduation from junior high school, which takes place at the age of 15 after nine years of compulsory education. Normally the recruitment of apprentices is carried out through the Public Employment Security Offices, and the method of selection is a written test followed by an interview. However, employers are now allowed to contact schools directly for the recruitment of apprentices, and due to the shortage of junior high school graduates many find it necessary to use this approach. "Apprenticeship in Japan does not take the form of an indenture, binding

⁸¹I.L.O., op. cit., p. 32.

the apprentice to his employer for a given period; it is contract between employer and apprentice, and apprentices are considered to be an employee of the undertaking."⁸²

Incentives

Apprentices are paid according to the pay scale of the undertakings which provide training. In most companies there is no difference between the wages of apprentices and other workers of the same age and seniority, but in some undertakings apprentices are paid slightly less. At the end of the three-year training period the apprentices are absorbed as skilled workers on the same salary scale as senior high school graduates who have received three years general or technical education.⁸³

"In cases where an apprentice in (a cooperative apprenticeship program) receives daytime theoretical instruction in a classroom outside the undertakings his wages for the hours in question are by custom secure."⁸⁴ The following table shows an illustration of apprentice wages (see Table 2).

An apprentice who finishes the course in an approved apprenticeship program and reaches the required standard is awarded a certificate of completion endorsed by the

⁸²K. Inoue, op. cit., p. 46.

⁸³I.L.O., op. cit., pp. 14-15.

⁸⁴Ibid.

TABLE 2.--Wages of Apprentices in Tokyo Sitawa Electric Company.

Year of Training	Allowances per Month	Wage Differentials to Other Workers
First year	11,476 yen	1,573 yen (-)
Second year	13,049 yen	1,400 yen (-)
Third year	14,300 yen	874 yen (-)
One year after completion	16,100 yen	113 yen (+)

prefectural governor.⁸⁵ After two years further experience in industry, he is entitled to sit for a trade skill test.⁸⁶ In contrast, a junior high school graduate who has not received an approved apprenticeship training is required to have seven years experience in industry before sitting for a trade skill test.

Distribution of Apprentices by Industry and by Trade⁸⁷

As of 1966 a total of 84,000 apprentices were trained, 55,000 in cooperative apprenticeship programs

⁸⁵Ministry of Labor, op. cit., p. 58.

⁸⁶Ibid., p. 40. The purpose of the trade test is to stimulate the workers will to improve skills. The test is classified into 1st and 2nd grades. The 2nd grade test preceeds the 1st grade test. It is not, however, compulsory.

⁸⁷Inoue, op. cit., pp. 48-49.

and approximately 29,000 in independent programs. Non-approved apprenticeship programs enrolled 42,000 in 1966. Nearly 90 percent of the undertakings which run independent apprenticeship programs employ 100 or more.

Distribution of apprentices by industry in cooperative apprenticeships shows: construction, 59.5 percent; apparel and other textile products, 17.1 percent; and other, 13.2 percent. The pattern in independent apprenticeships is different: machinery accounts for 20.8 percent; transportation equipment, 18.7 percent; electric machinery, 17.4 percent; and construction 9.6 percent.

In cooperative training the majority of apprentices are concentrated in a few artisan trades: carpentry, 31.2 percent; dressmaking, 13.4 percent; custom tailoring, 10.5 percent; and machinists, 9.0 percent. In independent training most apprentices are found in certain popular trades such as machinist (20%), finishers (11.1%), and linemen (10.3%).

Organization of the Curriculum

Standards of training the curriculum have been laid down by the Ministry of Labor. The central Vocational Training Council conducts research on the standard curriculum at the request of the Minister of Labor and makes recommendations.

The Council is a tripartite body in which employers, workers and persons with special knowledge and experience

are represented. The members, however, are appointed by the Minister, rather than by employers' or workers' organizations. At the local level, prefectural vocational training councils can be organized with the same principle of organization as at the central level.⁸⁸

At present, standards of apprenticeable trades have been laid down for 188 trades which can be grouped as follows: processing of metal, metal work, precision work in metal, electric work and the manufacture of electrical equipment, processing of chemicals and chemical products, manufacture of textiles and textile products, manufacture of transport equipment, construction, processing of timber and timber products, manufacture of stone, clay and glass products, drawing and printing, industrial arts, operation of specialized machines, mining and other miscellaneous occupations. The typical duration of training is 3 years or 5,400 hours, but for some trades the length of training lasts two years.⁸⁹

The curriculum consists of general and technical subjects, with an emphasis on practical training. The hours assigned to subject instruction is about 20 percent of the total. The general subjects consist of social studies, mathematics, and physics. The technical subjects include

⁸⁸Ibid., pp. 63-64.

⁸⁹Ibid., pp. 84-89.

introduction to mechanical engineering, mechanical technology, and materials. Practical training comprises basic and applied practices. The proportions of training time allotted respectively to subjects and practice vary according to the trade. In general practice accounts for some 80 percent of all training hours, while in a technical high school it represents only 15 percent.

Theoretical training is spread throughout the total training period and is supposed to relate closely to practical training. By the end of the first year of the training, trainees are assigned to production departments for further training. In many cases apprentices after the first few months of initial training, are assigned to manufacturing carefully selected production items.⁹⁰ An example of the scope and sequence of the apprentice curriculum is shown below:⁹¹

Scope of skill to be taught

Skill in metal working with machine tools.

Training period

Three years (1,800 hours in each year, making a total of 5,400).

Equipment

Buildings and other constructions: (1) classroom equipped with black-board, desks, chairs, etc.;
(2) workshop.

⁹⁰I.L.O., op. cit., p. 34.

⁹¹K. Inoue, op. cit., p. 54.

Machinery: (1) lathe; (2) drilling machine; (3) shaper; (4) milling machine; (5) grinding machine.

Other equipment: (1) workshop tools; (2) tools for marking; (3) tools for finishing; (4) measuring devices; (5) drawing instruments.

Curriculum

A. Theory (a minimum of 550 hours in the first year, 410 in the second, and 320 in the third, making a total of 1,280).

1. General: (a) social studies; (b) physical culture; (c) mathematics; (d) physics; (e) chemistry; (f) practical foreign language; (g) Japanese; (h) introduction to management.

Trainees must take a minimum of four of these general subjects, including physical culture, in the course of the three-year training period.

2. Technical: (a) introduction to electrical engineering (recommended for the first year); (b) introduction to productive engineering (recommended for the second and third years); (c) mechanical technology (recommended for all three years); (d) materials (recommended for the first and second years); (e) strength of materials (recommended for the third year); (f) drawing (recommended for all three years).

B. Practice

1. Basic: (a) measuring and marking; (b) basic finishing; (c) basic work with machine tools; (d) basic grinding of cutting tools; (e) basic accurate measuring; (f) safety and hygiene.

2. Applied: (a) machining; (b) finishing and assembling; (c) machine adjusting; (d) inspection of finished products; (e) inspection of accuracy.

Authorized apprenticeship training in independent, large undertakings provide both theoretical and practical training. There is usually a well-equipped workshop for the first year's basic training. For a cooperative apprenticeship program, public vocational training facilities can be made available. Theoretical instruction is in most cases given in a classroom and attended by all the trainees

from the various undertakings. It takes place either in the daytime, one or two days per week, or in the evening every day or every other day. Practical training is provided on the job in each undertaking, although a part of basic practice is sometimes taught jointly in a classroom or in a training workshop. If the cooperative training body is unable to find a suitable classroom, workshop or equipment, it may request facilities in a public vocational training center.⁹²

As a means of suitable implementation of the curriculum, the responsibility for apprenticeship lays with the senior staff. The personnel in charge of the apprentices at the shop-floor level are carefully selected. In many cases they are senior skilled workers who have been trained as apprentices in the enterprises and who have the same seniority, status, and salary as production workers.⁹³

Trade Tests⁹⁴

As a part of its policy of improving standards of apprenticeship training the Ministry of Labor conducts trade tests. Instead of being conducted at the conclusion

⁹²I.L.O., op. cit., p. 34; and Ministry of Labor, op. cit., p. 58.

⁹³I.L.O., Ibid., p. 33.

⁹⁴Ibid., pp. 36-37.

of a training course, they are normally conducted some years afterwards. Generally the Second Grade test is taken not earlier than two years after the completion of an authorized apprenticeship training program. The First Grade trade skill test is given to those who have passed the Second Grade test and have had five years experience after the test. A recent development has been to combine the trade tests with the National Vocational Competition which is organized first on a prefectural basis and afterwards nationally. Candidates who achieve better than a specified minimum in this competition may be granted exemption from the practical section of the trade test.

The tests cover both theoretical and practical aspects of the trades. The major emphasis, however, is on practical ability and is concerned both with quality and speed of work and the observance of safety precautions. The theory test consists of multiple choice questions.

Recruitment and Training of Instructors

One prerequisite to the success of any vocational trade training program may be the availability of well qualified instructors. It may be especially true for a nation where vocational training is new or is rapidly expanding.

An apprenticeship program in an undertaking is staffed by one senior official who directs the program,

instructors at shop-floor level, who are usually senior skilled workers and have been trained as apprentices, and classroom instructors. Part-time instructors are employed from among retired skilled workers in some of the cooperative apprenticeship programs.⁹⁵

An official designation of "vocational training instructor"⁹⁶ is given those who have a license which is granted by the Ministry of Labor. One standard which must be met in order for an apprenticeship program to be authorized by the government is to staff the program with licensed instructors.⁹⁷

Currently the license is granted to those who have passed the examination for vocational training instructor, those who passed the first grade trade test and subsequently completed the course of instructor training lasting 35 hours, or those who have certain educational attainments and experience in skilled work. In the latter case, educational attainment ranges from junior high school graduation to university degree, and practical experience ranges from 2 to 15 years. For example, university degree holders need two years of practical experience and junior high school graduates need 15 years practical experience

⁹⁵I.L.O., op. cit., p. 24.

⁹⁶Ministry of Labor, op. cit., p. 17.

⁹⁷Ibid.

to be licensed as vocational training instructors.⁹⁸ As of 1965, most of the licenses (180,000 out of 192,000) were granted to persons in the latter category. Those who passed the examination and who passed the first grade trade test comprise 10,000 and 1,000 respectively.

The Institute of Vocational Training⁹⁹ was established to train vocational training instructors. It is run by the Employment Promotion Projects corporation, a quasi-governmental agency. Besides the instructor training, the Institute conducts research on specific vocational training programs.

Trainees are recruited from among senior high school graduates or among those who complete public vocational training and/or authorized apprenticeship courses. The duration of training lasts four years and provides university-equivalent education. A very limited number of trainees is admitted; total enrollment is 360. The trainees pay tuition, 9,000 yen a year, a nominal one. Those who have completed the program are regarded as having training equivalent to university graduates, when they are employed in government services at the central level.

The Institute also provides short-term courses of 6 months for those who are recommended by employers. These

⁹⁸Ibid., pp. 20-21.

⁹⁹Ibid., pp. 23-26; and I.L.O., op. cit., p. 23.

courses are available to: (1) graduates of senior high schools who have had 5 years or more of experience in trade skills; and (2) those who have had 3 or more years of practical experience after passing the second grade trade test. Those who complete these courses are provided with licenses as vocational training instructors. The Institute provides one-month-refresher courses for instructors, in addition to the above provisions.

Sponsors of Apprenticeship¹⁰⁰

Both government and employers share the responsibilities of apprenticeship training. Government assistance is limited to authorized apprenticeship programs.

The Prefectural Government and the Employment Promotion Projects Corporation make efforts to render such assistance as mentioned below:

1. To allow the use of the facilities of public vocational training centers;
2. To provide the service of instructors of public vocational training centers; and
3. To furnish textbooks, teaching materials and other teaching aids.

This assistance is provided to both the independent and the cooperative apprenticeship programs. The latter receives additional assistance from the government as follows:

¹⁰⁰Ministry of Labor, op. cit., pp. 58-65.

4. A subsidy, which is financed in equal proportion by the central government and the prefectural government concerned, is granted to help cover the current expenses of apprentice programs, e.g., stipends for instructors, purchase of machines, tools and textbooks, and maintenance. In principle the subsidy is equal to half the apprenticeship program's total current expenditure.

5. A subsidy is granted for construction of training facilities undertaken by municipalities for cooperative apprenticeship programs. The principles in (4) above also applies here. In addition, prefectural governments that undertake the construction of facilities for the cooperative training programs are subsidized by the central government at the rate of one-quarter of the total expenditure.

6. The Employment Promotion Projects Cooperative advances loans to apprenticeship programs to help cover expenditures on the construction of training facilities.

Employers who undertake authorized apprenticeship programs are required to meet the standards set by the Ministry of Labor. The employers must provide facilities, qualified instructors, and operating expenditures. Independent apprenticeship programs must bear all the expenditures. The cooperative apprenticeship programs bear half of the training costs. A certain percentage of the total training hours must be assigned for classroom teaching and

daytime release for that purpose. Most employers pay wages for the time spent.

An Example of Apprenticeship Training

The following description is a typical cooperative apprenticeship training program in Shimonoseki,¹⁰¹ a city famous for ship building.

This program is sponsored of 15 small and medium-sized undertakings engaged in shipbuilding or iron work and employing 1,943 workers. It embarked on training in 1962, and there are at present 69 trainees--all junior high school graduates--of which 35 are in their first year, 19 in their second and 15 in their third. They are each learning one of the following four trades: machining, finishing, moulding, and welding.

The apprentices receive theoretical instruction from 8:30 a.m. to 5 p.m. one day a week in a classroom belonging to the body. Practical training (both basic and applied) is given on the job in the individual undertaking. The syllabus is based on national training standards, and at the end of each training year examinations take place in both theory and practice. The training is intended to bring the apprentices up to the level of second-grade skill tests.

Fifteen instructors are responsible for the theoretical training: three are employed on a full-time basis, nine are detached from member undertakings and three from the municipal staff. Most of them are qualified to be instructors in approved apprenticeship schemes, and the rest have licenses to teach in technical senior high schools or an equivalent qualification. The full-time instructors are paid by the training body; most of the part-time instructors receive their pay in full from their employers, even while they are teaching in the classroom, and, in addition, the body pays them 500 yen per lecture hour.

To begin with, this program had the lease of a room in a community hall, free of charge, for

¹⁰¹K. Inoue, op. cit., pp. 50-51.

purposes of theoretical instruction. However, a training centre has now been built for it by the Yamaguchi prefectural government at a cost of 13.7 million yen.¹⁰² It is constructed of slate, with a steel frame, and consists of two stories comprising four classrooms and one workshop (to be used for basic practice), with a floor space of 461.7 square metres.

The budget for 1967 is about 2 million yen, of which 100,000 is borne by the prefectural government, 100,000 by the central government, 80,000 by the city and the rest by the member undertakings in proportion to the number of apprentices in each. In principle, the prefectural government and the Japanese Government each meet one-quarter of the body's current expenditure but, in fact, a considerable amount of 'surplus defrayment' is borne by the individual undertakings because the scope and unit cost of subsidized items are underestimated.

Problems Observed by Writers

Inoue observed that the following were problems encountered by apprenticeship programs in Japan:¹⁰³

One of the main problems seems to lie in the fact that industry in Japan is not yet organised in such a way as to facilitate in-plant training, including group training. As a remedy it is sometimes suggested that a central body or a body for each industry should be set up to encourage undertakings to establish training schemes on their own initiative and largely at their own expense.

Secondly, it is recognised that assistance from public vocational training centres to vocational training schemes in undertakings including cooperative training has not always been adequate. Not all the centres have been willing to co-operate, partly because they were not originally organised for this purpose. This applies, for instance, to the release of instructors. On the other hand, in some public vocational training centres places are vacant in quite a few trades. It is felt that the functions of the centres should be reorganised so as to give

¹⁰²One U.S. dollar = 360 yen.

¹⁰³Inoue, Ibid., pp. 52-53.

must greater assistance to in-plant training schemes: for example consideration should be given to a system whereby cooperative training bodies or individual undertakings could 'commission' the centres to give theoretical instruction and basic practice.

Thirdly, it is admitted that financial assistance from the national and prefectural budgets should be increased. It was promulgated in vocational training regulation that half the operational expenses of a cooperative training body are, in principle, subsidised by the prefectural and the national governments but the calculation of the subsidy is unrealistic in 1965 and average annual cost per trainee in group training was 10,700 yen, and this sum is increasing rapidly, mainly because of the rising staff costs; yet in 1967 the national government subsidy was only 1,400 yen per trainee. Training bodies therefore attach the greatest importance to an improvement in this type of subsidy. The position is similar with regard to the subsidy for the construction of training facilities. The Vocational Training Bureau's report stresses the need for speedy action in this matter.

Fourthly, according to a survey published in December 1966 by the Central Council for Employment Policy, 30 per cent of the undertakings operating apprenticeship schemes referred to difficulties in recruiting suitable trainees as one of the obstacles to the pursuance of systematic training. In the case of undertakings with 99 workers or less, the proportion mentioning such difficulties was almost 50 per cent., which is, in a sense, natural, considering that most school graduates, including junior high school leavers, go into large-scale industries, where conditions of work are more favourable than those in small and medium-sized undertakings. However, an effort to organise training schemes among the latter is clearly necessary in the interests of the national economy and the improvement of the workers' status. The report suggests that the Public Employment Security Offices should play a part in this endeavour.

Fifthly, as individual incomes have increased, the proportion of junior high schools graduates going on to senior high school has risen and reached 72.3 per cent in 1967. This coupled with the earlier fall in the birth rate, has led to an acute shortage of junior high school graduates willing to leave school for employment. Undertakings now have to fill the posts once occupied by junior high school graduates with senior high school graduates. However, they lack guidance in providing senior high school graduates with skilled training, for the present national standards were originally laid down in

1958, when the proportion of junior high school graduates going on to senior high school was only about 50 per cent, and training was designed mainly for junior high school graduates. This is why the report stresses the need to establish standards for senior high school graduates' training.

In connection with training standards, the report also suggests that the duration of apprenticeship--which is at present three years, with a few exceptions--might be made more flexible, according to the trade. In addition, standards for shorter training periods, designed for operatives, should be laid down.

With regard to these problems a report,¹⁰⁴ which was adopted for discussion by the Central Vocational Deliberate Council,¹⁰⁵ made recommendations. This report states that, in view of the increasing importance of training for future skilled workers, positive ways and means for the promotion of such training should be considered. In particular the following measures should be taken: (1) it should become customary for industry to promote vocational training, voluntary and on its own initiative; (2) co-ordination between public vocational training centers and vocational training schemes in undertakings should be strengthened; in addition to providing training for young workers and displaced workers, the centers should accept apprentices for theoretical

¹⁰⁴An idea on vocational training in the future
(28 June 1967) quoted by Inoue, Ibid.

¹⁰⁵The Council is composed of representatives of employers and workers and persons with the relevant knowledge and experience. Officials of the ministries concerned are special members without voting rights.

instruction or basic training; (3) the assistance provided by the Japanese Government and the prefectural governments to training carried out by small and medium-sized undertakings should be greatly increased; (4) the Public Employment Security Offices should devote special attention to the recruitment of apprentices; and (5) training standards for senior high school graduates should be prepared.

The Vocational Training Study Tour in Japan Organized by the International Labor Office drew conclusions concerning vocational training in general.¹⁰⁶

According to these conclusions the following conditions are reported as favorable for apprenticeship training:

1. An increase in wages for skilled craftsmen is a major factor in encouraging suitable young people to undertake vocational training.

2. In Japan the vocational training is regarded as a service to industry as much as to trainees and the Ministry of Labor ensures that craftsmen are trained in the trades for which there is a need and to the standards of skill required by industry. Often vocational training programs were subject to political pressure and designed more to satisfy a demand for training from unemployed people than to meet the needs of industry. Often in such

¹⁰⁶I.L.O., op. cit., pp. 39-42.

cases trades were selected in which it was easiest and cheapest to provide training, without determining the requirements of industry, or ensuring that the standard of skill reached at the end of the training course satisfied its needs. The location of training centers was often the result of political influence rather than the proximity of industry; consequently such workers as were trained in them had little opportunity for employment nearby.

3. Capital in Japanese industry is almost all locally owned and is willing to engage in long-term commitments, such as vocational training. The structure of capital in Japan therefore encourages a long-term plan for vocational training.

Some prominent problems are pointed out:

1. Japan lacks manpower information. Vocational training programs should be established on a basis of the requirements of industry; to ascertain these requirements there must be a source of manpower information which enables the government to establish training programs for those trades in which there is the greatest demand; these demands need to be reviewed from time to time.

2. One of the major problems is to secure good cooperation between the ministries of Labor and Education. One example of the problem is that the Ministry of Education does not recognize the academic status of the

graduates of the Vocational Training Institute, which are equivalent to university graduates.

Summary

An acute shortage of school leavers from junior high schools is now the main manpower problem in Japan. Employers prefer the school leavers, and the majority of apprentices has been recruited from among them. Apprentices receive training in addition to the wages paid to them, which are equivalent to other workers at their age. After the completion of training they are paid wages equivalent to the amount that high school graduates are paid. Further, they are provided with permanent employment as the core skilled workers which is accompanied with Nenko wage system.

Technical high schools educate candidates for technicians. Apprenticeship is designed to train entry craftsmen. Vocational training centers provide training for semi-skilled workers. The training in the centers can be merged into apprenticeship training. When an apprentice takes part-time education in technical high schools, the subjects he has taken in an apprenticeship program are exempted from the requirements of the courses in the schools. The major efforts of the National Vocational Training scheme are devoted to help small scale industrial firms to undertake cooperative apprenticeship

programs: half of the training cost is subsidized by governments; money for the building of classrooms and workshops is loaned; and classroom instruction is provided by government Training Centers when it is requested. In practice, however, both financial assistance and the provision of classroom instruction are reported unsatisfactory. Large undertakings do not profit from such provisions and provide training facilities with their own funds.

The apprentices in small firms are concentrated in the construction industry (60 percent of all apprentices) and in the textile industry (17 percent). The apprentices in large undertakings are concentrated in machinery, transportation equipments, and electric machinery industry. The standards of syllabi for different trades are set up by the central government. The curriculum of a trade is divided into two parts; a shorter period, one year, of basic training and two years of work experience. In a cooperative apprenticeship program, work experience is provided by respective affiliated undertakings, and classroom instruction is provided in a cooperatively established classroom or workshop. Vocational Training Centers provide facilities and instructors for the purpose. Trade tests are not compulsory, and efforts are being made to integrate the tests with the National Vocational Competition. Some of the prominent problems of instruction are that training

standards are not based on the requirements of industries and they are not flexible to meet the changing skill requirements. Most of the instructors are junior high school graduates with 15 years or more of practical experience and are recruited among the staffs in the undertakings. Formal instructor training performs a peripheral role at present.

The major concern of the national scheme of apprenticeship is to help small scale industries to train their apprentices. The scheme is promotional. No such restrictive measures as apprentice-craftsman ratios and others are enforced. Undertakings have provided apprenticeship programs on a voluntary basis.

CHAPTER IV

APPRENTICESHIP PROGRAMS IN KENYA

Background Description

Economy, Manpower and Education

Kenya achieved independence in 1963. From the beginning, the national motto has been Harambee, pull together. The motto implies that an integrated and inter-dependent growth among the various sectors should be the strategy of development for Kenya. However, it was not until the latter part of the 1960s that the idea of Harambee became woven into the development plan. In the development plan, 1970-1974, a heavy emphasis is on a rapid development of the rural sector, because of the heavy preponderance of population in the rural sector. Further, the annual population growth (3%) makes absorption of additional population into the modern sector almost impossible. The absorption of the growing labor force must be, in the next one or two decades, mainly in rural activities.¹⁰⁷

¹⁰⁷Kenya Development Plan 1970-1974 (Nairobi, Kenya, 1969), pp. 115-116.

This emphasis does not rule out the ultimate goal of industrialization. Kenya has therefore to confront two major manpower problems, namely the mobilization and training of a large and growing number of rural youth for a rural development purpose, and the need for training youth in certain types of skilled occupations in the modern sector. The latter problem is no less important than the former. In spite of a great slogan, Kenyanization, non-citizens occupy a great portion of the skilled occupations.¹⁰⁸

It is observed that the seriousness of skill shortages is increasing. In 1968 Kenya issued more than 2,000 work permits to non-citizens for craftsmen and artisans.¹⁰⁹ Furthermore, the Development Plan of 1970-1974 estimated a deficit of approximately 7,000 or more in technician and manual skill occupations.¹¹⁰ The plan foresaw that "additional numbers of non-citizens will be required in these occupations."¹¹¹ It also estimated that high level positions which require a Form IV or more education, training and experience, and university education will be more heavily occupied by non-citizens than middle

¹⁰⁸Ibid.

¹⁰⁹Ibid., p. 110.

¹¹⁰Ibid., p. 120.

¹¹¹Ibid., p. 121.

level positions, particularly in the private sector, and the situation will continue during the plan period. However, acuteness of the shortage problem is felt most seriously in technician and skilled craft occupations.¹¹² Therefore, although the Second Development Plan emphasizes rural and agricultural development, it continues to give a high priority to industrial skill training.¹¹³

The need for training also arises from the problem of the educated unemployed. Leaving the problem of unemployment of the primary school leavers aside, there still remains the problem of absorption of secondary school leavers into industries. During the second plan period over 138,000 secondary school leavers, approximately half of whom will be possessors of a Form II education and the remainder, Form IV education, will enter the labor force.

Many of these secondary school leavers will have difficulty finding urban wage employment and it is estimated that by 1974 less than one-half will be able to do so.¹¹⁴

Wage Structure

The wage system in Kenya is characterized by a wide differential of wages among groups of workers and educational attainments. The wage structure remains that

¹¹²Ibid., p. 116.

¹¹³Ibid., p. 121.

¹¹⁴Ibid., p. 105.

of the colonial days in which extremely high wages were paid to high-level manpower in the civil service and also to skilled workers. In 1965 half of the employees received a wage of under Sh. 150 per month; at the other end of the scale more than eight percent of employees received more than Sh. 800 per month.¹¹⁵ The peculiarity of the wage structure has very important effects on the skilled manpower problem. Because of the great differentials between high level jobs and lower level ones it has been proven very difficult to encourage educated workers to enter skilled worker careers, since with a little more training and luck they can hope to move into the stream of the high level salaries.¹¹⁶

Todaro observed that in 1968 individuals with zero to four years of primary education in urban areas earned KL 102; those with five to eight years of primary education earned KL 156, while those who had completed one to six years of secondary education earned on the average KL 290 per annum.¹¹⁷ Moreover, employees in urban areas may profit more from wage growth than workers in rural farms.

¹¹⁵Kenya, Economic Survey 1966 (Nairobi, 1966), p. 67.

¹¹⁶Robinson G. Hollister, "Manpower Problems and Policies in Sub-Saharan African," International Labor Review, Vol.

¹¹⁷Dharam P. Ghai, "Income Policy in Kenya: Need, Criteria and Machinery," East African Economic Review, Vol. 4 (New Series) June 1968, p. 20.

In Kenya the average earnings of African employees in the non-agricultural sector rose from KL 97 in 1960 to KL 180 in 1966, a growth rate of nearly 11 percent per annum. During the same period the small farm sector of Kenya experienced a growth of estimated family income of only 5 percent per annum, rising from KL 57 in 1960 to KL 77 in 1966. Urban wages rose more than twice as fast as the average farm family incomes.¹¹⁸ Parents and pupils are well aware of the greater employment possibilities in urban industrial sectors for those who have some further education or training above primary school level.¹¹⁹

Organization of Industrial Education and Training¹²⁰

Under the Ministry of Education are a number of technical and vocational schools. Both secondary technical schools and secondary vocational schools now follow a four-year course, the first two years of which are common to both types of schools. After the second year, Kenya Junior Secondary School Examinations and academic records will be

¹¹⁸Michael P. Todaro, "Income Expectations, Rural Urban Migration and Employment in Africa," ILR, Vol. (1971), p. 392.

¹¹⁹I.L.O., Report to the Government of Kenya on the Development of Training for Rural Youth in Kenya (Geneva: I.L.O./OTA/Kenya/R.2, 1968), pp. 11-15.

¹²⁰This section is organized referring to International Labor Organization, The Organization and Development of the National Industrial Vocational Training Scheme, Kenya (Geneva: 1971), pp. 2-3; and Kenya Development Plan, 1970-1974 (Nairobi, Kenya: Government of Kenya, 1969), pp. 462-472.

used to divide students into two streams, one of which is pre-craft and the other pre-technical.

The specific aims of the secondary technical schools are to offer their students a pre-technical education and to supply candidates for university training.

The purpose of the vocational schools is to provide pre-vocational skills for specific occupations. After the completion of a full four year course, students are eligible for technician "sandwich" courses at Kenya Politechnic and Mombasa Technical Institute.

The politechnics were set up to train technicians. More than half the courses at the politechnics are day-release and evening courses, for which candidates are chosen only from those already in suitable employment in industry and commerce. They also provide courses to enable students to qualify for university entrance and other forms of higher education, and pre-employment courses whereby students attain capability of taking on-the-job training.

Technical and vocational schools are the main recruitment sources for apprenticeship trainees. The Ministry of Labor and Ministry of Education are collaborating in defining their respective roles in vocational school education and apprenticeship training. Articulation of curriculum between craft courses in the vocational schools and that of apprentice centers is adjusted to

avoid any possible gap or duplication between them. Further, a complementary relationship, in terms of the period of training, between the two systems will be constantly adjusted with the changes of the system and the other party.

The Ministry of Co-operatives and Social Services operates a number of Village Polytechnic Schools which provide some handicraft and elementary craft training.

The National Youth Service under the Ministry of Labor provides training for school-leavers, generally at the completion of primary school, which again includes some basic craft training.

In several schools operated by the National Christian Council of Kenya, vocational training courses are offered for selected students. Handicraft courses are also conducted in a number of other private schools.

The above-mentioned existing training facilities could graduate less than one-third of the estimated additional skilled workers who would be required during the first development period. Furthermore, it was clear that in most cases the training program are not sufficiently oriented to practical work to produce skilled workers at a standard acceptable to industry.

Apprenticeship Scheme

A Brief History of Apprenticeship

Legal provision for apprenticeship has been provided since 1959. Under the provision of the Industrial Training Act of 1959, employers are required to register all contracts for apprenticeship and indentured learnership with the government authority. The Act, however, did not make it compulsory to employ a fixed number of apprentices. Both the apprenticeship and the indentured learnership had the common requirement of the age of entry, fifteen years old or more, but the required educational attainment for the entry into the two types of within-industry training was different. The indentured training required the completion of compulsory education and the apprenticeship, a minimum two years of secondary education.¹²¹

Very few business and industrial undertakings had their own apprenticeship centers. The number of registered contracts was also very few. At the beginning of 1968 they numbered 800. Thus, the training programs were not sufficient to meet the requirements of economic growth of Kenya. The national development planning authority pointed out that one of the prominent causes of the inadequate numbers was that the large numbers of small firms in Kenya

¹²¹The Development of Labor and National Service of the Commonwealth of Australia, Outline of Vocational Training in Kenya (1966), pp. 10-14.

which constitute the dominant proportion of her industry cannot afford to undertake responsibility for apprenticeship training.

The new Industrial Training Act of 1971 provides for a national apprenticeship system with financial resources deriving from a levy on industry. This Act is designed to cope with the problem of apprentice training in small firms and to meet the requirement of manpower for economic growth.¹²²

The following is a description of the apprenticeship program of the Industrial Vocational Training Center of the Ministry of Labor in Kenya which is recognized as the model of apprenticeship under the new Apprenticeship Act. The specific components or aspects of the apprenticeship program under consideration are: recruitment of apprentices, incentives provided to apprentices, distribution of apprentices by industry or by trade, organizing apprenticeable trades and syllabuses, trade tests, recruitment of instructors, and sponsorship. Other unit apprenticeship programs as well as problems encountered by the apprenticeship scheme and programs are also presented.¹²³

¹²²Ray Roberts, "The Structure of Employment in Kenya," Education; Employment and Rural Development, ed. by James R. Sheffield (Nairobi, Kenya: East Africa Publishing House, 1967), p. 373.

¹²³The Subsequent description followed the descriptions made by I.L.O., op. cit.; and Kenya Development Plan, op. cit., pp. 462-472.

Recruitment of Apprentices

The educational attainment for the entry to apprenticeship provided by the Center requires two years or more of secondary school education. Those who complete two years of secondary vocational education undergo the five-year apprenticeship term, which is reducible to 4 years if an apprentice has completed 3 years of vocational school education or 4 years of general secondary education. The educational attainment requirement rose in 1972 to two years of secondary education, topped by a one year craft course in a vocational school making a total of 3 years of secondary education. After 1974 it is planned that 4 years of secondary education, 2 years of basic education and two years of craft courses, will be required for the entry into apprenticeship. In response to these changes, the training period will be reduced. The current five year stream will be reduced to three years and the four year stream will be reduced to two (see Table 3). The change has been so designed that the development of the secondary vocational school system integrates effectively into the apprenticeship system.

At the initial stage, the Center took major responsibility for the selection of apprentices. Later on employers, too, took initiative for selection. Finally, the following steps were introduced for the selection of apprentices:

TABLE 3.--Educational Attainment for Entry to Apprenticeship.

As from January 1972--for entrants with 1 year credit

Five-year stream:

First year	- Course 1	12 weeks
	Course 2	6 weeks
Second year	Course 3	- 6 weeks
Third year	Course 4	- 6 weeks
Fourth year	Course 5	- 6 weeks
Total		36 weeks

Five-year stream:

First year	- Course 1	12 weeks
	Course 2	6 weeks
Second year	Course 3	- 6 weeks
Third year	Course 4	- 6 weeks
Total		30 weeks

As from January 1974--for entrants with 2 year credit

Five-year stream:

First year	- Course 1	-12 weeks
	Course 2	- 6 weeks
Second year	Course 3	- 6 weeks
	Course 4	- 6 weeks
Third year	Course 5	- 6 weeks
Total		36 weeks

Five-year Stream:

First year	- Course 1	-12 weeks
	Course 2	- 6 weeks
Second year	Course 1	- 6 weeks
	Course 2	- 6 weeks
Total		30 weeks

- a. Talks to school-leavers by project staff. (It is proposed that in the future these talks will be given by representatives of the industries.)¹²⁴
- b. Application by interested potential apprentices to the Kenyanization Bureau in the Ministry of Labor which has the responsibility for the recruitment and selection.
- c. Short-listing by the Bureau, these lists being then passed to the Controller of Apprenticeship and Trade-Testing.
- d. Circularization of employers by the Federation of Kenya Employers (FKE) in order to ascertain numbers and classifications of apprentices required.
- e. Aggregated requirements supplied by FKE to the Controller.
- f. Final selection by FKE and the Controller from the short-list.
- g. Apprentices recruited by employers.
- h. Apprentices enrolled at specified intervals at the National Industrial Vocational Training Center (NIVTC).

¹²⁴Those who graduated one or two years of craft course after the completion of two years of vocational technical education.

Incentives

According to the Industrial Training Act employers are required to register all contracts of apprenticeship with the Ministry of Labor. All apprentices are employed as employees in enterprises. Hostel accommodations during the training at the Center for up-county trainees are planned.

Organization of Instructional Program

This section describes the distribution of apprentices by trade, apprenticeable trades and the syllabus in general terms.

Under the National Industrial Vocational Training Scheme, the overall planning and organization of industrial vocational training are the responsibility of a tripartite national council which establishes Industrial Training Committees to work out detailed training programs for each industry. The Industrial Training and Trade Testing section in the Ministry of Labor is responsible for implementing the programs of those committees and providing general supervision of the training.

As of 1971 three sectors, the sugar industry, the building industry, and the automotive industry, have established Training Committees and each committee has started its deliberations. Each committee consists of 9 persons: three representing employers, three the workers,

and three the government. These committees report their work to the national council. The above committees have been established in accordance with the wishes of industry and with the desire of the government. The training committees are responsible for programming training projects and occupational skills which are relevant to the respective industry.¹²⁵

Since 1967 full-scale apprentice training courses have been conducted under the auspices of the Center, in close cooperation with the respective trade committees of each trade training program. The Center provides, at this stage, training in 4 trades: metal, building and wood-working, automotive and welding and sheetmetal.¹²⁷ The length of apprenticeship varies with the particular trade and educational attainment of the particular apprentice at the time of entry into apprenticeship. Some apprentices undergo a 5-year apprenticeship term and others a 4-year term, according to the above principles.¹²⁸

Training phases of a course are as follows:

1. an orientation period in industry during which some screening is done;
2. a 12-week period of an introductory basic course, mainly in workshop practice during

¹²⁵I.L.O., op. cit., p. 9.

¹²⁶Ibid., p. 15.

¹²⁷Ibid., p. 17.

which the aptitude of trainees for a particular craft can be determined; and

3. a 6-week period of instruction interspersed with in-plant training throughout the apprentice period.

The introductory course covers an introduction to basic skills in the form of practical exercises, the making of hand-tools, and training in special skills related to the particular trade. The subsequent period enables the instructors to evaluate the practical training experience gained during in in-plant training period and offers the apprentice specialized practical training in his particular trade in order to enable him to reach the necessary trade test requirements.¹²⁸

During the in-plant training periods, follow-up visits to enterprises employing apprentices are performed by in-plant training experts. The follow-up visits take the form of establishing and maintaining contact with the employing enterprises and with employers' organizations, advising on in-plant training needs and programs, examining of apprentices' log-books, and stressing the importance of proper supervision of training of apprentices.¹²⁹

Careful records are kept of the trainees for forwarding to the employers as a guide to the succeeding

¹²⁸Ibid., p. 16.

¹²⁹Ibid., p. 20.

in-plant training periods. A record card for each apprentice is kept to cover the whole career of the apprentice until certification.¹³⁰

Illustration of Teaching Method

A feature concerning the training method is that the erection of buildings of the Center is used for the practical application of training by the building trade trainees. As training proceeds, electrical wiring, plumbing, the measuring and fitting of doors, windows and their frames are done by the trainees.¹³¹

Size of the Program

Since 1967, 36 courses in metal, building and woodworking, automotive, and welding and sheetmetal trades have been offered at the Center. Each course of a particular trade accepts a group of 25 apprentices. However, some apprentices drop out during the introductory courses. During the period of 1967 and 1970 the number of trainees completing the course at the Center was 415.¹³²

Trade Tests¹³³

For the purpose of establishing standards with respect to levels of skills, a trade testing system has

¹³⁰Ibid., p. 15.

¹³¹Ibid., p. 12.

¹³²Ibid., pp. 14-15.

¹³³Ibid., pp. 19-20.

been introduced. Trade testing had its origins in the employers' need to identify from among the many applicants for skilled employment those who, in fact, possess the skills required. As a result, the government established a system of trade testing, the objectives of which were: (a) to classify artisans; and (b) to provide standards for the training, both formal and otherwise, of persons entering into industrial employment in a craft trade.

The trade testing system is today the only official method for the practical assessment of skilled craftsmen and technicians. Most employers, including those in the public sector, require that workmen obtain a National Trade Test Certificate before they can be either employed in the first instance or be promoted. The wage structure for craftsmen is based on the testing system. Officially in charge of the Trade Testing is the Controller of Apprenticeship and the Trade Testing Officer.

The operation of the present trade testing system, in practice, is biased to provide an incentive for workers already employed in industry. In order to motivate youth for training and to identify precise training needs in addition to providing incentives for those already employed, a new Trade Testing System is under consideration.

The new system will be designed to: (a) assess the apprentice's practical knowledge gained during the

various stages of his training; and (b) serve as an incentive, particularly in the development of practical skills.

The proposals for the new scheme will include details of the method of administration, including adequate safeguards to ensure uniform national standards for each trade. Furthermore, in the administration of trade testing, the interrelationship of training and testing will be ensured by treating these functions as complementary rather than as separate ones.

Recruitment and Training of Instructors¹³⁴

In Kenya, instructional staffs consist of an instructor, an in-plant training instructor, the counterparts to the in-plant training experts, foremen and supervisors. Of these, recruitment of instructors and the in-plant training instructors is one of the most critical problems of the apprenticeship scheme. Qualifications for the instructors are not specified. In general, it is recognized that the instructors should have been trained and have had several years practical experience in the occupation they are to teach, in addition to having a sound theoretical knowledge of it and a good background of general education.

¹³⁴Ibid., pp. 21-24.

The planned output for these instructors at the Center was to be 40 per annum, but the plan has failed because of the shortage of candidates suitably qualified with the proper training and experience, and also because of the fact that it has not been possible to provide a salary scale within the government service which will attract and hold instructors who are qualified.

Training in instructional techniques has been offered to the instructional staff at the Center; a few in-service courses have been provided for small groups from industrial enterprises and public works; a few courses have been conducted for foremen and supervisors; and in 1970 efforts were made to start instructor training courses at the Center. The instructor course has a duration of six months and includes instruction in teaching methods and techniques as well as practical workshop activities. The facilities for the instructor training can accommodate 40 instructor trainees annually.

Sponsors of Apprenticeship¹³⁵

Under the National Industrial Vocational Training Scheme, the overall planning and organization of industrial vocational training are the responsibility of a Tripartite National Council which establishes committees to work out detailed training programs for each industry. An Industrial

¹³⁵ Ibid., pp. 3-4, pp. 8-10 and p. 17.

Training Section in the Ministry of Labor is responsible to implement the programs of those committees and, further, to provide general supervision for all training and trade testing activities. The scheme keeps in close cooperation with the Ministry of Economic Planning and Development for the provision of estimates of national manpower requirements, and the Ministry of Education which is responsible for the pre-vocational training of all secondary vocational and technical schools. The New Industrial Training Act requires an employer of 10 apprentices to appoint on his own work force a person responsible for apprentices and for an apprentice master to be posted on the work site where apprentices are employed. The persons giving on-the-job training to apprentices are required to attend a short "training-within-industry" course or the training course at the National Industrial Vocational Center. The cost of the apprenticeship training is shared among employers through the training levy system.

Example of Apprenticeship Training

In addition to the apprenticeship training provided at the Industrial Vocational Training Center other institutes, private and public, perform apprenticeship training. The programs provided by the Gailey and Robert Technical Training School in Nairobi and Kenya Politechnic are described below.

a. Galley and Robert Technical Training School, Nairobi.¹³⁶ This school is run by the Gailey and Robert Group to train service mechanics for their needs. They train engineering apprentices, who will eventually join the technical staffs of the company's service and sales organization. The apprentices are given a sound, all-round training and a knowledge of basic principles of engineering. The first two years are spent entirely in the training school on the study of basic engineering theory, elements of workshop practice, engineering drawing, mathematics and applied mechanics. Most of the items of equipment used in the schools are sectioned parts or scaled-down models of actual equipment. The training given allows the apprentices to move from the school to the workshops and work on machines with which they are familiar.

The training program is spread over five years. The apprentice intake, at present, is 15 young men each year and the course commences in January. The intakes of January 1958, 1959, 1960 and 1961 were almost entirely of Cambridge Overseas School Certificate standard. All apprentices are encouraged to improve their prospects by part-time studies. A number of them attend day-release classes at the Kenya Polytechnic, and others attend

¹³⁶ International Labor Office, Report to the Government of Kenya on The Development of Vocational Training (Geneva: I.L.O., 1965), pp. 11-12.

evening classes. The immediate aim of most apprentices is to obtain the City and Guild Overseas Ordinary Certificate in Mechanical Engineering.

b. Kenya Politechnic.¹³⁷ The Kenya Politechnic opened in 1961 with the purpose of training middle and higher level manpower to serve the needs of industry and commerce. The major function of the politechnic is to provide courses of instruction for apprentices and trainees in industry and commerce which, when linked with practical in-service training, produce skilled personnel. It also provides courses to enable students to qualify for university entrance and other forms of higher education, and pre-employment courses whereby students attain capability of taking on-the-job training.

The majority of the courses at the politechnic are offered on a part-time basis (sandwich, block-release or evening classes) for sponsored students from government, the other public services and the private sector.

The Kenya Politechnic currently has six departments--Engineering, Building, Science, Commerce, Catering and Printing. At present, the courses range from Form I level to degree equivalent. In a total enrollment of 2,000 students, approximately 1,500 (75 percent) are on courses at post-School Certificate level, and some 300 of these

¹³⁷Ibid., p. 14; and Kenya Development Plan, op. cit., pp. 471-473.

are of post-High School Certificate standard. The engineering course enrolls 1,100 students, the building course 350, science 250, commerce 170, printing 80, and catering 60. The total number of students will be increased to 3,000 in 1974.

Most courses lead to external examinations and examination results have been extremely good. During the period 1970-1974 the Politechnic plans to continue to introduce new courses to meet the emerging needs of industry and commerce, development of a higher level of professional courses, and reduce preliminary courses; since the output from the secondary technical vocational schools is increasing.

Good relationships and close liason have been established between the Institute and sponsors of students. Industry and commerce are represented on the Polytechnic's Board of Governors and on its Department Advisory Panels. The Board of Governors administers the Polytecnic and its license is granted by the Ministry of Education. Government, as well as other public services and private sectors, finance the apprentice training function of the Polytechnic.

Problems Observed by the Writers¹³⁸

The International Labor Organization's report on the organization and development of the National Industrial

¹³⁸I.L.O., 1971, op. cit., pp. 25-29.

Vocational Training Scheme in Kenya points out that the following are some of the problems in the Development of apprenticeships in Kenya.

1. Kenya at this stage faces the critical problem of the recruitment and training of the necessary additional instructors. The National Vocational Training Center has failed to recruit candidates for instructor training planned by the Center because of the shortage of candidates suitably qualified with the necessary training and experience. At present the National Vocational Scheme has not been able to provide a salary scale which will attract and hold the required instructors.

2. There is a lack of coordination between the training and the trade testing. The content and procedures of trade tests were established before the National Vocational Training Scheme were implemented and there has been no readjustment of the trade-tests to the new situation.

Summary

Kenya reports that the absorption of additional population in the modern sector in the foreseeable future is almost an impossibility. Many school leavers are, however, attracted to a better paid urban employment. Moreover both the educational attainment and the number of school leavers are increasing. It is estimated that more than half of the 140,000 secondary school leavers

will not be able to find urban employment during the period of 1971 and 1974.

Schools, institutes and large undertakings have been providing industrial education. Large undertakings provide apprenticeship programs for their manpower requirements. The politechnical institutes provide training for technician candidates. However, technical schools and vocational schools adjusted their purpose with the establishment of the Industrial Vocational Training Scheme. The Industrial Vocational Training Scheme aims to train craftsmen especially for small scale industries. Pre-vocational education has become the major function of the technical schools and vocational schools.

Under the Scheme, the Industrial Vocational Training Center is set-up to provide basic training and to help practical training in undertakings. The levy from industries are the fund to support the Scheme and the Center. The Industrial Vocational Training Center recruits apprentices from those who complete the vocational schools and technical schools. The apprentices are employees of undertakings. As of 1971 the Center provides training for three industries, the sugar industry, the building industry, and the automotive industry. Instructional programs are organized by the industrial Training Committee of the respective industry. The Center now provides four trades: metal, building and woodworking, automotive and welding,

and sheetmetal trades. The introductory course at the Center covers basic skills in the form of practical exercises and the making of handtools. The subsequent block release period provides specialized training. During this period the Center provides advise for in-plant training experts, examine log-books, and keeps records of apprentice works. Class room instructors, in-plant instructors, in-plant experts, and foremen and supervisors work together to train apprentices. The trade testing system exists but it is biased to provide an incentive for workers already employed in industry.

Currently the formalized apprenticeship trains only 800. Kenya has had an indigenous apprenticeship system. The system has obviously been balanced with the supply and demand of skills in large as well as small industries. It might be too early to assess the effectiveness of the young Scheme.

It appears, however, that the resources and efforts invested in the Scheme have not yielded a comparable product reflecting the number of apprentices trained by it. Also the Scheme concentrates its effort on urban industries. Apprentice training in industries in towns and villages are not covered by the Scheme.

CHAPTER V

APPRENTICESHIP PROGRAMS IN NIGERIA

Background Description

Economy, Manpower and Education

Nigeria's Six-Year Development Plan has as one of its general objectives the creation of more jobs and opportunities in non-agricultural occupations.¹³⁹

The country's economy is, however, characterized by a growing but small modern sector with the majority of population engaged in the traditional and agricultural sector. The latest available statistics show that only about 550,000 out of approximately 15 million economically active persons are employed in establishments with ten or more workers and this includes all government establishments, schools and universities. The number of employees in establishments has risen from 415,000 in 1956 to 550,000 in 1963. The average annual rate at which new jobs have been created has been approximately 20,000. A more detailed analysis, however, shows that the expansion of

¹³⁹ Sudhakar J. Bhatt, "An Approach to the Problems of Creation of Opportunities for Gainful Employment in Nigeria," Manpower Problems and Economic Development in Nigeria, ed. by T. M. Yesufu (Ibadan: Oxford University Press, 1969, p. 261.

government service and of educational systems accounts for a considerable proportion of the total increase in jobs since 1956, and that increase in the field of industrial employment was less rapid.¹⁴⁰

In the decade of the 1970s, job opportunities in modern industry will be available for only a small fraction of those demanding work. Even by 1980 it is unlikely that Nigeria will have more than 7 or 8 percent gainfully employed people working in factories.¹⁴¹

On the other hand, demand for wage employment in the modern sector is increasing as the educational system expands. Unemployment of young school leavers is a prominent feature in Nigeria. They are to be found not only in the cities but also in the rural areas. The number of these unemployed youths grow each year: it was estimated that during the Six-Year Plan period, 1962-1968, about 400,000 school leavers joined the labor market each year. It is certain that the number is increasing during the 1970s.¹⁴²

There are no bright possibilities for providing employment on a sufficiently large scale in the modern

¹⁴⁰Yesafu, op. cit., pp. 130-132.

¹⁴¹Archibald Callaway, "Creating Employment for Africa's Youth," op. cit., p. 245.

¹⁴²Yesufu, op. cit., p. 270.

sector. On the other hand, small scale industry has the potential to open up a large opportunity for gainful employment for young job seekers in Nigeria. In 1965, the Federal Office of Statistics estimated that approximately 900,000 households are engaged in traditional manufacturing activities.¹⁴³ An overwhelming proportion of young people are engaged in the small-sized undertakings.¹⁴⁴ The entrepreneurs in these undertakings struggle against obstacles and use initiatives in the attempt to move ahead. Some of these make a breakthrough from small beginnings to large-scale operations.¹⁴⁵

As a possible approach to the problem of economic development and of creation of opportunities for gainful employment of youths in Nigeria, both expanding production capacities of the existing large and medium scale enterprises and a further utilization of the skills of small entrepreneurs are proposed. The latter is especially emphasized since the creation of stimulation of the small rural undertakings would significantly assist in the

¹⁴³Federal Office of Statistics, Productive Activities of Households, 1966, p. 4 (mimeograph). Quoted by Peter Kilby, Industrialization in an Open Economy: Nigeria, 1945-1966 (Cambridge the University Press, 1969), p. 17.

¹⁴⁴Archibald Callaway, Training Young People Within Indigenous Small-Scale Enterprises: The Nigerian Example (Paris: International Institute of Educational Planning, 1971), p. 1. (Mimeographed.)

¹⁴⁵Ibid., p. 247.

diversification of the rural economy and would help to slow down the flow of young job seekers from the country to the city.¹⁴⁶ Such a development would also prevent a flow of too great a share of capital into urban housing and amenities. It would diversify the rural economy and create seasonal or almost stable employment in the countryside. It would prevent a likely shortage of agricultural labor at peak seasons such as harvest. It would also allow a greater amount of capital to be diverted to manufacturing sectors and a larger number of youths to be gainfully employed.

Wage System¹⁴⁷

In Nigeria, as in most African countries, the wage system in the modern sector of the economy has been distorted by the effects of foreign rule. In general, the wages paid to high-level manpower have been determined by the rates that were necessary to induce Europeans to enter civil service or large private undertakings in colonial times. During the period of Africanization, both before and after independence, the wage levels for high positions in the civil service were maintained even when

¹⁴⁶Bhatt, op. cit., pp. 262-265.

¹⁴⁷Description of this section is based on Robinson G. Hollister, "Manpower Problems and Policies in Sub-Saharan Africa," International Labor Review, Vol. 99, No. 5 (May, 1969), pp. 151-532.

expatriates were replaced. Since the public sector is by far the greatest employer in the high-level manpower market, the rates paid by it have dominated the wage structure, which is therefore characterized by extremely wide differentials between high-level manpower and manual workers and between the high and middle-levels.

Even at the lowest level, wages in the modern sector have been higher than those in the traditional sector. These peculiarities of the wage structure have very important effects both on the skilled manpower problem and the unemployment problem. Far from serving to provide a set of proper incentives for the growth of a rational spectrum of skills, the system has had serious adverse effects. First, because of the greater differentials between high and middle-level jobs, it has proved very difficult to encourage educated workers to enter middle-level careers, since with a little more training and luck they can hope to move into the stratum of the highest level of salaries. Second, the salaries for high-level manpower soak up a large part of the budget in the public sector. This feature of the wage structure has created a form of negative feedback to the educational system: in order to create more high-level manpower the secondary and university system must be expanded, but teachers' salaries are tied to those of the civil service and are therefore high, which makes the expansion of the

educational system at the secondary level very expansive. The result is that educational costs have been rising much faster than school enrollments. The high cost of secondary education limits the number of secondary places that can be made available and, therefore, the extent to which primary school leavers can continue their education. This forces them on the employment market in large numbers.

Rising wages in the modern sector at even the lowest level have been increasing the differentials between rural and urban wages, and many feel that this plays a large part in encouraging rural school leavers to seek work in the towns. It is also suggested that these rising wages, to some extent, encourage the adoption of more capital-intensive techniques and hence keep employment elasticity low.

Organization of Industrial Education and Training¹⁴⁸

In Nigeria, industrial education and training within school systems¹⁴⁹ is provided by three programs:

¹⁴⁸ Peter Kilby, Industrialization in an Open Economy: Nigeria, 1945-1966 (Cambridge: Aberdeen University Press, 1969) is the major source of information of this section.

¹⁴⁹ Ibid., pp. 234-235. Primary education represent a course of eight years in Lagos, six years in the West and the East and 7 years in the North. The age of entry is five or six years. At the secondary level government and missionary-operated grammar schools pursue an academic course of five to six years: their purpose to prepare students for the sixth form (two-years) and thence for the university. In the final year of grammar school

a three-year post primary syllabus, trade centers and technical institutes. The three-year syllabus program, in the third year, provides for two streams: one with an academic bias for those who enter grammar school and one with a technical bias for employment as an artisan or entry into a trade center. The trade centers have as their purpose, the training of high-grade craftsmen. Candidates are chosen from primary school graduates: a three-year residential course is followed by two years of apprenticeship with an employer after which time the candidate takes the London City and Guilds Intermediate examination.

The functions of the technical institutes are to provide sandwich courses and night classes for artisans employed in industry, and the full-time training of candidates for the British Ordinary National Certificate. The latter consists of two years of post-secondary course work and one year of on-the-job training. Due to the lack of interested secondary school graduates with a science background, a junior technical course was inaugurated. This

(fifth form) students take the West African School Certificate examination. Commercial schools, which are all private, courses in bookkeeping and accounting, secretarial skills and commerce: students graduate after five years. Secondary modern schools, which are both public and private, provide a three year terminal general education with a pre-vocational bias for primary school graduates who could not enter a grammar school. Enrollment in respective level of education was: Primary school, 2,900,000; secondary school, 225,000; and higher education, 16,000.

consists of a five year secondary course with a technical bias (woodworking, printing, drafting, commerce or engineering principles) which leads to the West African School Certificate.

Except for craft schools which provide mainly pre-vocational education both trade centers and technical institutes integrate school education with apprenticeship and constitute a main stream of craftsmen and technician training for the modern sector of industry. In 1965 the trade centers enrolled 2,600 students and the technical institute, 3,000. However, their performance was assessed to be unsuccessful: only two trade centers and one technical institute had produced any graduates ten years after the program had been launched. By 1965 there were ten trade centers and five technical institutes in operation.

In addition to the system of industrial education, the major employers of skilled labor have operated their own schemes to train artisans and craftsmen. These employers include government departments, public corporations, foreign firms and small-scale Nigerian employers. Enrollment in regulated apprentice schemes in 1961 was as follows: railway corporation, 750 in 25 trades; electricity corporation, 80; the port authority, 300 in seven trades; and the Federal Ministry of Work and Surveys, 60 in seven trades. Only the Ministry of Post and Telegraph carries on training at the technician level.

The first recorded apprentice training by an expatriate company was that of John Holt's in the early 1930s. In 1939 a formal school, with places for twelve, was established. However, the major development for firm-sponsored industrial education dates from the opening of the United Africa Company's first training school in 1954. By 1959 the company had five schools in operation with total enrollment in excess of 500. Of total enrollment, five-year apprentices accounted for 358 in seven trades, two-year artisan trainees for 124 in six trades, and various employees in five evening courses for 194. In 1958 the Shell Petroleum Development Company established a trade school with places for 130 apprentices in five trades. In 1959 the Swiss firm, Union Trading Company, opened a school for 30 motor mechanic apprentices. The expatriate firms, like the government departments, have sponsored their employees or students at technical institutes to meet their technician needs.

The last source of industrial training is the apprenticeship system of the indigenous enterprise sector. If proprietors of indigenous business firms are excluded, apprentices comprise well over half the labor force of this sector. Although partially a manifestation of unemployment, these arrangements are capable of imparting modest artisan skills and have done so on a vast scale. This indigenous system in Nigeria is now taking in more and more school leavers.

In view of the importance of indigeneous undertakings for the national development at the current stage of Nigeria, the following description focuses on the indigeneous apprenticeship. The description relies on both Callaway's¹⁵⁰ observation of all the indigeneous crafts enterprises and small industries in the city of Ibadan, and observations made by the International Labor Organization in Western Nigeria.¹⁵¹

Indigenous Apprenticeship Scheme

Recruitment and Selection of Apprentices

Approximately seventy percent of the apprentices are from areas beyond the Ibadan province and over sixty-five percent are from the farming families. The age of apprentices range from 9 to 28 years, with nearly one-half between 16 and 19. Most apprentices are over the age of 14. Half of these apprentices have attended primary schools, and most of these have acquired their final leaving certificates. Approximately one out of ten are from secondary modern schools, and several have had some years at the secondary grammar level. The remaining apprentices have not been to school at all. Formal schooling

¹⁵⁰ Callaway, op. cit.

¹⁵¹ The International Labor Organization, Socio-Economic Conditions in the Ifo, Otta and Ilaro Districts (Geneva: I.L.O., 1972), Chapter 7.

is highest among apprentices in printing and in photography, and lowest in some of the more traditional crafts such as weaving and the less-improved metal workings.

Apprentices are part of the labor force. Formal contracts are drawn up between the apprentice and his sponsor and the master. Apprentice contracts are normally not written when the apprentice is a close relative of the employer. But for non-relatives, written contracts are made usually in English, although occasionally in local languages.

Kinship was the basis for parents' confidence in allowing their children to grow up away from their own compounds. Gradually the apprenticing spread from the family to wider ethnic groupings, until today in the more progressive enterprises it is not uncommon to find inter-ethnic relationships.

Indentives and Conditions of Apprentices

In some cases the master provides food and occasionally shelter for his apprentices. The provision of pocket money is very exceptional, but the master may leave the apprentice with some money earned for a particular job.

During the slack period, apprentices are used by masters in their subsidiary occupations, like farming, and are rarely maintained at the expense of the master.

Apprentices are, in fact, a source of cheap labor and, through payment of apprenticeship fees, even a source

of income to the enterprenurs. The availability of apprentices explains to a large extent the very low prices often charged for products and services. Carpentry products, for example, often barely cover the cost of the material alone.

Distribution of Apprentices by Trade

Crafts organizations exist in Ibadan and elsewhere, but they are not restrictive to new entrants. Their interests are mainly in price-setting for defined qualities of products and services and in getting together socially. In general, traditional crafts like weaving and the older-style blacksmithing have the least number of apprentices. Printers, mechanics, and dry cleaners have the greatest number of apprentices with an average of five per establishment. Photographers, mattress makers, tinsmiths, and gold smiths have an average of three apprentices per unit. Although tailoring absorbs fewer apprentices per establishment because of the ubiquitous independent tailors, this line of business has the highest total of apprentices.

Nigerian small-scale enterprises engage two million or more young Nigerians, a number which can be compared to the present total of half a million wage and salary earners in government, the professions, and in the larger industrial and commercial firms.

Organizing the Curriculum

Throughout Nigeria, large numbers of apprentices are learning a wide range of arts and crafts, from traditional skills to the modern ones. The more traditional crafts like dyeing, weaving and blacksmithing, are generally not attractive to apprentices. The International Labor Organization reported that even craftsmasters' own children prefer to learn a more modern trade. Many of them do not appear to be too worried about this because they feel that their crafts are, in many cases, no longer promising assets for the future. Such modern craftsmen as radio repairers, carpenters, millers, printers, mechanics and tailors have larger numbers of apprentices. There is, however, neither officially designated apprenticeable trades nor a standard curriculum for the indigenous apprenticeship.

The greatest number of apprentice programs last for three or five years, with a lesser number ending at four years. Several metal workers have apprentices bounded for periods of seven years, while some corn millers have one-year apprenticeships. A number of photographers have apprentices for periods ranging from six months to two years.

Apprentices spend long hours working in markets, in workshops, on building sites, and in motor parks. They are learning to trade, to drive vehicles, to collect

passengers and freight, to handle tools and machines. They are learning to make clay bricks and concrete blocks, to build houses, to bake bread, and repair cars, trucks, typewriters and household electrical equipment. They are acquiring the techniques of working with wood (carvers, carpenters), with metals (blacksmiths, tinsmiths, gold smiths), with leather (shoe and sandal makers, tanners), with cloth (tailors, seamstresses), and with raffia and canel (hat, chair, and mat makers).

The apprentices are on the job an average of eleven hours a day with a usual mid-day break of half-an-hour. Unauthorized absences are punished even if there is no work to be done.

Apart from instructions given on the job, apprentices do not receive theoretical training. There are also no external training courses or evening classes. It happens sometimes that a master who has no work to do sends his apprentices temporarily to another master who may be able to make better use of them.

In some cases, the master will regularly devote an hour a day to formal instruction, but more often the apprentices learn by observation and by carrying out the allotted tasks which become more complicated as time passes. The more modern works provide superior instruction and training. Yet in all enterprises, besides technical knowledge, certain basic attributes are acquired:

loyalty to master and craft, concentration of mind, personal discipline, and struggle for achievement.

Trade Testing

At the end of the agreed apprenticeship period, the master gives the apprentice a piece of work which he has to complete in a given time. If the master finds that the job was well done, the apprentice will be given a diploma from the master. In only a few cases were other masters invited to help in judging the work of the apprentice and to ask some questions about tools and materials. In a few cases the apprentice would be sent to the workshop of another master to do a test job given by the latter.

The graduation ceremony is quite a large festival in which the friends and guild members of the masters as well as the relatives and friends of the apprentice participate as guests. Often the master presents some simple tools to his former apprentice to help him start his own enterprise. From then on, the apprentice is regarded as a master. He may start a business of his own and train apprentices. In a few cases, apprentices stay with their former masters. The motives for staying with the masters are two: loyalty toward the master and the desire for security.

Instructors

A photographer, for example, goes to a technical college abroad and comes back to pass on his advanced skills to groups of apprentices. Or a mechanic works for some years with a foreign firm and then starts a business on his own. His apprentices benefit from his superior skills. Former apprentices set up workshops and take in apprentices.

The standard of performance of these entrepreneurs, and consequently their competency in instruction of apprentices, are being raised through the strength of business competition and the consequent pressures to emulate better processes and to produce better designs. And so the indigenous apprentice training proliferates and improves, spurred on by the pace and patterns of growth of Nigeria's economy as a whole, of which it forms an integral part.

Many of Nigeria's most successful entrepreneurs have had their early start as apprentices. Almost all the proprietors of the new Nigerian-owned and managed modern small industries also began their business lives in this way. Here they gained their keen economic discernment and technical abilities.

Sponsor

Being a non-formal institution of training, the indigenous apprenticeship is not provided with any form

of assistance from government. The parents of apprentices or apprentices themselves pay fees for the apprenticeship training. The amount of fees paid varies considerably. With tailors, carpenters, gold smiths, and leather workers, the most usual amount is around L5 per year. Motor mechanics charge slightly higher fees--the median L6 per year, for a period of four or five years. In some of the more modern establishments, fees can be as high as L10 or L15 per year. For example, one fairly prominent photographer charges ten guineas for a nine-month training period. In contrast, the more traditional and less popular crafts such as weaving, with a greater number of close family members as apprentices, require no fees.

Employers of apprentices run Nigerian-owned enterprises. When measured by capital invested, these economic units are often relatively small. Craft organizations exist, but they are not paying any concerted effort to apprentice training. Apprentice training in the indigenous industry is the sole concern between the master and apprentices and his family.

An Example of Apprenticeship Program

The following description of a cooperative apprenticeship program in a cluster of auto repair and

service shops is provided as an illustration of the indigenous apprenticeship in an urban city, Ibadan.¹⁵²

The cooperative apprenticeship program was maintained by a group of craftsmen in a common compound. There were twelve craftsmen in the cluster: five mechanics, two welders, two blacksmiths, and one each of sprayer, straightener, and battery charger. Each craftsman had his own workshop. They were bound together by ties of kinship and friendship.

There were 124 apprentices trained by the craftsmen, average of 10 apprentices for each craftsman. The average number of apprentices of mechanics is 20, while the average of all other crafts is three. This reflected both a technical necessity--more hands are needed to handle a car than a battery--and the better financial prospects of a mechanic's work.

The age of the apprentices were from seven years old to 18 years old. The educational attainment of the apprentices varied from no formal education to two or three years of secondary schooling. The successful mechanics attracted the better educated apprentices. A few of the apprentices were relatives of their master. Craftsmen and all others were sons of friends or customers.

¹⁵²Michael Koll and Lemi Lajunji, "Auto Repair--Full Service Through Cooperation," Training for Progress, Vol. 6, No. 1 (1967), pp. 10-18.

The youngest boys spent some years in the workshops before the formal apprenticeship begins. Each craftsman recruited his own apprentices.

The classrooms were the workshops which are open sheds. Instructions were given while repairs were done. Machine equipment was scarce: the welder had an electric welding machine; the sprayer had a spraying machine, the battery charger had a charging machine; the mechanic had his own hand tools.

There was little formal training. The masters had no books. Only one master encouraged his apprentices to take notes and to study books, but he left it to their own drive and initiative. During their first year, young men started learning by imitating the senior apprentices. They crowd around the journeyman or the master and watch each operation. More often than not they are idle because the master has not enough work; the master may then deliberately work slowly and demonstrate to them one operation or another.

The apprentices move freely in the cluster, spending some hours in the shop of another mechanic or of a sprayer, blacksmith, or welder. Thus apprentices of the sprayer or blacksmith, in return, learn the rudiments of mechanics' work.

The instructors were craftsmen themselves. The highest educational attainment was six years of primary

education. They were trained as apprentices and had few years of experience as journeymen. One craftsman had six years of schooling and eight years of apprentice training under a government department. Then he worked with a private firm. Some craftsmen have journeymen who supervise apprentices and do the general repair work.

Apprentices come and go. Some will not finish their training. Some will stay on with their masters for a while as journeymen. Others will find employment in firms or join hands with other young graduates of the apprenticeship to establish a partnership business.

Problems Observed by Writers

Callaway pointed out the following problems:

1. Masters cannot pass on knowledge they do not have; there is a ceiling to their technical and managerial proficiency. In addition, more often the apprentice learns by observation and carrying out the allotted tasks.
2. Many small industries have intense and slack periods in their labor year. Underemployment may also exist because the master takes on more apprentices than needed.
3. A former apprentice with a trade test certificate may have some chance of getting regular wage-paid work, but now many are unemployed.

4. Government service such as an industrial extension service is lacking.

Summary

Nigeria's modern industrial sector provides very limited employment opportunities. Even by 1980, no more than eight percent of her work force will be employed in this sector. The opportunities of apprenticeship in this sector, likewise, is very limited. On the other hand, school leavers are educated to aspire for employment in the industrial sector. Now a large number of school leavers are unemployed. Observers proposed a fuller utilization of the skills of small entrepreneurs and their indigenous apprenticeship system as a possible solution for meeting the present and future problem of the unemployed school leavers.

It can be approximated that two million apprentices are trained in the indigenous apprenticeship. Apprenticeable trades in the industrial sector are modernizing, and more prospective modern trades are expected to be added. An increasing number of school leavers of both primary and secondary levels are turning to apprenticeship for their training and employment. Their attention to instructions given by the apprenticeship might be related to the development of the small industries and knowledge and skills of mastercraftsmen. Masters can only pass on knowledge and

skills they have. Considerable fees are charged for training apprentices. The duration of training depends on the age of apprentices and sometimes on fees paid.

CHAPTER VI

A COMPARATIVE ANALYSIS OF COUNTRY SCHEMES

This chapter presents implications arising from analysis of the common traits and characteristic differences among the country schemes. It lays the basis for looking at the implications of this study for Korea presented in Chapter VII.

Organization of Craftsmen Training

This study reveals that secondary vocational education, both in schools and training institutes, is regarded as preparatory for apprentice training in all four countries.

In Kenya, technical schools are officially regarded as the main recruitment sources for craftsmen apprentices. Vocational industrial training institutes provide for an additional pre-vocational training. In India technical high schools or trade schools are regarded as the institutes providing a vocational bias to students. Training in the industrial training institutes is regarded as preparatory for apprenticeship.

In Nigeria the first three years' training in trade centers precedes apprenticeship training. Official designation of craft schools in Nigeria is to provide preparatory education for entry into institutes which are designed to train technicians. In Japan, middle schools are regarded

as major sources for the recruitment of apprentices. Industrial training institutes in Japan are also assuming the role of preparatory training for apprenticeship along with retraining of displaced workers. The vocational training institutes in these countries are a recent addition. Among other reasons, one major justification which facilitated such institutes to come into being is a response to a criticism towards vocational school education. The criticism says vocational schools do not properly educate youths in practical skills nor flexibly adapt to technological development in industries.

The Japanese case provides a hint for an argument over the controversy. At her stage of industrialization, Japanese employers still prefer to employ middle school graduates as apprentices. The apprentices are trained to become the future core skilled workers in industrial establishments. The employers prefer the workers trained in this way since workers trained thus adopt well to specific and changing skill requirements as well as to the industrial environment of their specific establishments. A question arises as to why less developed countries need such pre-preparatory and preparatory training for apprenticeship instead of providing general education for adaptability. Are the youths in less developed countries less competent and do they require a prolonged vocational training in schools and institutes to become apprentices?

Youths in these countries, as elsewhere, aspire to be employed in comparatively well remunerated jobs in modern industries where the number of such jobs are scarce. This situation drives youths to have more education in order to have better qualifications in competing for jobs. The countries limit the opportunities of general secondary education, and so most of those aspiring youths are obliged to proceed to vocational secondary schools.

Another general argument on the need for a prolonged education and training may be based on the relation between occupations and technological development. One might argue that as technology progresses there is a need for a mass of highly skilled workers and therefore a prolonged training for a large number of youths. In practice, technological progress produces a mass of "de-skilled" jobs splitting up formerly skilled jobs, along with a few highly skilled jobs.

Penetrating observations reveal that such prolonged vocational education and training is not required for technological progress. It appears that a narrow access to the employment opportunity in the modern sector of industry in these countries induce youths to severe competition for employment, and it drives youths to yearn for more education and training.

The foregoing observation suggests a reconsideration of the respective role of vocational schools and vocational

training institutes in view of the high cost of education and training. Should the vocational schools continue to exist, a clear definition of the nature of pre-vocational education will be necessary. Additional investment in facilities and equipment for training in specific occupations would need reconsideration. Curricular and teacher training would be desirable if youths adjust to the specific nature of pre-vocational education.

Training institutes should stop pre-vocational training for apprenticeship training in large establishments, and divert their efforts to industrial extension service for small scale and indigenous industries.

Many small scale and indigenous industries are in need of new methods of production, market information for new products, and other government policies and services. An additional investment for pre-vocational training may be a waste. Both the schools and the institutes can provide classroom instruction, should there be the need requested by the employers who employ apprentices.

Location of Apprenticeship Programs

In the four countries authorized apprenticeship programs are providing training for employment in wage sectors. Large industrial establishments provide formal apprenticeship programs for a small number of school leavers with their own financing to meet their own

manpower requirements. The number of apprentices in the programs was small.

Apprenticeship training provided by small and medium industrial establishments is in the process of formalization. Government's assistance concentrates on the training. In both India and Kenya, government organizes apprenticeship programs for this sector. In Japan, on the contrary, industries cooperate among themselves in organizing formal cooperative apprenticeship programs. Except in Japan, facilities for training are very limited.

In less developed countries, it appears that independent tradesmen and artisans train a vast number of apprentices for self-employment. The apprenticeship in this sector does not receive a great concern in the national apprenticeship scheme.

Except in Japan, the countries' modern industrial sector employs ten percent or less of the economically active population. The growth of modern industry is not promising in the foreseeable future. Recognizing this fact, governments in these countries are turning their attention to development of indigenous industries in towns and villages in rural areas. The development requires cultivation and improvement in entrepreneurship, management knowledge and craft skills.

The foregoing observation suggests that there is a gap between the development efforts of economy and the

efforts of the national apprenticeship scheme in less developed countries. An adjustment in the efforts of the national apprenticeship scheme for accommodating the training needs of indigenous industries is called for. Such an adjustment will also meet the manpower needs for the modern sector of industry, should the need arise. Those trained in indigenous industries can be the major source of skilled workers for the modern sector.

Should apprenticeship in the indigenous industrial sector be organized by government or by a cooperation of entrepreneurs in the sector? Japanese experience in the organization of apprenticeship programs of small scale industries has shown cooperative efforts are fruitful. The number of apprentices in the sector is increasing, and is one evidence of the success of this method of organization. The Nigerian case of cooperative apprenticeship among independent craftsmasters is another success story.

Since indigenous apprenticeship aims to train school leavers to create their own businesses, and instruction is limited to the ability of the craftsmasters. Government effort to help this training program should not be a conventional method in which government establishes training centers, equips with costly facilities, and trains teachers for the center, and so on. It should rather be indirect helping craftsmasters to acquire knowledge and skills, and

exploring new markets, and helping the completors of the apprenticeship to create their business.

Employment Status of Apprentices

One essential element of apprenticeship is training-while-earning. An apprentice is employed in an undertaking and learns skills required for the specific undertaking. This study reveals, however, that not all the countries adopt this principle.

In both Japan and Kenya apprentices are, in general, gainfully employed in the undertakings where they are trained. Apprenticeship in an undertaking is regarded as the avenue for entry into life-long employment in the undertaking. In India, however, apprentices are defined as trainees and provided with training allowances. Employers are not obliged to employ the completors of apprenticeship training in their undertakings. Indigenous apprenticeship in Nigeria does not provide apprentices with gainful employment during their training, nor after the completion of the training. Nor are the apprentices under the auspices of the Ministry of Education in Nigeria assured entry into employment.

It appears that where there is a shortage of school leavers, employers are likely to provide apprentices with gainful employment during their training, and to keep the completors of the training as their regular skilled employees.

In both Japan and Kenya, the former with a shortage of the supply of school leavers and the latter with an abundance of school leavers, the intake of apprentices is determined primarily by employers' initiative. In this case employers can ascertain numbers and classifications of apprentices needed to fill the skill shortages of their undertakings. In this case employment of apprentices is likely to be dominated by the actual demand for skilled manpower of the undertakings concerned.

In India, as a means to meet the problem of unemployed school leavers on one hand and the problem of shortage of skilled workers on the other, the National Apprentice Scheme prescribes both apprenticeable trades and apprentice-craftsman ratios. Employers are obligated to provide training facilities. Even though the representatives of employers are consulted, the primary responsibility for the decisions rest in the Ministry of Labor. The decisions tend to reflect more of national manpower plans, which usually deviate in favor of over-estimation of skill demand, from the pattern of actual demand for skills. In Nigeria, whereas government departments and modern undertakings train apprentices for their skill demands, the trade centers and technical institutes, which are formal educational institutes, provide students with apprenticeship training for the latter part of their education. These institutes produce skilled manpower where there is

no actual demand. Often the students have no desire to become blue collar workers. Employers are not in a position to pay enough attention to the programs and the graduates of the institutes.

In all four countries, apprentices who are trained in the programs which are set up voluntarily by undertakings to meet actual demands for skilled workers are gainfully employed during their training and are provided with regular employment after their training.

The purpose of the Nigerian indigenous apprenticeship is different from that of apprenticeships in modern undertakings which have been observed. It is not primarily geared to wage employment, and the completors of the training are supposed to initiate their own undertakings. The system, therefore, is barely concerned with the supply-demand of the wage employment sector. Sometimes it is a source of cheap labor and income for employers. This is not to say that there is no element of exploitation of youth labor in the apprenticeship in the modern sector of industry. Usually apprenticeship legislation is conscious of the matter and regulates employers of apprentices from using youths as cheap labor.

The foregoing can be summarized as:

1. if an employer is obligated to take in more apprentices than he needs to fill actual skill shortage, it

is much less likely that he will provide apprentices with gainful employment during and after the training; and

2. if an employer is not obligated to pay apprentices with wages during the training and to employ them upon the completion of the training, he is likely to take in a larger number of apprentices than actually demanded in his undertaking.

Educational Attainment of Apprentices

The legal minimum educational qualification for being admitted to apprenticeship in all four countries is the completion of compulsory education. However, in practice, middle school or junior high school education is required as the minimum for most craftsman apprenticeships in the modern sector of industry. In India, the majority of apprenticeable trades require completion of middle school and, in a few trades, matriculation for entry. In Japan, junior high school graduation is required for craftsman apprenticeship, and the graduates of technical high schools are employed as apprentice technicians. In Kenya, two years of secondary school education is a requisite for admission of craftsman apprenticeship, and technician apprentice training starts after the completion of secondary education. In Nigeria, apprenticeship for craftsmen begins after the completion of three years of secondary education, and for technician apprenticeship,

after two years of post-secondary education or after five years of secondary education. The only exception to the secondary education requirement is the Nigerian indigenous apprenticeship, which admits primary school completors. The employers' requirements of a higher educational achievements by youth than the legal provision, might be the result of the employers' efforts to improve the quality of their work force when loose labor markets permit them to raise the educational requirements; or it might be simply a reflection of the taste or prejudice of the employers.¹⁵³ In general, the education attainments of apprentices are rising. In Japan, employers have planned to recruit apprentices from among high school graduates. Kenya has planned to raise the standards of formal schooling of apprentices. In India many of the apprenticeable trades are filled with matriculators.

What makes the educational attainment of apprentices rise? One may argue that, along with the introduction of a new advanced industrial process, craftsmen are required to perform more sophisticated tasks than before, and are therefore required to have more formal school education. In most developing economies at the present stage of their industrialization and in the foreseeable future, however, industrial processes frequently use plants designed abroad.

¹⁵³Ivar Berg, Education and Jobs: The Great Training Robbery (Boston: Beacon Press, 1971), p. 40.

In such circumstances a few better craftsmen are required to perform machine maintenance works,¹⁵⁴ and they are required to have more school education and training. On the other hand, many of the jobs performed previously by craftsmen are sub-divided along with the introduction of advanced technology. The de-skilling of craftsmen skills is the result. In this case, more school education for craftsmen than before, cannot be justified if we consider it from the purely technical point of view. A developing economy, especially, is in a sense a "war economy" and some emergency measures must be taken for supplying the demand for skills without prolonged school education. Youth in developing countries are not inept in learning skills in a shorter time if they are provided with a balanced wage structure and other incentives.

Studies of the relationship between formal schooling and productivity (in terms of earnings) in developed economies can hardly be applied to apprentices in developing economies where wage differentials do not reflect the merit system. Rigorous studies with other measures of productivity might provide some guidelines for decision on the educational attainment of apprentices.

In the long run the individual decision of youth school leavers will be the most prominent factor related to the change in structure of educational attainment. The

¹⁵⁴Kilby, op. cit., p. 249.

individual decision to become an apprentice is influenced by expected income differentials between the occupation in which he is to be trained and other available occupations which may be secured by other means. Further, the probability of finding a job with an apprenticeship training will influence the individual decision.¹⁵⁵

In Japan, wages are determined by education, age, and years of service. Wage differentials between skilled and semi-skilled or unskilled become narrow. Even though there is plenty of employment opportunity either as apprentices or in other forms for the completors of compulsory education, more and more completors seek further formal education; probably because they assume their status in employment and earnings with further formal school education will be enhanced. Employers of apprentices have begun to change their apprenticeship programs in order to accommodate high school graduates.

In other countries in this study, employment opportunities in the wage sector are scarce. There is pervasive unemployment among school leavers at all levels of education. The wage structure in the modern sector of industry and in clerical positions remunerates better those who have more years of education. Hence, more and more youths continue their school education in the

¹⁵⁵Todaro, op. cit. Provided the basis of the perspective.

expectation that it will increase their chances to be employed in the better jobs of the wage sector. These circumstances push up the educational attainment of apprentices because the "over-educated" enroll as apprentices. For example, in India many apprenticeable trades which require completion of middle school are filled with matriculates, and in Kenya it appears that educational attainment is responding to other changing conditions. Government authorities in Kenya plan to up-grade the educational attainment for apprentices and reduce the duration of the training period, because employers are more likely to employ the more educated than the better trained.

In sum, in spite of the legal provision that educational attainment for the entry into apprenticeship is the completion of compulsory education, the employers of apprentices require the completion of middle school education as the minimum. Furthermore, the actual educational attainment of apprentices is higher than the requirement of the employers. In either full employment situations or unemployment situations, the individual decision to have education contributes to the change in educational attainment of apprentices. The individual decision, in turn, reflects the expected wage differentials and the probability of employment resulting from apprentice

training. These forces, coupled with other factors, push youths up to higher formal schooling.

What does the rising educational attainment imply for apprenticeship?

First, the rise of educational attainment means a higher entry-age to apprenticeship and the entry age is related to the duration of apprenticeship. The termination age of apprenticeship appears to be determined by tradition, and it is usually at the initiation of adulthood. The termination age is fixed whereas the entry age is moving up. Therefore any fixed legal or required duration of apprenticeship needs readjustment.

Second, the rising educational attainment brings a heterogeneity in educational background. Some bring with them academic high school education, some vocational education, and others vocational training. Adjustment to this situation has been shortening the duration of apprenticeship. It calls, also, for an adjustment of contents of theoretical instruction and practical work experience in such a way as to avoid duplication and meet the training need of apprentices with different educational and training backgrounds.

Recruitment of Apprentices

In all four countries, the age of entry into apprenticeship is regulated by the legal minimum age of

labor force participation. In both India and Nigeria it is 14 years, and in Japan and Kenya, 15 years. In India, leeway is provided in order to admit lesser aged youth by legally defining apprentice as "trainee" in the Apprentice Act, 1961. A deviation from the legal provision is also found in Nigerian indigenous apprenticeship. It admits youths who are as young as nine years. Apprenticeship usually lasts until an apprentice reaches adult age.

Except in India, no apprentice-craftsman ratios are prescribed by government. Employers themselves determine the number of apprentices.

Except in Japan, apprentices are indentured to employers. A contract is written between an employer and an apprentice or his guardian, if he is a minor. In case of the Nigerian indigenous apprenticeship, no indenture is written if an apprentice is the relative to the craftsman. In both India and Kenya, an apprenticeship indenture becomes binding when it is registered with the appropriate authorities in the Ministry of Labor. In Japan, apprenticeship programs, not apprentice indentures, are registered.

The age limitation, apprentice-craftsman ratios, indenture, and other aspects of apprenticeship are basically intended to protect apprentices from exploitation and abuse by limiting the freedom of employers and by imposing obligations with respect to apprenticeship training.

Apprenticeable Trades

In Japan, it appears that the apprentices in artisan trades are receiving an increased government protection. In India, minor attention to the government apprenticeship scheme has been given to indigenous trades since the Fourth Plan (1966-1971). India also has planned to include new trades, emerging trades as well as service trades in the public apprenticeship scheme. In Nigeria, there is a complete lack of a government scheme which is concerned with indigenous apprenticeship in artisan trades.

A tendency is that the developing countries are in a stage of broadening the public apprenticeship scheme adding new trades in which training was already being given but without public authorization. Also, it seems that a direction of the development of the public apprenticeship scheme is to include emerging trades which are resulted from both the introduction of new industries and splitting up the existing trades as industrialization proceeds. The public apprenticeship scheme has also begun to pay attention to service trades.

The Organization of Instruction

The syllabi for the registered apprenticeship programs in the countries of this study are determined by the Ministry of Labor of each country. The curriculum of a trade consists of theoretical and practical instruction.

A greater proportion of the instruction is assigned to the practical work experience on-the-job. For example, the practical training in Japanese apprenticeship is 80 per cent of the total training hours.

The theoretical training in these countries spread out all through the period of apprenticeship. During the first year, the theoretical training is emphasized. In Japan apprentices are assigned to the training departments during the first year of training. In Kenya, apprentices are trained in the Industrial Vocational Center for the first 12 weeks, and thereafter they are trained on the job. In India, Japan and Kenya, the Ministry of the respective country runs training institutes, and the instruction of the first year in the institute is regarded equivalent to one year of apprenticeship within industry.

In all cases there is no evidence that the curriculum of apprenticeship programs is articulated with those of vocational secondary schools. There is no evidence that the curriculum is based on job analysis of trades.

It appears that theoretical classroom instruction is a major function of the training institutes of the Ministry of Labor in each country and that it is of recent origin. Previously, a part of that function was performed by the school system of the countries. For example, in Kenya, the Kenya polytechnic has been providing facilities for the classroom instruction of apprentices not only for

the candidates of technicians, but also for craftsmen. The enrollment in the polytechnic is approximately 2,000, which contrasts to a handful of seats in the Industrial Training Center. There is no acceptable justification for establishing such new training institutes in these countries.

Trade Tests

Only in India is participation in a final examination a legal obligation of apprentices. The Nigerian indigenous apprenticeship terminates only with trade tests, though they are not legally binding. In Japan, trade tests are taken not earlier than two years after completion of an apprenticeship training.

In both Japan and Kenya, an intention to classify skilled workers by grades is implied in the trade testing system. In Kenya most employers require that workmen obtain trade certificates before they can be either employed or promoted.

Only in Japan, trade tests are combined with the national trade competition which is, in turn, connected with the international apprentice competition. India had a similar national skill competition, but it is not integrated with the trade task.

Trade tests cover both theoretical and practical aspects of trades. The major emphasis, however, is laid on practical ability. The Nigerian indigenous apprenticeship tests only the practical skills.

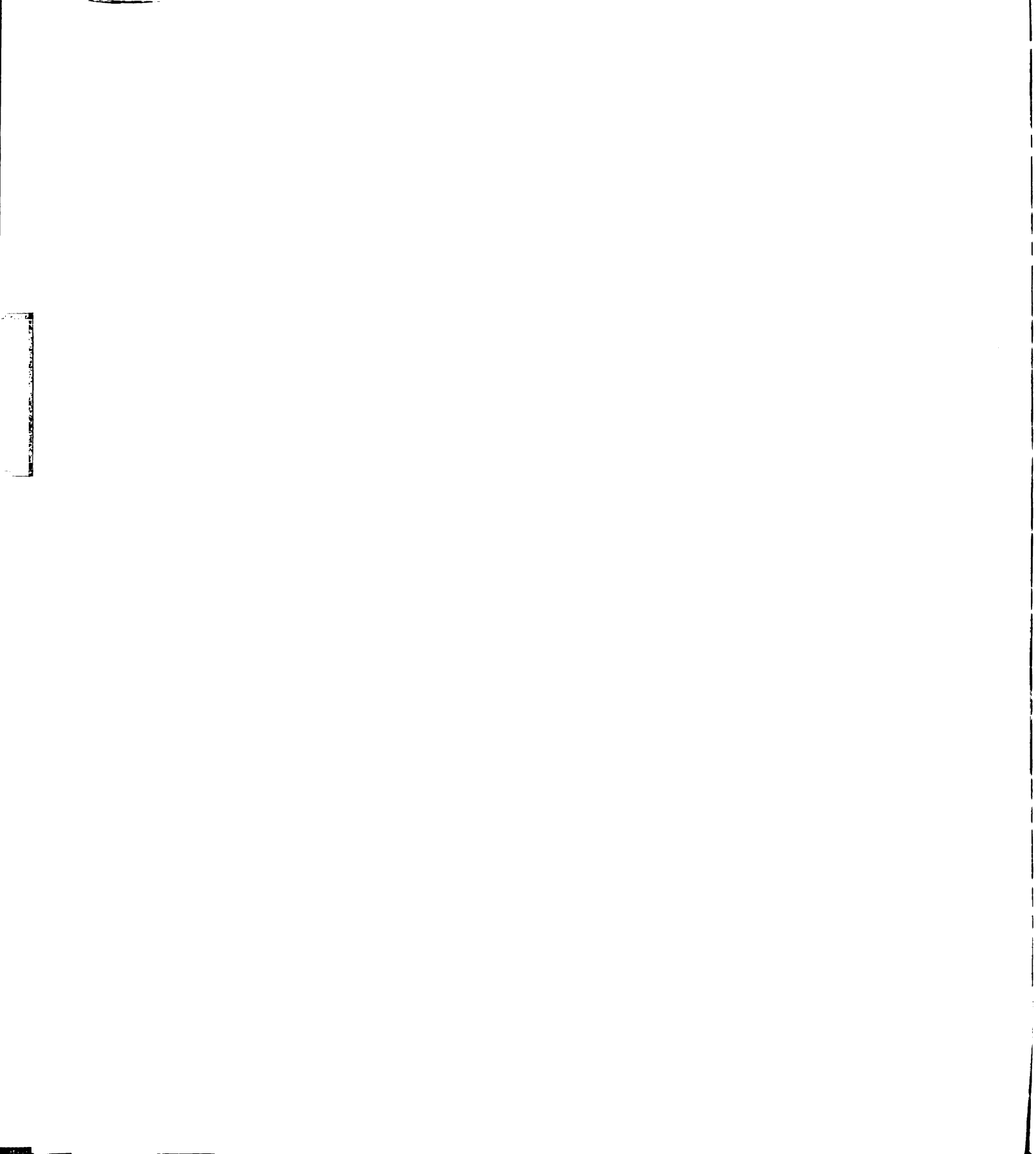
The tests are controlled by the Ministries of Labor and are assessed on a national standard. In the Nigerian indigenous apprenticeship, individual trade masters are the only judges of the tests.

Common to all cases except the Nigerian indigenous case, is that trade tests are designed to assess the effectiveness of apprenticeship programs on the national standards.

Recruitment and Training Instructors

An authorized apprenticeship program in the countries of this study are staffed by a director (in-plant training expert in Kenya), instructors at the shop-floor level who are usually foremen or supervisors, and classroom instructors.

In India, Japan, and Kenya, training institutes have been established for apprenticeship instructors. Regular courses are provided for the candidates of the classroom instructors, and short-term courses for shop-floor instructors. The qualification for admission to the regular course is graduation from high school or matriculation. The duration of the regular course is different between the countries: in Kenya, six months, in India twelve months, and in Japan four years. A short-term course is provided for shop-floor instructors. Practical experience is emphasized for entry into the course. The duration of the course also differs among the countries: in Kenya,



two weeks, in India, a maximum of three months, and in Japan, six months. In Japan, there is only one instructor training institute, the Institute of Vocational Training, with a very limited enrollment, 360 in total for the regular course. In Kenya the Industrial Vocational Training Institute provides instructor training, but it has not been able to recruit students for regular courses. In India six Central Instructor Training Institutes provide both the regular course and short-term courses.

Only in Japan the instructors in authorized apprenticeship programs are required to have a license granted by the Ministry of Labor. Almost all of the licenses are granted to persons with junior high school graduation and fifteen years of practical experience.

There is a common characteristic in the practice regarding the recruitment of instructors for apprenticeships among the countries. Instructors are recruited among the experienced skilled workers in the industrial establishments providing apprentice training.

Even though there is a difference in the duration of instructor training among the countries, it appears that the difference has no significant meaning at present. In Japan the provision for instructor training is negligible in terms of the enrollment. Almost all of the instructors are not trained under the provision. In India also it is reported that the facilities for instructor training are

not extensively utilized by apprenticeship programs. Instructors are recruited from within industrial undertakings who have not undergone the courses in instructor training.

These observations suggest that a training need for apprenticeship instructors in separate facilities is very limited. A prolonged training of instructors who are key members (foremen, supervisors and engineers), of industrial establishments in training institutes is not practicable since their long term absence from production is likely to bring a deterioration of productivity of the firms.

Sponsors of Apprenticeship

In the countries, India, Japan and Kenya, employers and government share responsibilities for the establishment and operation of the registered apprenticeship programs.

In the three countries employers are obliged to provide qualified instructors, training facilities, operating costs, and wages or allowances to apprentices. Also they must provide certain hours for classroom instruction for apprentices. In Kenya, in addition, employers must release their instructors of apprenticeship training to enable them to take short-term instructors courses.

In both India and Japan employers of small industries are provided with financial help by government. In

India they are subsidized half of the cost incurred to the basic training, or they are allowed to use public training facilities for the purpose without charge. In Japan they are subsidized half of the current expenditure in addition to an allowance to use the public training facilities and instructors. Loans are also provided to meet the construction of training facilities. In both countries government sets a standard cost for the subsidies.

Large industrial establishments are also helped financially both in India and in Japan. In India large employers are provided with government loans to meet the cost of land, construction and equipment for separate workshops. In Japan large employers are allowed to use facilities of public training institutes.

In Kenya the basic training and classroom instruction is entirely provided by government. Financial provision is also exceptional. The cost of the apprenticeship program is shared among employers through the training levy system.

In the three countries government provides the standard curriculum, teacher material facilities for instructor training, and administrative costs.

The Nigerian indigenous apprenticeship programs are not the concern of government at present. Apprentices, or their guardians, pay fees to master craftsmen, and the

masters instruct them without any service provided by the government.

With the exception of the Nigerian apprenticeship, a principle of cost distribution can be applied to the apprenticeship programs of small industries of the three countries. The public authorities pay the cost of basic training; the employers take on the costs of practical instruction within their establishments. Overhead costs are born by government.

CHAPTER VII

IMPLICATION FOR KOREA

This chapter is devoted to an application of the implications and generalizations in the preceeding chapters to Korea. The application focuses on the controversial problems of the formal apprenticeship scheme in Korea.¹⁵⁶ We begin with a brief outline of the vocational training system in Korea.

Vocational Training in Korea

The formal apprenticeship scheme came into being in 1967. It was promulgated as one of the twins of the Vocational Training Centers under the control of the Office of Labor Affairs. The vocational training scheme started when the Korean economy was at a stage of acceleration. It has been estimated that a large number of skilled workers will be demanded to man the jobs resulting from economic acceleration. The National manpower plan estimates that vocational high schools will meet approximately half of the demand for skilled workers.

¹⁵⁶In Korea an apprenticeship is designated as in-plan-training.

Both the vocational training centers and the apprenticeship programs are supported by government funds. The purpose of each is to train skilled workers and craftsmen. The clients of the programs should have completed middle school as the minimum. Training should be given for the designated trades by the Office which lays down standards for the syllabi, training periods, and training facilities. During the period, 1967-1971, 2.1 billion won¹⁵⁷ of the government funds was invested in the functioning of 600 new training centers.¹⁵⁸ The Office plans to invest an additional 13.7 billion won to expand training facilities between the years of 1972 and 1976.¹⁵⁹ This plan intends to train all the additionally needed skilled workers in the years ahead.¹⁶⁰ Thus, the plan of the office raises a problem concerning the roles of vocational high schools and other vocational education institutes to which a vast amount of both government and private resources have been diverted. Government ministries and large industrial establishments have their own training programs with their own resources.

¹⁵⁷One U.S. dollar is equivalent approximately to 300 won in the years.

¹⁵⁸The Office of Labor Affairs, Vocational Training Programs (Seoul; The Office of Labor Affairs, 1972), p. 13. (Mimeographed.)

¹⁵⁹Ibid., p. 23.

¹⁶⁰Ibid., pp. 17-18.

The large efforts for vocational education and training have been geared mostly to the training of skilled workers for modern, large industrial undertakings which employ a comparatively small portion of the work force, 1.6 million persons or 16 percent of the total employment in 1971. The planning authority estimates that it will be increased to 2.4 million or 20 percent of the work force by 1976.¹⁶¹ Among the employees, a large number of both simple laborers and simple operatives are involved. The number of craftsmen may be far fewer than the above figures. Therefore, the employment opportunity for skilled workers with a prolonged education and training will be less conspicuous than the huge public efforts. Besides the problem of trained youth, there is a serious problem of unemployment among school leavers. In 1971 approximately a half of the middle school age youths and 70 percent of the high school age youth were out of the school system.¹⁶²

Application of the Implications

The observation in the preceeding section raises two serious problems. First, what should be the respective role of vocational high schools, trade schools, training

¹⁶¹Ibid., p. 46.

¹⁶²Ministry of Education, Long-term Education Projection, Draft Outline (Koren: 1970), p. 83. (Mimeographed.)

centers, and apprenticeship programs? More specifically should all the additionally required skilled workers be trained by the public vocational training programs? What will be the role of vocational high schools and other vocational education institutes? The other countries under this study had similar problems, and a general pattern of solution for these problems was to regard vocational education or both the education and vocational training as pre-vocational to apprenticeship. If their role changes thus, then the vocational education and training system and investment pattern might need total change.

In Korea, more and more expansion and strengthening of facilities and equipment of both vocational education and industrial training are called for by authorities.¹⁶³ An introduction of new technology in industries does not likely require training of great numbers of youths in high skills. Industries' manpower requirement in a large volume is in the operatives or semi-skilled level, as new technologies are introduced. The skills do not require a prolonged training. Therefore additional investments in the schools and institutes for the training of highly skilled workers in a large number are hardly justified.

The problem might need further and more considerable attention. This section, however, plunges more directly

¹⁶³Dae Han Sangong Hwoi So, Inlyok Kaebal ui Hyunwhang Kwa Kwaje. (Seoul, Dae Han Sangong Hwoi, So, 1971), pp. 147-148.

into related problems to apprenticeship programs in Korea, and attempts to apply the implications and generalizations to this problem. According to the plan of the Office of Labor Affairs for the period, 1972-1977, slightly less than half of the skilled workers will be trained under the programs. Again, most of the training efforts are paid to modern sectors. Should the apprenticeship programs continue to be expanded? Modern industries have been providing non-formal apprenticeship programs with their own funds. Government has now formalized them and subsidizes them.

In the countries of this study apprenticeship programs in the large industrial establishments are not subsidized by public funds. When government intervenes in a natural process of labor supply and demand in the establishments, with such means as assigning apprentices to the establishments, and also subsidizes the cost of the apprenticeship programs of the establishments, unemployment of some apprentices during and after their training has resulted. The national apprenticeship schemes of the countries have paid their major efforts to apprentice training in small-scale industries. However, the smallness of the labor absorption in this sector does not allow a large number of apprentices to come into the sector. Gradually the attention of local governments and international organizations is turning to indigenous

apprenticeship in the indigenous industrial establishments for a solution of unemployment of school leavers.

The Korean Council of Commerce and Industry has recently expressed its particular concern for the need for promoting indigenous crafts.¹⁶⁴ The concern might have arisen from a realization of a slow growth of employment opportunity in large modern industries.

However, the national industrial training scheme has concentrated on promoting the apprenticeship programs in large industrial establishments. The Council has recommended promotion of skill training for indigenous industries.¹⁶⁵

The choice of organization for skill training is a question. Should it be accomplished by public training institutes? The conventional method of organization usually calls for another large amount of public investment of resources. In addition, institutes are likely to train youths who are not required by the industries, in terms of both numbers and specific skills.

The smallness of establishments in this sector might not allow them to provide independent training facilities. Cooperation among establishments may be one alternative. Government efforts should help the

¹⁶⁴Ibid., p. 148.

¹⁶⁵Ibid.

establishments to organize training programs among themselves. If a need arises for classroom instruction, vocational schools or training institutes can be provided. Especially a skill extension service for craftmasters, rather than training apprentices in institutes, will be more effective for training youths. The more competent the craftmasters become, the better instruction they are likely to provide to apprentices.

Should the design of the national apprenticeship scheme change from the present emphasis of training for occupations of modern large establishments to the trade training in small and indigenous industries, then there must be a change in training standards. The purpose of indigenous apprenticeship is not mainly geared to wage employment but rather to self-creation of establishments by the completors of apprenticeship. Apprenticeable trades may include both emerging trades and artisan trades.

The educational attainment of apprentices, in spite of the change, will become higher and more heterogeneous as the educational system changes. Some will be primary school graduates. Others will be graduates of either academic or vocational high schools. The developing countries¹⁶⁶ have appeared to adjust to the change. In general, adjustment is made in the duration of training.

¹⁶⁶ Unless otherwise mentioned "the developing countries" designates the countries of this study.

The less educated stay a longer time in apprenticeship. The heterogeneity of educational attainment calls for revisions in the syllabi. Any fixed syllabi based on certain assumptions of the educational attainment of apprentices will be obsolete. The official standards concerning duration and syllabi for apprenticeship in Korea are determined on the assumption that trainers are completors of middle schools. The official standards need revision in such a way as to accommodate the different educational attainments.

Employment-while-training is the tradition of apprenticeship. The tradition has not been observed in all of the developing countries. It appears that where there is a shortage of school leavers, employers provide apprentices with gainful employment during their training. In one case, India, an employer is obligated to take in more apprentices than he needs. Apprentices are then not provided with gainful employment. Also it appears that if government subsidizes wages of apprentices, apprentices become cheap laborers. The above observation suggests that the designers of the national apprenticeship scheme should be extremely cautious when they want to involve apprentice-craftsmen ratios or other government intervention in the number of apprentices. Rather, in view of the purposes of indigenous apprenticeship, provisions which facilitate the completors creating their own businesses along with the government's promotional policies toward small and

indigenous industries will be effective incentives to apprentices.

Trades which are officially designated as trainable or apprenticeable in Korea are those for modern industries, and they have expanded to include 124 trades in 1971 compared with 40 trades in 1967. Officially designated artisan trades are few: farm mechanics, TV and radio repairmen, electric mechanics, and other few indigenous trades.¹⁶⁷ A trend observed in the developing countries is to include emerging trades as well as service trades. Apprenticeable trades in the new apprenticeship program should be broad enough to train youths in various prospective business trades.

The syllabi for the new apprenticeship program should be different from those which are conventionally observed in this study. They should include instruction in the entire entrepreneurship, bookkeeping, management, marketing as well as trade skills since a major objective of the apprenticeship is to train craftsmen who will eventually create their businesses. Theoretical training can be provided in the school system or vocational training centers.

In Korea the trade tests' restrictive pass rate was 60 percent in past years. Qualification for applying

¹⁶⁷Dae Han Sangong Hwoi So, op. cit., pp. 123-128.

for trade tests was limited by educational attainment and work experience. The observed trend is to combine the tests system with national and local skill competition in which no theory test is required. Another trend is to emphasize practical ability. The new apprenticeship should not enforce trade tests for the purpose of classifying workers by grade. Any prohibition to prevent measurement of work performance in a trade test should be discarded. National and local skill competition should be the only means of a skill test.

Instructor training in institutes over a prolonged period in the developing countries has not been effective. Especially in the new apprenticeship programs, craft-masters are the instructors assisted by senior apprentices. Both are indispensable for the management of their small and indigenous establishments. Therefore, any rigid requirement of a prolonged training and certificate system hinders development of the apprenticeship training in this sector.

A skill extension service would be desirable. For the instructors of classroom teaching, no separate training institute will be needed. The instruction should be provided in the existing schools and institutes.

Government efforts to help the new apprenticeship program should not be through conventional methods in which governments establish training centers equipped with costly

facilities. A development of the apprenticeship programs in this sector depends upon the dispersion and prosperity of individual establishments. New craftsmasters with prosperous businesses employ apprentices. Therefore, the government efforts should be to help them acquire knowledge and skills, to explore new markets and production methods, and to help the completors create their own businesses.

BIBLIOGRAPHY

India

- Agarwal, O. P. "Chemical Fertilizer." Training for Progress. Vol. 7, No. 2. Geneva: ILO, CIRF, 1968.
- Bhatt, B. J. Labor Market Behavior of Factory Workers in Bombay. (A case study), Industrial Relations Research Institute, The University of Wisconsin, 1969.
- Butani, D. H. India of the 1970's. New Delhi: Promilla & Co., 1970.
- Government of India, Planning Commission. Fourth Five Year Plan. A draft outline, 1966.
- International Labor Office. Report to the Government of India on Apprenticeship Training. Geneva: ILO/TAP/India, R. 13, 1960.
- Labor Statistics Bureau. Indian Labor Year Book, 1967. Simla: Labor Statistics Bureau, Ministry of Labor and Employment, 1967.
- Ministry of Education, India, Report on the Education Commission, 1964-1966. New Delhi: Government of India Press, 1966.
- Mitra, Sarda, ed. Youth Challenge Unemployment. New Delhi: New Generation Publication, 1969.
- National Commission On Labor. Report of the Study Group on Employment and Training. Delhi: Samrat Press, 1969.
- Pidgeon, F. J. "Apprentice Training on a Continental Scale: India." Training for Progress. Vol. 7, No. 2. Geneva: I.L.O., CIRF, 1968.
- Prekash, Om. "Process Control Instrumentation." Training for Progress. Vol. 7, No. 2. Geneva: I.L.O., CIRF, 1968.

Tilak, V. R. K. "The Future Manpower Situation in India, 1961-76." ILR, Vol. 87, No. 5 (May, 1963).

Japan

Inoue, K. "Group Training in Japan." International Labor Review, Vol. 98 (July, 1968).

International Labor Office. Vocational Training in Japan. Geneva: I.L.O., 1966.

Keijai Kikaku, ed. Keijai Shakai Hatzden Keikaku. Tokyo: Siseido, 1967 (Japanese).

Levine, Solomon B., and Somers, Gerald G. "Youth Employment and Wage in Japan." Industrial Relations Research Institute Reprint Series No. 132, The University of Wisconsin, 1970.

Ministry of Labor, Shokugyo Kunren-ho, Tokyo: Rōdō shō, Ministry of Labor, 1969.

Ministry of Labor. Present Situation of Vocational Training in Japan. Tokyo: Ministry of Labor, 1965.

Okamoto, Hideaki. "Industrialization: Apprenticeship and Manpower Development (I)." Japan Labor Bulletin, 11:4-8, No. 6, (June, 1972).

Okamoto, Hideaki. "Manpower Policy at the Enterprise Level (I)", Japan Labor Bulletin, Vol. 9, No. 10 (October 1970).

_____. "Manpower Policy at the Enterprise Level (II)." Japan Labor Bulletin, Vol. 9, No. 11 (November, 1970).

Okamoto, Hideaki. "Vocational Training in Japan." Japan Labor Bulletin, Vol. 9, No. 1 (1970).

Porter, Rockne and Kalish, R. A. "Japanese Industrial Training: A Socio-Cultural Description." Training Directors Journal. (December, 1965).

Thurley, Keith. "Industrial Training in Japan." Industrial Training International, Vol. 2, No. 3 (March, 1967).

Umetani, Shunichiro. "Manpower Policy and Education in Japan (II)." Japan Labor Bulletin, Vol. 9, No. 8 (August, 1970).

"The White Paper on Labor, 1968." Japan Labor Bulletin, Vol. 8, No. 9 (September, 1969).

Kenya

The Development of Labor and National Service of the Commonwealth of Australia. Outline of Vocational Training in Kenya, 1966.

Ghai, Dharam P. "Income Policy in Kenya: Need, Criteria and Machinery." East African Economic Review, Vol. 4 (New Series).

Government of Kenya. National Assembly. Report of the Elect Committee on Unemployment. Nairobi, 1970.

Government of Kenya. Development Plan, 1970-1974. Nairobi, Kenya: Government of Kenya, 1969.

Government of Kenya. Economic Survey 1966. Nairobi, 1966, p. 67.

Hollister, Robinson G. "Manpower Problems and Policies in Sub-Saharan African." International Labor Review, Vol. 99, No. 5 (May, 1969).

International Labor Organization. The Organization and Development of the National Industrial Vocational Training Scheme. Kenya, Geneva, 1971.

_____. Report to the Government of Kenya on the Development of Training for Rural Youth in Kenya. Geneva: I.L.O./OTA/Kenya/R2, 1968.

_____. Report to the Government of Kenya on the Development of Vocational Training. Geneva: I.L.O., 1965.

Sheffield, James R., ed. Education; Employment and Rural Development. Nairobi, Kenya: East Africa Publishing House, 1967.

Todaro, Michael, P. "Income Expectations, Rural Urban Migration and Employment in Africa." ILR, Vol. 1971.

U.S. Department of Labor. "Kenya." Labor Development Abroad, Vol. 16 (July, 1971).

U.S. Department of Labor. "Kenya." Labor Development Abroad, Vol. 15, No. 8 (August, 1970).

Nigeria

- Callaway, Archibald. Training Young People Within Indigenous Small-Scale Enterprises: The Nigerian Example. Paris: International Institute of Educational Planning, 1971. (Mimeographed.)
- Framinu, N. A. and Koch, B. T. "The Rural Blacksmith-- Case Studies in Nigeria." Training for Progress, Vol. 6, No. 1 (1967).
- Hollister, Robinson G. "Manpower Problems and Policies in Sub-Saharan Africa." International Labor Review, Vol. 99, No. 5 (May, 1969).
- International Labor Organization. Socio-Economic Conditions in the Ifo, Otta and Ilaro Districts. Geneva: I.L.O., 1972, Chapters 7.
- Kilby, Peter. Industrialization in An Open Economy: Nigeria, 1945-1966. Cambridge: The University Press, 1969.
- National Manpower Board. A Study of the Educational and Training Content of Occupations, 1966. Manpower Studies, No. 7, Lagos, 1968.
- Todaro, M. P. "Income Expectations, Rural-Urban Migration and Employment in Africa." ILR, Vol. 104 (November, 1971).
- Warmelo, W. V. "Promotion of the Small Entrepreneur in Africa." Training for Progress, Vol. 5, No. 1 (1966).
- Yesufu, T. M. Manpower Problems and Economic Development in Nigeria. Ibadan: Oxford University Press, 1969.

General

- Anderson, C. Arnold and Bowman, Mary Jean, eds. Education and Economic Development. London: Frank Cass and Co., 1966.
- Berg, Ivar. Education and Jobs: The Great Training Robbery. Boston: Beacon Press, 1971.
- Beveridge, A. Apprenticeship Now: Notes on the Training of Young Entrants to Industry. London: Chapman & Hall, 1963.

- Blaug, M., ed. Economics of Education 1. Middlesex, England: Penguin Books, 1968.
- Bureau of Apprenticeship and Training. Setting up an Apprenticeship Program. Manpower Administration, the U.S. Department of Labor, 1966.
- Callaway, A. "Planning Out-of-School Education for Development." IIEP, 1971.
- The Center for Studies in Vocational and Technical Education, The University of Wisconsin. Research in Apprenticeship Training. Madison Wisconsin: The University of Wisconsin, 1967.
- International Training Information and Research Center (CIRF). Europeans Apprenticeship: Monographs, Vol. 1, No. 2, Geneva: ILO, 1966, pp. 10-11.
- Coombs, Philip H. The World Educational Crisis--A System Analysis. New York: Oxford University Press, 1968.
- Dufty, N. F., ed. Essays Apprenticeship. Madison, Wisconsin: Center for Studies in Vocational and Technical Education, the University of Wisconsin, 1967.
- Harburger, P. F. "Experiments in Vocational Education in a Developing Country." ILR, Vol. 89, No. 1 (January, 1964).
- Henson, B. H. "City & Guilds Examinations Overseas." Training for Progress, Vol. 5, No. 2-3 (1966).
- Kursh, H. Apprenticeships in America: A Guide to Golden Opportunities in Industry. New York: W. W. Norton & Company, 1958.
- Lauwerys, Joseph A., et al., ed. Education Within Industry--The World Year Book of Education, 1968. New York: Harcourt, Brace & World, Inc., 1968.
- Liepmann, Kate. Apprenticeship. London: Routledge and Kegan Paul, 1960, p. 1.
- Maton, J. "Experience on the Job and Formal Training as Alternative Means of Skill Acquisition." International Labor Review, Vol. 100, No. 3 (September, 1969).

Ministry of Education. Report of the Educational Commission 1961-66. New Delhi, India: Ministry of Education, 1966.

Rajan, G. S. A Study of the Registered Apprenticeship Program in Wisconsin. Madison, Wisconsin, Center for the Studies in Vocational and Technical Education Industrial Relations Research Institute, The University of Wisconsin, 1966.

Scrimshaw, Stewart. Apprenticeship. New York, and London: McGraw-Hill Book Co., 1932, p. xiii.

Seybolt, R. F. Apprenticeship & Apprenticeship Education in Colonial New England & New York. New York: Teachers College, Columbia University, 1917.

Staley, E. Planning Occupational Education & Training for Development. New York: Praeger Publishers, 1971.

Subcommittee on Employment and Manpower of the Committee on Labor and Public Welfare U.S. Senate. The Role of Apprenticeship in Manpower Development: United States and Western Europe. Washington: U.S. Government Printing Office, 1964.

Taira, K. "Wage Differentials in Developing Countries: A Survey of Findings." ILR, Vol. 93, No. 3 (March, 1966).

U.S. Department of Labor, Manpower Administration. Apprenticeship Past and Present, A Story of Apprenticeship in the Skilled Traders/Since Colonial Days, 1964.

MICHIGAN STATE UNIV. LIBRARIES



31293102664079