



TOGETHER
for a sustainable future

OCCASION

This publication has been made available to the public on the occasion of the 50th anniversary of the United Nations Industrial Development Organisation.



TOGETHER
for a sustainable future

DISCLAIMER

This document has been produced without formal United Nations editing. The designations employed and the presentation of the material in this document do not imply the expression of any opinion whatsoever on the part of the Secretariat of the United Nations Industrial Development Organization (UNIDO) concerning the legal status of any country, territory, city or area or of its authorities, or concerning the delimitation of its frontiers or boundaries, or its economic system or degree of development. Designations such as “developed”, “industrialized” and “developing” are intended for statistical convenience and do not necessarily express a judgment about the stage reached by a particular country or area in the development process. Mention of firm names or commercial products does not constitute an endorsement by UNIDO.

FAIR USE POLICY

Any part of this publication may be quoted and referenced for educational and research purposes without additional permission from UNIDO. However, those who make use of quoting and referencing this publication are requested to follow the Fair Use Policy of giving due credit to UNIDO.

CONTACT

Please contact publications@unido.org for further information concerning UNIDO publications.

For more information about UNIDO, please visit us at www.unido.org

20478

UNITED NATIONS
INDUSTRIAL DEVELOPMENT ORGANIZATION

Distr.
LIMITED

PPD.271(SPEC.)
29 December 1993

ORIGINAL: ENGLISH

HUMAN RESOURCES FOR INDUSTRIAL DEVELOPMENT IN
THE UNITED REPUBLIC OF TANZANIA -

A SURVEY

This document was prepared by the Regional and Country Studies Branch, Industrial Policy and Perspectives Division.

The designations employed and the presentation of the material in this document do not imply the expression of any opinion whatsoever on the part of the Secretariat of the United Nations Industrial Development Organization (UNIDO) concerning the legal status of any country, territory, city or area or of its authorities, or concerning the delimitation of its frontiers and boundaries.

Mention of company names and commercial products does not imply the endorsement of UNIDO.

This document has not been edited.

PREFACE

The present report is the second in a series on management and training issues in Sub-Saharan Africa (SSA). This series aims at providing an insight into the success or failure of industrial human resource development (HRD) strategies in a variety of African countries, contributing to the establishment of new methods for human resource development for African manufacturing industry.

HRD has become an essential factor in industrial competitiveness. On the one hand, economic liberalization has exposed African manufacturers to increasing competition at home; on the other, they need to establish themselves in foreign markets to reduce their countries' dependence on raw material exports. Mass production based on cheap labour is no longer a guarantee for competitiveness: this requires a skilled labour force and technological as well as managerial expertise.

The report, while largely based on secondary literature, also incorporates the findings of a UNIDO mission to Tanzania in January 1993. It was prepared by the Regional and Country Studies Branch, with the assistance of UNIDO Consultant Paul Hesp.

CONTENTS

<u>Chapter</u>	<u>Page</u>
List of TABLES	iii
ACRONYMS	iv
INTRODUCTION: Background and structure of the study	1
1. RECENT ECONOMIC TRENDS AND EMPLOYMENT	2
1.1 The Tanzanian economy	2
1.2 Formal and informal sector employment	4
2. EDUCATION AND TRAINING - AN OVERVIEW	8
2.1 General education	8
2.2 Technical education and vocational training	11
2.3 Policies and development assistance for HRD	15
3. THE TANZANIAN MANUFACTURING SECTOR AND ITS HUMAN RESOURCE REQUIREMENTS	19
3.1 The manufacturing sector - main characteristics and development trends	19
3.2 Employment	24
3.3 Major gaps in industrial skills and know-how	26
3.4 Human resources for industry: matching supply and demand	29
3.5 The role of development assistance	37
4. EMERGING ISSUES FOR HUMAN RESOURCE DEVELOPMENT IN MANUFACTURING	40
ANNEX: UNIDO's approved and/or operational technical cooperation projects	45

List of TABLES

	<u>Page</u>	
Table 1	Gross Domestic Product by kind of economic activity at 1976 prices, 1976, 1978, 1980-91	3
Table 2	Economically active population by major occupational groups, 1988	5
Table 3	Informal sector employment by occupation group in 1991	6
Table 4	Total enrolment in primary schools, 1988 and 1990	9
Table 5	Enrolment at the University of Dar-es-Salaam and Sokoine, 1989	11
Table 6	Technical education and vocational training, late 1980s	12
Table 7	Tertiary training institutions - average graduate output by sector, 1987/1988 - 1991/1992	14
Table 8	Summary of manpower demand and supply in the wage sector	17
Table 9	Number of establishments, gross output and value added in industry by ownership, 1988	20
Table 10	Persons engaged in industry by firm size, 1988	25
Table 11	Informal sector manufacturing employment by ISIC category, 1991	26
Table 12	Certification level by sector and gender, yearly average for 1988-1992	31
Table 13	Tertiary level courses for the manufacturing industry, by institute and specialization: average yearly enrolment and output, 1988-1992	32

ACRONYMS

B.Sc.	Bachelor of Science
ESAURP	Eastern and Southern African University Research Programme
GDP	Gross Domestic Product
GTZ	Deutsche Gesellschaft für technische Zusammenarbeit
HPTC	High Precision Technology Centre
HRD	Human Resource Development
ILO	International Labour Organization
ITP	Indian Tanzania Programme
JASPA	Jobs and Skills Programme for Africa
MEIDA	Metalworking and Engineering Industries Development Association
MMS	Maintenance Services
MVA	Manufacturing Value Added
NBC	National Bank of Commerce
NVTCs	National vocational training centres
R&D	Research and Development
RHP	Rural Hire Purchase
SIDA	Swedish Industrial Development Authority
SIDO	Small Industries Development Organization
SIP	Sister Industries Programme
SMEs	Small- and medium-scale enterprises
SMIs	Small- and medium-scale industries
SSA	Sub-Saharan Africa
SSI	Small-scale industry
TAPA	Tanzanian Parents Association
TIRDO	Tanzania Industrial Research and Development Organization
TPCs	Training cum Production Centres
UNDP	United Nations Development Programme
UNIDO	United Nations Industrial Development Organization

INTRODUCTION: BACKGROUND AND STRUCTURE OF THE STUDY

Since the late 1980s, the Tanzanian economy has been recovering from a long recession. Economic recovery however has so far not resulted in sufficient formal sector demand for labour to absorb the rapidly growing labour force. Newcomers are mainly absorbed by the informal sector. At the same time, the country employs a large number of expatriates due to a critical shortage of local expertise. The lack of employment opportunities on the one hand and of expertise on the other is exacerbated by weak human resource planning at both the national and the firm level.

Formal manufacturing - largely consisting of large-scale, comparatively capital intensive units - has made a very limited contribution to development and employment creation. Although performance in the manufacturing sector has improved in recent years, a strong growth trend has not yet manifested itself. The contribution to employment and MVA of cottage industries is underestimated, even though the role of manufacturing in the informal sector is a subordinate one.

To retain or regain a competitive edge in export and even in domestic markets, Tanzanian industry will need to catch up with international trends in the fields of technology development and application, management and employee skills, and industrial services. There is however a shortage of industrial entrepreneurs and employees with the required know-how. The issue of industrial human resource development is therefore an important one. Formal training unfortunately tends to be theoretical and too narrowly specialized, and the skills taught often do not match the longer-term requirements of the economy. Moreover, the crucial role of in-service training is underestimated.

While industrial human resource development is the main subject of this study, it is essential to discuss it in an overall development context. The next chapter therefore contains a brief presentation of general economic trends and of formal and informal sector employment, underlining the contribution of the latter. Chapter 3 gives a fairly extensive overview of education and training. The main shortcomings identified concern the relevance of secondary and tertiary education as well as vocational training to present and future economic needs. Chapter 4 then focusses on manufacturing (including the very large informal sector) and on the available resources for industrial training. Management training seems one of the weakest points, and the consequences of weak management are briefly discussed. Chapter 5 summarizes major findings and suggests some possibilities for action. Stronger involvement of the business community in HRD seems essential. Donor assistance, which has been crucial for (industrial) HRD in the past, will however continue to play a key role.

1. RECENT ECONOMIC TRENDS AND EMPLOYMENT

1.1 The Tanzanian economy

After a lengthy deterioration in the 1974-1986 period - the consequence of a misguided, bureaucratic approach to agricultural and industrial development and a decrease in export earnings which resulted from low world market prices for agricultural products - the economy of the United Republic of Tanzania (called Tanzania hereafter) has shown clear signs of recovery since 1987. Real growth has averaged 4 per cent annually over the 1987-1991 period. This is well above the annual population growth rate of 2.8 per cent, but as the country is seriously indebted (total debt amounted to US\$ 5,866 million in 1990) and needs to invest heavily in revitalizing the economy, growth does not yet express itself in increased living standards.

The recovery is largely due to favourable changes in economic policy, which have given greater freedom to private enterprise. Special stimuli have been provided for agriculture, which is the dominant economic activity both in terms of its contribution to GDP and to employment. The current upswing is expected to continue.

The dominant role of agriculture is clearly brought out by Table 1, showing contributions to GDP by sector. The sector accounted for 48 per cent of GDP in 1991 (in 1976 prices). While agriculture has been growing only modestly in constant terms, growth has been faster than in any other major sector of the economy, excluding finance and real estate. The contribution of the manufacturing sector to GDP has decreased considerably during the past 15 years, from 13 per cent of GDP to 8 per cent in 1991. The downward trend, however, has been halted in recent years.

Agriculture is to a very large extent subsistence-oriented and based on traditional production methods. While increased producer prices and liberalized markets have boosted output (especially of food crops), productivity has remained low, and land tenure systems as well as inadequate rural infrastructure constitute additional bottlenecks to agricultural development. This affects the country's foreign exchange earnings, which are mainly derived from export crops, and raw material supplies to Tanzania's most important manufacturing sub-sector, the agro-processing industries. Further progress is required in agriculture if economic growth is to be sustained in the long term.

Tanzania's trade balance has long been negative, and the deficit has worsened in recent years. Exports have increased quite dramatically in terms of local currency, but the devaluation of the Tanzanian shilling (Tsh) means that foreign exchange earnings have actually stagnated. Meanwhile, the value of imports has continued to increase. By 1991, the deficit on the trade balance amounted to

Table 1. Gross Domestic Product by kind of economic activity at 1976 prices, 1976, 1978, 1980-91
(Percentage)

Economic activity	1976	1978	1980	1981	1982	1983	1984	1985	1986	1987	1988	1989	1990	1991 ^{a/}
Agriculture, forestry, fishing and hunting	41.8	40.5	40.2	40.8	41.1	43.3	43.6	45.0	46.1	45.8	45.9	46.5	46.2	48.2
Mining and quarrying	1.0	0.9	0.8	0.8	0.8	0.8	0.8	0.7	0.6	0.6	0.5	0.5	0.6	0.8
Manufacturing	13.0	12.3	11.5	10.2	9.8	9.2	9.1	8.5	8.0	7.9	8.1	8.5	8.8	8.0
Electricity and water	1.0	1.3	1.7	1.8	1.8	1.8	1.9	1.9	2.2	2.2	2.1	1.8	1.7	1.8
Construction	4.0	3.6	4.0	3.8	4.0	2.4	2.8	2.5	2.8	4.0	4.3	3.0	3.2	3.2
Wholesale and retail trade and hotels and restaurants	13.1	12.6	12.1	11.7	11.4	11.4	11.2	11.0	11.8	11.8	11.8	12.4	12.7	12.0
Transport and communication	7.8	7.7	7.8	7.1	7.2	6.4	6.3	6.2	6.0	6.0	6.0	5.9	5.9	5.7
Finance, insurance, real estate and business services	9.4	9.9	10.6	10.9	11.5	12.3	12.6	12.6	13.2	12.6	12.5	12.5	12.3	12.2
Public administration and other services	10.8	13.4	13.6	15.2	15.1	15.5	15.0	14.9	12.8	12.4	12.2	12.2	12.1	11.9
Imputed bank service charge	-1.9	-2.2	-2.3	-2.3	-2.7	-3.1	-3.3	-3.3	-3.5	-3.3	-3.4	-3.3	-3.5	-3.8
TOTAL	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0

Source: National Accounts of Tanzania 1976-90, September 1991.

a/ UNIDO database.

US\$ 988 million, a 24 per cent increase over a period of five years¹. As a result of insufficient foreign exchange earnings and high debt repayments, the country cannot afford to purchase sufficient quantities of essential imports. This also has a negative impact on the performance of the manufacturing sector.

Tanzania is heavily dependent on external assistance for financing development. The Government's development budget is largely or wholly financed from foreign sources. In 1990, foreign assistance amounted to at least US\$ 956.2 million, the equivalent of almost 47 per cent of GDP². In the context of the present study, support to education and training is an important aid category.

The figures in Table 1 relate to formal sector GDP only. The (estimated) contribution of the informal sector to GDP was approximately 32 per cent of formal sector GDP in 1991³. Within the informal sector as such, the most important sub-sectors are trade, restaurants and hotels; transport; and agriculture and fisheries. When the formal and informal economy are taken together, the informal sector accounts for the greater share of value added in personal services, trade, and manufacturing (59 per cent, 56 per cent and 74 per cent, respectively). Informal manufacturing, in other words, plays a more prominent role in the Tanzanian economy than formal manufacturing.

1.2 Formal and informal sector employment

According to the latest Labour Force Survey, there were 10.9 million economically active Tanzanians in 1990/91⁴. The most recent detailed breakdown by occupational category which was available dates back to 1988 (Table 2); it seems unlikely that there has been a significant shift among occupations in the meantime.

¹ Tanzanian Economic Trends, Vol.4 No.3/Vol.4 No.4, October 1991/January 1992, p. 60.

² UNDP - Development Co-operation Tanzania, 1990 Report, Dar Es Salaam 1992, p.31-32; ILO/JASPA - Tanzania, Meeting the Employment Challenge, Addis Abeba, March 1991, p. 22.

³ Planning Commission/Ministry of Labour and Youth Development - Tanzania, the Informal Sector 1991, Dar Es Salaam n.d., p. 1/14. This study is restricted to private sector enterprises with 5 employees or less. Agricultural activities were only included if they took place in urban areas and were not purely subsistence activities.

⁴ Planning Commission/Ministry of Labour and Youth Development, op. cit., p. 1/5.

Table 2. Economically active population by major occupational groups, 1988 (in thousands)

Occupation	Total		Rural		Urban	
	W	M	W	M	W	M
Cultivators	4,591	3,656	4,136	3,359	455	297
Craftsmen	22	206	7	60	15	146
Clerks	47	58	8	17	39	41
Professionals	88	244	41	111	47	133
Administrators	6	36	2	16	4	20
Agriculture	7	30	4	18	3	12
Mixed farm	336	425	324	400	12	25
Service	106	164	40	46	66	118
Small-scale traders	104	276	24	79	80	197
Other workers	38	61	22	31	16	30
TOTAL	5,345	5,156	4,608	4,137	737	1,019

Source: 1988 Population Census.

The predominance of agriculture is clear. All categories of agricultural employment combined accounted for 92 per cent of the economically active female population and for 80 per cent of the economically active male population. Males are far better represented in non-agricultural employment, particularly in crafts, trading and the professions. Outside agriculture, the public sector is a major provider of employment. As in other Sub-Saharan countries, educational and cultural obstacles limit access of women to the more dynamic economic activities. Approximately 120,000 persons, 8.8 per cent of the economically active population, were employed in manufacturing in 1988.

The labour force is growing rapidly: by 1992/93 it was expected to have increased to 12.3 million, an increase of almost 18 per cent over 1988. During the same period, formal sector (wage) employment was expected to increase by 5 per cent to 933,200⁵. This means that the gap between the growth of the labour force and that of formal sector employment is no longer increasing as fast as in the preceding period of economic stagnation. But even if continued economic growth is assumed, a major overall increase in demand for

⁵ Human Resource Planning Division, National Planning Commission - unpublished report on the Second Five Year Human Resources Development Plan, p. 48.

formal sector employees will only take place in the long run, for there is a freeze on public sector employment (which may be followed by employment cuts, just as in the 1980s) and much slack in the form of underemployment in factories, etc. Subsistence agriculture has a limited capacity for providing gainful employment to labour force entrants.

It is therefore not surprising that the informal sector has grown strongly and will most probably continue to do so. The sector employed almost 2.4 million people in 1991 (see Table 3), or 22 per cent of the economically active population. In urban areas, the informal sector even accounted for 56 per cent of the economically active population.

Table 3. Informal sector employment by occupation group in 1991

Occupation group	D'Salaam TOTAL	Other urban TOTAL	Rural TOTAL	Total		TOTAL
				Male	Female	
Small business managers	15,852	19,187	42,814	70,773	7,080	77,853
Professionals	0	0	0	0	0	0
Associate professionals	2,367	7,974	18,439	24,816	3,964	28,780
Clerks	503	136	0	282	357	639
Service/Shops	74,171	167,462	344,871	256,260	330,244	586,504
Agriculture - skilled labour	10,712	53,220	131,350	177,346	17,936	195,282
Craft etc. workers	65,081	114,402	495,807	549,225	126,065	675,290
Plant/Machinery - operators	2,178	8,880	43,792	53,125	1,725	54,850
Sales personnel/Labourers	145,094	262,884	342,204	399,267	350,915	750,182
TOTAL	315,958	634,145	1419,277	1531,094	838,286	2369,380

Source: Planning Commission/Ministry of Labour and Youth Development, Tanzania, the Informal Sector 1991.

The labour force in the informal sector largely consists of men. (Self-)employment is heavily concentrated in the category trade, restaurants and hotels; this usually means selling drinks and food from wayside stalls. The activities of males tend to be more diversified than those of women. For both men and women, however, informal manufacturing is the second most important activity. In the late 1980s, some 55 per cent of the informal sector labour force were under 25, and almost 29 per cent of the entrepreneurs in the sector were in that age category. This illustrates the rapid growth of the economically active population in recent years.

2. EDUCATION AND TRAINING - AN OVERVIEW

2.1 General education

There has been a dramatic increase in the level of literacy in Tanzania since Independence. In 1961, only 20 per cent of the population was literate, and literacy was very uncommon among women; in 1986, the figures for female and male literacy were 88 per cent and 93 per cent, respectively. Apart from major efforts to provide compulsory primary school education, the high literacy level was also reached through adult literacy programmes in which millions of people, predominately women, have participated during the past decades.

As shown in Table 4a, almost equal numbers of girls and boys are now enrolled in primary schools (most of which are run by the Government). Many children, however, do not attend the full seven years of primary school: enrolment in class VII is only about one-half of enrolment in class I. This is blamed on poor facilities and the perceived lack of relevance of primary education, for "the bulk of primary school leavers...join the pool of the unemployed"⁶. Plans to include subjects in the primary school curriculum which would help to prepare pupils for (self-)employment have apparently not been realized yet. Some primary school leavers follow courses in bookkeeping, crafts, etc., in the so-called folk development colleges, but as a proportion of the total number of primary school leavers the number of those who enroll in these courses is relatively small (15,191 in 1991)⁷.

Only a fraction of those who finish primary school receive secondary education, although the numbers have increased considerably over the past decade. In 1990, 145,000 students were enrolled in secondary schools, as Table 4b shows. The share of female students is much lower than that of male students, but the figures are becoming more balanced, especially in the private schools. Dropout rates are fairly high: in 1990, the number of pupils in form IV was 30 per cent lower than in form I, with dropout rates among females exceeding this figure. Secondary education can be continued for another two years, but the number of those who pass final examinations after form VI, although steadily increasing, was only 4,993 in 1990⁸.

⁶ ILO/TASPA, Tanzania, Meeting the Employment Challenge, Addis Abeba, March 1991, p. 70.

⁷ Op. cit., p. 69.

⁸ Bureau of Statistics - Education and Training Statistics 1990, Dar-es-Salaam 1992, p. 23, 37.

Table 4a. Total enrolment in primary schools, 1988 and 1990
(in thousands)

Level (Std)	Enrolment			
	1988		1990	
	W	M	W	M
I	284	291	304	314
II	244	266	273	283
III	234	239	251	266
IV	295	283	267	274
V	177	176	205	203
VI	153	154	215	209
VII	187	180	157	156
TOTAL I-VII	1,574	1,591	1,674	1,705
%	49.7	50.3	49.5	50.5

Source: Ministry of National Education.

Table 4b. Students in secondary schools, 1982-1990

Year	Public			Private		
	Total ('000)	W (%)	M (%)	Total ('000)	W (%)	M (%)
1982	39	32	68	30	38	62
1983	40	32	68	31	39	61
1984	41	32	68	33	40	60
1985	42	32	68	41	41	59
1986	43	33	67	48	43	57
1987	46	34	66	58	44	56
1988	50	36	64	68	45	55
1989	57	39	61	75	45	55
1990	62	37	63	83	46	54

Source: Ministry of National Education.

Although the number of those who complete secondary school is relatively low, only one-half of the students who have completed secondary education are able to find employment or to get a placement in an institute of higher learning at present. While limited demand in the labour market partly explains the problem, high levels of unemployment among secondary school graduates are also the result of a lack of subjects in the curriculum which are relevant to employment; an ILO/JASPA study also criticizes the attitude of parents and students, which is "geared towards reaching university level education"⁹ rather than the acquisition of immediately useful knowledge and skills.

Measures are being taken to encourage students to take more science-based subjects. Attempts are also made to "vocalize" secondary education, introducing a choice of curriculums oriented towards agriculture, commerce, etc. But the general curriculum is apparently not much affected by these changes as yet, and "vocalization" has not been introduced in forms V and VI. Nor are there sufficient teachers for this reorientation of secondary education: in early 1993 the country's secondary schools were, among others, short of 237 science teachers - a high number, given that there are only 328 secondary schools. The gap is only partly filled by (expensive) overseas volunteers¹⁰.

Tertiary-level education includes universities and non-university institutions; the latter will be discussed in Section 3.2. Due to limited resources, universities have only been able to place half of the qualified applicants for in recent years, and post-graduate studies are available in few faculties. The two universities (Dar Es Salaam and Sokoine) had 3,327 students in 1989, of which only 17 per cent were women (see Table 5). There does not appear to be a trend towards increased female participation. Women were only equally represented, or overrepresented, in nursing and home economics/nutrition - typical "female" subjects. They are conspicuously underrepresented in the more technical subjects, such as engineering.

University education is also criticized for not being sufficiently adapted to the requirements of the labour market. In spite of the modest numbers of graduates, those with a liberal arts background have long had difficulties finding employment, while there is a shortage of graduates in a number of science fields¹¹.

⁹ ILO/JASPA, op. cit., p. 73. The quotation actually refers to the situation in Zanzibar, but the attitude is common on the mainland as well.

¹⁰ Bureau of Statistics - Tanzania in Figures 1991, Dar Es Salaam 1991, p. 13; Daily News, January 23, 1993, p. 3.

¹¹ ILO/JASPA, op. cit., p. 76-77.

Table 5. Enrolment at the University of Dar-es-Salaam and Sokoine, 1989

Course	Total enrollment	Female enrollment	% Female to total enrollment
1. B.A. Gen.	592	122	20.6
2. B.A. Educ.	364	96	26.4
3. B.Sc. Gen.	119	20	16.8
4. B.Sc. Educ.	243	45	18.5
5. B.Sc. Geo.	34	1	2.9
6. B.Sc. Engin.	612	31	5.1
7. M.D.	192	42	21.9
8. B. Pharm.	66	17	25.8
9. L.L.B.	197	49	24.9
10. B. Com.	358	73	20.4
11. D.D.S.	38	7	18.4
12. B.Sc. Agr. Engin.	18	0	0
13. B.Sc. Nursing	6	3	50
14. B.Sc. Agr.	231	29	12.6
15. B.Sc. For.	75	1	1.3
16. B.Vet. Management	65	8	12.4
17. B.Sc. home Ec. & Nut.	27	17	62.9
18. B.Sc. Food Sc. & Tec.	50	6	12.0
19. B.Sc. Agr. Eng.	40	1	2.5
TOTAL	3,327	568	17.1

Source: Calculated from Basic Education Statistics in Tanzania, 1985-1989, Ministry of Education.

2.2 Technical education and vocational training

Tanzania has a large institutional capacity for vocational training. Table 6 shows that a total of almost 70,000 students can theoretically be placed in the relevant institutions. The Table excludes some institutionalized forms of training such as the technical training provided by the Army (sometimes quite extensive and also available for women). Post-primary technical centres, which predominantly provide training for the informal sector, account for more than 70 per cent of the available capacity.

The Table also shows that in most institutions actual capacity utilization is quite low. The post-primary technical centres had an annual enrolment averaging 4,200 in the late 1980s. The folk development colleges, with their modest capacity, have comparatively speaking done much better than these, and show a high rate of female participation (40 per cent). Low utilization rates

Table 6. Technical education and vocational training, late 1980s

Institution	Capacity	Annual enrolment	Annual output
<u>Predominantly training for the formal sector:</u>			
Technical Secondary Schools	3,580	790	780
TAPA technical schools	8,000	2,000	1,700
Mission trade schools	2,300	700	665
Company and parastatal schools	250	210	200
Vocational training centres	2,250	2,250	2,140
SUB-TOTAL	16,380	5,950	5,485
<u>Predominantly training for the informal sector:</u>			
Post-primary technical centres	50,000	4,200	3,570
Folk development colleges	3,600	2,600	2,210
TOTAL	69,890	12,750	11,265

Source: ILO/JASPA, Tanzania - Meeting the Employment Challenge, March 1991, p.84.

were also recorded by the Technical Secondary Schools and by the most important training centres for the formal sector in terms of capacity, the TAPA technical schools (set up by the Tanzanian Parents Association, a branch of the ruling party Chama Cha Mapinduzi). In terms of actual output, the Government's vocational training centres are by far the most successful institutions for the formal sector, with an annual average of 2,140 students completing courses in the late 1980s; 20 per cent of the students are women. The centres are used to full capacity.

The low enrolment and output figures of the post-primary technical centres are blamed on lack of resources. Many of them are evidently not functioning, others are not located where there is strong demand for their services. The main problem for those who complete courses at the informal sector training institutions seems to be that the financial obstacles to setting up an enterprise are often insurmountable. Therefore the skills acquired tend not to be used. The centres focus on teaching a number of basic technical (carpentry, masonry, metalworking), agricultural and housekeeping skills; basic bookkeeping and other management skills are

apparently not taught. For a successful enterprise, these would be essential.

The national vocational training centres (NVTCS) offer courses in construction skills, machine shop skills, vehicle repair, metalworking skills such as blacksmithing and other skills, varying from tailoring to electric motor rewinding. Action is being taken to further expand the range of subjects, especially those with a services orientation such as office machine repairs, technical draughtsmanship and secretarial skills. This would also help to attract a greater number of women to the courses, and would go some way to reducing the shortages of non-technical skills which are relevant for business.

NVTC training is usually followed by in-house training in firms, implying that a high percentage of NVTC students find jobs, which reflects well on the relevance of this type of training. The reverse also takes place, with apprentices following evening courses at the NVTCS. These courses are also taken by a growing number of informal sector workers. There was no information which would explain the rather dismal performance of the technical secondary schools or the TAPA schools.

The 1991 ILO/JASPA study identifies the following main shortcomings of Tanzania's vocational training system¹²:

- Insufficient facilities, especially for informal sector training;
- Lack of co-ordination among training institutes and inefficient use of funds (better co-ordination could help to make more of the limited human and material resources);
- Curriculums in some of the institutions which are not properly adapted to the (expected future) needs of the economy (there are, e.g. few opportunities for training in entrepreneurial/management skills);
- Few systematic evaluations of training results.

At the tertiary level, there are a number of college-level training institutes, of which in the present context the Institute of Finance Management, the Institute of Development Management, the College of Business Education and the Cooperative College and the three Technical Colleges are the most relevant. These teach various subjects related to business administration, accountancy, etc. Some post-graduates courses are available. The average annual number of graduates in these subjects was 1,518 during 1987/88-1991/92 (see Table 7).

¹² ILO/JASPA, op. cit., p.92-95.

Table 7. Tertiary training institutions - average graduate output by sector, 1987/88 - 1991/92

Sector	<u>Certificate</u>		<u>Diploma</u>		<u>Advanced diploma</u>		<u>Post-graduate</u>		<u>Totals</u>	
	Number	%	Number	%	Number	%	Number	%	Number	%
Agriculture	131	2.86	613	23.62	-	-	-	-	744	9.55
Education	2,592	56.64	991	38.19	-	-	-	-	3,583	45.97
Health	254	5.55	397	15.30	107	18.67	-	-	758	9.73
Manufacturing	273	5.97	-	-	41	7.16	-	-	314	4.03
Transport/Communication	127	2.78	72	2.77	38	6.63	-	-	237	3.04
Business/Management	898	19.62	332	12.79	264	46.07	24	48	1,518	19.48
Others	301	6.58	190	7.32	123	21.47	26	52	640	8.21
TOTAL	4,576	100.0	2,595	100.0	573	100.0	50	100	7,794	100.0

14

Source: ESAURP: Tertiary Training Capacity in Tanzania, Dar-es-Salaam, 1992 (draft).

According to several sources, tertiary training is - the wide range of courses notwithstanding - inadequate for the requirements of a liberalized economy. More people are needed with an entrepreneurial spirit and sophisticated technological and managerial know-how. "...It appears that training programmes offered by tertiary training institutes are geared to preparing students to be job seekers rather than job creators...it was also revealed that tertiary training programmes do not seem to prepare graduates adequately to adapt to changing professional demands"¹³. This implies, among others, that the ability to innovate or to assimilate imported technologies is not developed either¹⁴.

The shortcomings of the educational and training system are partly a consequence of the country's shortage of financial resources. But the limited resources could be used more effectively if the overall framework for HRD improved. The next section will concentrate on the policy aspects of HRD.

2.3 Policies and development assistance for HRD

A coherent HRD policy was formulated for the first time in 1983 when the Human Resources Deployment Act was passed. This law was formulated in reaction to the negative impact of the worsening economic situation on the (formal sector) labour market. The basic activities foreseen under the law are:

- creation of an information base on HRD and employment issues;
- establishment of a human resources planning system;
- promoting and co-ordinating activities relevant to HRD and employment generation.

According to the ILO/JASPA study quoted before, the Act is virtually a "dead letter" because of underfunding. This has also slowed down the development of a co-ordinating/planning machinery at government level (Ministry of Labour and Youth Development, Ministry of Education and Culture). Tight government budgets have been the norm during the past decade, in the wake of the Structural Adjustment Programme (1982/83) and the National Economic Survival Programme (1986/87-1988/89), which played an important part in reorienting the economy towards private enterprise.

¹³ ESAURP - Tertiary Training Capacity in Tanzania - a Report to the Planning Commission, United Republic of Tanzania, Dar-es-Salaam 1992 (draft report), p. 284.

¹⁴ S.M. Wangwe, Building Indigenous Technological Capacity: a Study of Selected Industries in Tanzania, Paper presented at the Workshop on Alternative Development Strategies in Africa, Oxford, 11-13 Dec. 1989, p. 30.

While continuing to emphasize economic growth, the Economic and Social Adjustment Programme which was implemented from 1989/90 to 1991/92, does give more attention to social issues, including education. Building up local capacity to manage development is a priority. This will increase demand for higher-level management skills. Most schools however remain desperately underfunded - the allocation to primary schools, for example, was only 30 per cent of the amount needed in recent years¹⁵. The share of the budget spent on education has remained almost unchanged during the past two decades, standing at 12.4 per cent in 1988/89. With a growing population of school-going age and of a growing need for higher knowledge and skill levels, per capita spending on education (in real terms) spending has declined by more than 40 per cent¹⁶.

The Government has shifted some of the financial burden of education to the parents by introducing school fees in 1984. This resulted in a considerable drop in primary school enrolment during the second half of the 1980s as the financial burden proved to be too much for many parents. The improvement in attendance figures is probably related to the modest increase in rural incomes. The (much higher) fees for further education have had no clear impact on enrolment; indeed, the relatively expensive private secondary schools show much higher enrolment growth figures than the public schools¹⁷. Evidently, most of those who continue after primary education come from families which are somewhat better off.

The Second Five Year Union Human Resources Development Plan (1987/88-1992/93) constitutes the most recent attempt to forecast supply and demand of human resources in the formal sector. It assumes that wage employment will increase from 733,000 in 1988 to 933,200 in 1993 (see Table 8). According to the Table the formal sector demand for primary and secondary school graduates will be saturated by 1993; only college or university degrees would still be in short supply. Human resource requirements were expected to grow fastest in the primary sector (4.2 per cent per annum - excluding mining); 4.3 per cent in manufacturing; and by 8.8 per cent in social services including public administration.

The basis for most of the projections is not clear, and with hindsight the demand growth figures seem extremely optimistic. Most primary school leavers are unemployed - yet the Table still shows a shortfall in this category in 1988. Unemployment is common even among university graduates, but the projections indicate a shortage in this category too. The civil service has been subject to

¹⁵ ILO/JASPA, op. cit., p. 78.

¹⁶ ILO/JASPA, op. cit., p. 16.

¹⁷ Bureau of Statistics - Education and Training Statistics, p. 22.

Table 8. Summary of manpower demand and supply in the wage sector

Year	Item	Category				Total
		A	B	C	D	
1988	Demand	26,015	152,931	233,891	380,580	799,819
	Supply	22,391	132,533	215,780	362,296	733,000
	Shortfall	3,624	20,398	18,111	18,284	66,819
1993	Demand	28,874	163,506	250,641	490,179	933,200
	Supply	27,303	160,484	250,641	490,179	928,607
	Shortfall	1,571	3,022	-	-	4,593

Source: Ministry of Finance, Economic Affairs and Planning.

Note: Category A: University graduates and advanced diploma holders.
 B: Certificate and ordinary diploma holders.
 C: Secondary school graduates.
 D: Primary school (grade VII) leavers.

personnel cuts or at best recruitment stops. If there has been recruitment for higher-level specialisms, to reduce dependence on non-citizens for economic management, this cannot have resulted in much employment growth. The growth figure for the manufacturing sector seems too high as well. Underemployment seems to be a problem at the lower skill levels, and the only real need would have been for middle and higher-level technicians and managers in the context of revitalization programmes, if these were accompanied by a localization drive (in 1990/91, 17.5 per cent of all engineers were still non-citizens¹⁶).

An aspect of industrial human resource requirements which so far has received little attention is the longer-term effect on industrial employment of growth in other sectors: what will be the effect of continued growth in agriculture on domestic production of consumer and producer goods?; will the furniture industry benefit from growth in the tourism industry? Much remains to be done, in

¹⁶ ILO/JASPA, op. cit., p. 274.

other words, to ensure a realistic assessment of Tanzania's future human resource needs, and to adapt the educational system in accordance with these needs and with the available resources.

The (limited) documentation on the Second Five Year Union Human Resources Plan makes few references to the informal sector. Obviously, the scope for human resource planning is limited in this case. But there is an awareness of the need "...to increase the skill capabilities of the people in this sector so that they can cope with the changing technology...[and] manage their affairs more efficiently"¹⁹. This awareness is important as the present human resource projections obviously overestimate the formal sector's capacity for absorbing labour force entrants. It should help to ensure that the present efforts to upgrade the informal sector's labour force through education and training continue and are stepped up where necessary.

The shortage of local resources has emphasized the role of development assistance in the field of education and training. In 1990, HRD amounted for US\$ 66.9 million, or 7 per cent of total aid. This figure excludes the often considerable training component in projects in other fields. Technical and managerial training and education have long been the most important category of external assistance for HRD, accounting for almost 40 per cent of expenditure. This priority was retained in 1991, but total expenditure on HRD projects was expected to decrease to US\$ 49 million. The decrease in development assistance was a general one, and HRD was in fact less affected than other assistance sectors, health excluded²⁰.

¹⁹ Human Resource Planning Division, National Planning Commission, op. cit., p. 50.

²⁰ UNDP, Development Co-operation Tanzania, 1990 Report, Dar-es-Salaam, 1992, p. 37-47.

3. THE TANZANIAN MANUFACTURING SECTOR AND ITS HUMAN RESOURCE REQUIREMENTS

3.1 The manufacturing sector - main characteristics and development trends

During the 1980s, the decline of the (formal) manufacturing sector was steeper than that of the economy in general, its GDP share (in real terms) decreasing from 12 per cent in 1977 to 7.6 per cent in 1987 (see Table 1). Liberalization of the economy has had positive effects on industrial production in the past five years (due to, among others, improved access to foreign exchange, a better supply of domestic agricultural inputs and greater consumer demand), the sector's GDP share reaching 8 per cent in 1991. The most important sub-sectors in formal manufacturing are food processing and beverages, textiles and leather, and chemicals. In 1988, these accounted for 19.2 per cent, 16.4 per cent and 20.7 per cent of MVA, respectively (see Table 9).

Industries using relatively advanced technologies are rare. The chemicals sub-sector, for example, mainly produces fairly unsophisticated products like fertilizers and soap; and there are only a few enterprises in the electrical goods branch. Electrical, non-electrical machinery and motor vehicle production together accounted for only 6.9 per cent of MVA in 1988. Close to 40 per cent of all industrial establishments and employment are found in and around Dar Es Salaam²¹. The manufacturing sector depends heavily on imported raw materials, spare parts and machinery.

There is, at present, no comprehensive industrial strategy which formulates clear long-term sub-sectoral priorities; the recovery programmes of the past years, taking account of foreign exchange shortages and sluggish demand, have emphasized rehabilitation rather than new investment; within this overall priority, the emphasis is on industries which:

- Generate foreign exchange and/or government revenue;
- Produce basic consumer goods;
- Help to increase the supply of raw materials and intermediates (this includes transport equipment, agricultural supplies, etc).

To reduce the effects of foreign exchange shortages an allocation system for essential imports has been established by the Government. This system strongly favours the chemicals/petroleum and metal-working/equipment sub-sectors, which are more import-dependent than, for example, the agro-based industries; they are possibly also considered priority industries for future industrial

²¹ Bureau of Statistics, Survey of Industrial Production 1988, Dar-es-Salaam n.d, p. 1-3, 10-12, 25-30.

Table 9. Number of establishments, gross output and value added in industry by ownership, 1988

ISIC code	Industrial activity	Number of establishments		Gross output		Value added	
		Public	Private	Public	Private	Public	Private
311-312	Food manufacturing	63	82	6022,931	1380,946	957,202	446,491
313	Beverage industries	4	13	1236,225	961,141	462,442	313,038
314	Tobacco manufactures	3	-	4002,793	-	1246,194	-
321	Textiles	51	34	7979,528	2658,106	1162,261	612,822
322	Wearing apparel except footwear	2	48	51,381	396,433	21,899	54,937
323	Leather and products except footwear	7	7	382,063	38,980	88,695	5,022
324	Footwear-Leather	3	11	560,178	50,833	97,636	11,514
331	Wood and wood products except furnitures	18	47	495,457	290,242	180,543	93,200
332	Wooden furniture and fixtures	6	51	21,990	376,790	7,627	77,792
341	Paper and paper products	3	7	671,406	898,332	186,093	165,298
342	Printing and publishing	2	50	347,182	964,074	92,140	203,333
351	Industrial chemicals	4	6	2187,021	1335,916	1161,910	413,166
352&353	Other chemical products and petroleum refineries	5	38	971,671	2383,299	228,762	410,372
355	Rubber products	1	8	1784,612	112,396	112,502	26,310
356	Plastic products n.ec.	-	5	-	312,766	-	133,815
361, 362 & 369	Pottery, china, glass, non-metallic products	9	10	2070,534	929,873	386,396	259,073
371&372	Iron, steel and non-ferrous metals	6	-	4023,861	-	394,412	-
381	Fabricated metal products except machinery and equipment	9	40	591,355	1073,755	189,455	339,624
382	Machinery except electrical	3	9	216,051	64,057	68,888	26,478
383	Electrical machinery apparatus and supplies	3	8	256,926	454,525	56,996	73,119
384	Transport equipment	3	20	283,062	2739,078	55,492	502,220
385&390	Other manufacturing industries	4	8	131,299	49,877	17,651	15,053
3	TOTAL manufacturing	209	502	34287,526	17471,419	7175,196	4182,677

Source: Bureau of Statistics, Survey of Industrial Production, 1988.

growth²². Additionally, a number of manufacturing industries benefit from import support programmes financed by aid agencies. In spite of this, growth has been slow, and capacity utilization rates are in many cases still below 30 per cent. This is a result of limited demand and of a number of obstacles which remain in the regulatory environment; but improvements in industrial management and skills are also essential.

Formal sector industry is still characterized by large-scale parastatals, in spite of the liberalization and privatization trends. Public sector enterprises accounted for 63 per cent of MVA in 1988. Parastatals have generally been loss-making since the late 1980s, and their 1988 average MVA/worker was well below that of private sector manufacturing firms (Tshs 90,600 versus Tshs 119,500)²³. The latter are usually small or medium-scale enterprises. At the sub-sector level, parastatals accounted for the greater part of production in the food processing, textiles and chemicals (see Table 9). Small and medium-scale firms play a strong, though not always dominant role in food processing, wearing apparel, wood products and furniture, printing and publishing, other chemicals and fabricated metal products (except machinery).

Formal sector small and medium-scale industrial enterprises (SMI), defined as having up to 100 employees, accounted for 14 per cent of industrial output in 1988, and 15 per cent of the industrial labour force. This rather low figure is to a large extent due to the obstacles put in the way of private enterprise in the past, and the priority given to large-scale capital-intensive manufacturing. The contribution of SMI to (manufacturing) development could be much larger because:

- The barriers to entry in the SMI sector are relatively low, which would help to spread employment and income effects;
- They use less foreign exchange and do more to stimulate the development of linkages, as they mainly rely on local resources;
- Successful SMIs can serve as a stepping stone in competence building for larger-scale industries.

²² UNIDO - Trends in Industrial Automation, PPD.231 (SPEC.), Vienna 1992, p. 271.

²³ Bureau of Statistics, Survey of Industrial Production, p. 49, 51; Bureau of Statistics, Analysis of Accounts of Parastatal Enterprises 1989, Dar-es-Salaam 1991, p. 17.

Liberalization has led to a "surge in SME activity"²⁴. The Government has also created a niche for SMI by prohibiting foreign investment under US\$ 250,000 in a number of activities, including bakeries, tailoring, leather goods and furniture for the domestic market. Limited evidence however suggests that several obstacles to SMI growth still remain, the most important ones being access to finance (banks are often reluctant to provide loans on account of lacking collateral, absence of accounting systems, and high overhead costs for small loans); bureaucracy (for small enterprises, the efforts and money spent on complying with licensing/tax regulations are a comparatively heavy burden); and the shortage of appropriate production sites²⁵. Both the Government (through the Small Industry Development Organization - SIDO) and donor agencies are making efforts to remove these obstacles and stimulate SMI, but progress has been slow²⁶.

The figures on formal sector manufacturing in this chapter refer to establishments with 10 or more employees. This could explain the large difference between the 1988 MVA figures in the Survey of Industrial Production and in the Tanzanian Economic Trends Quarterly: Tshs 11,358 million versus Tshs 15,187 million, a difference which seems to be too large due to statistical error. The latter document's tabulations on the composition of GDP presumably cover the whole formal sector, which would include firms with six to nine workers. These would then account for Tshs 3,829 million in terms of MVA - almost as much as the combined MVA of all private firms with 10 or more workers. There was unfortunately very little recent documentation on enterprises in this size category, which evidently play an important role in manufacturing. In many respects, they probably have the characteristics of informal sector enterprises.

The informal sector makes a major contribution to manufacturing which until recently was hardly recognized. A recent report on the sector shows that in 1991, informal sector MVA was estimated at Tshs 29,800 million, or 144 per cent of formal sector MVA. Half of the informal sector MVA is generated in urban areas (only 18 per cent in the capital city) although the establishments are overwhelmingly located in rural areas. Wood processing, mat and fibre making and tailoring are the major activities; food processing is of comparatively minor importance, ranking fifth

²⁴ World Bank - Obstacles to Developing Small and Medium-Sized Enterprises, Washington D.C. 1991, p. 3.

²⁵ Ibid, p. 10.

²⁶ For an evaluation of some SMI support programmes, see for example: Swedish Development Consulting Partners AB - Evaluation of SIDA Supported Small Industry Programmes in Tanzania, n.p. 1991 (hereafter: SIDA Report).

among the various branches, behind pottery. With tailoring, it is a more or less typical urban activity; the other activities are more typical for rural areas. The larger/more remunerative operations tend to be located in urban areas: there, MVA per capita was Tshs 112,800 in 1990, three times the level of informal MVA per capita in rural areas²⁷.

It is hardly surprising that value added levels in the informal sector are not particularly high. But it should be kept in mind that only some 40 per cent of all informal enterprises operate during the whole year²⁸. Yet a comparison of urban informal sector workers with workers in parastatals located in urban areas shows that in 1990 the latter's MVA was barely twice as high; an indication of the inefficiency which prevails in the parastatal sector.

The informal sector shares a number of characteristics and problems with small-scale industry. Characteristics like easy entry, widely diffused employment and income effects, and reliance on local inputs and markets are even more pronounced. Among the obstacles, the one most frequently mentioned is insufficient access to capital. As informal enterprises are home base and not registered, lack of business sites and government regulations are not often seen as an obstacle. But getting proper equipment and spare parts is a problem, especially for the less prosperous enterprises in the more remote areas. Finally, lack of customers is often mentioned by entrepreneurs - the buying power of the population is small, and the number of enterprises large. But in spite of the obstacles which entrepreneurs face, manufacturing enterprises tend to be the most stable of all informal sector establishments: more than one-third of them had been active for more than 10 years in 1991²⁹.

While industrial growth would benefit from further improvements in the business environment, buying power in the domestic market will remain limited, and Tanzanian entrepreneurs will increasingly have to look for export opportunities. In these markets, but also in the liberalized domestic markets, the enterprises will be confronted with heavy competition. The implication is that cost efficiency, product quality, timely delivery, innovativeness, better and faster response to market developments, and after-sales services will acquire greater significance. This again emphasizes the need to improve management methods and to enhance management and labour force skills in the

²⁷ Planning Commission/Ministry of Labour and Youth Development, op. cit., p. 1/14, 1/17, 1/23.

²⁸ Ibid., p. 1/25-1/26.

²⁹ Ibid., p. 1/25.

manufacturing sector, issues which firms do not always consider urgent at present.

3.2 Employment

The formal manufacturing sector employed 114,163 persons in 1988 (see Table 10), the employment trend being lightly upwards in spite of underemployment in many establishments. The industrial labour force is overwhelmingly male, both in the formal and informal sectors, as a consequence of cultural and educational barriers. The category craftsmen in Table 2, for example, which includes machine operators, consists almost wholly of males. At the higher levels, women are very rare: in 1980, for example, only 3 per cent of all engineers and managers in the Tanzanian economy were female³⁰.

Food manufacturing and the textiles industry are the most important employers, accounting for 57 per cent of the workforce. Employment is predominantly in large-scale enterprises, but medium-scale enterprises also employ a sizeable share of the industrial labour force. Most of the firms are parastatals. The other industrial branches employ a relatively small number of people. Among the remaining industries, tobacco, beverages, and non-metallic minerals are the most important. In these branches, most of the workforce is employed in large parastatals as well. Small-scale industries make their greatest contribution to employment in wood processing.

Informal sector manufacturing employed over 526,000 people in 1991³¹. The distribution pattern is radically different from that of formal-sector manufacturing because most establishments are found in rural areas, as indicated above. Self employment is the rule, and the upper limit for informal enterprises in employment statistics, five persons, is seldom reached. Details of employment by branch are shown in Table 11. Two activities usually categorized under services, electric and vehicle repairs, have been included because of their potential role in manufacturing development. The most important informal manufacturing activity is wood processing (carving, furniture making), followed by mat-making and fibre processing.

As in formal manufacturing, workers are overwhelmingly male, constituting 75 per cent of the labour force. Women predominate in only two activities: food processing and pottery making. In contrast to men, most women are unpaid family workers. Where

³⁰ Bureau of Statistics - Women and Men in Tanzania, Dar Es Salaam 1992, p. 44.

³¹ Planning Commission/Ministry of Labour and Youth Development, op. cit., p. 1/6.

Table 10. Persons engaged in industry by firm size, 1988

ISIC code	Industrial activity	10-19	20-49	50-99	100-499	500+	TOTAL
2	TOTAL mining and quarrying	151	252	456	1,897	3,029	5,785
311-312	Food manufacturing	514	1,225	1,964	5,916	22,811	32,430
313	Beverage industries	60	23	489	638	3,214	4,424
314	Tobacco manufactures	-	-	-	-	5,060	5,060
321	Textiles	154	263	760	9,435	22,005	32,617
322	Wearing apparel except footwear	396	93	734	740	480	2,443
323	Leather and products except footwear	56	66	254	1,089	-	1,465
324	Footwear-Leather	66	135	70	455	2,595	3,321
331	Wood and wood products except furnitures	317	819	421	1,968	-	3,525
332	Wooden furniture and fixtures	363	786	248	390	-	1,787
341	Paper and paper products	21	21	66	657	1,948	2,713
342	Printing and publishing	306	487	544	1,557	-	2,894
351	Industrial chemicals	-	66	224	493	845	1,628
352&353	Other chemical products and petroleum refineries	232	233	703	1,654	666	3,488
355	Rubber products	20	114	148	-	638	920
356	Plastic products n.ec.	17	46	78	363	-	504
361,362 & 369	Pottery, china, glass, non-metallic products	95	131	333	298	3,493	4,350
371&372	Iron, steel and non-ferrous metals	-	-	-	1,150	-	1,150
381	Fabricated metal products except machinery and equipment	183	419	729	1,891	627	3,849
382	Machinery except electrical	63	131	135	687	-	1,016
383	Electrical machinery apparatus and supplies	18	99	155	603	625	1,500
384	Transport equipment	64	91	400	1,551	-	2,106
385&390	Other manufacturing industries	86	42	84	257	504	973
3	TOTAL manufacturing	3,031	5,290	8,539	31,792	65,511	114,163

Source: Bureau of Statistics, Survey of Industrial Production 1988.

Table 11. Informal sector manufacturing employment by ISIC category, 1991

Industry	D'Salaam TOTAL	Other urban TOTAL	Rural TOTAL	Total		TOTAL
				Male	Female	
Food processing	5,696	5,065	31,176	15,642	26,235	41,877
Cloth making	16,488	24,164	51,997	71,539	21,110	92,649
Mats & fibre	4,559	6,636	98,549	61,619	48,125	109,744
Wood products	12,830	27,704	116,634	156,743	425	157,168
Charcoal making	0	1,211	21,150	20,407	1,954	22,361
Clay products	19	2,062	47,166	18,159	31,088	49,247
Metal products	2,362	9,604	21,049	32,455	560	33,015
Other manufacture	2,265	1,143	16,780	18,683	1,505	20,188
Electric repair	1,837	1,523	2,886	6,246	0	6,246
Vehicle repair	6,033	6,171	1,947	13,679	472	14,151

Source: Planning Commission/Ministry of Labour and Youth Development, Tanzania, the Informal Sector, 1991.

informal sector enterprises involve more than one person, key personnel (managers, etc.) is very rarely female.

Informal sector manufacturing is often a part-time occupation which is not the main source of income of an entrepreneur or employee. This is a major difference with the formal sector. Over 40 per cent of the enterprises operate only six months a year or less. Part-time manufacturing is most common in rural areas, where it provides work during the agricultural off-season²².

3.3 Major gaps in industrial skills and know-how

Figures on employment by skill level are very scarce for both the formal and the informal sector. But the increasing exposure of the industrial sector to foreign competition and the consequent need to improve industrial performance have made it clear that the formal sector lacks a sufficient number of qualified managers, higher-level technicians and personnel for essential industrial services such as R&D, repairs and engineering consultancy. Middle-level management also seems weak. The initial planning of large-scale industries - sugar and textiles constitute a particularly

²² Planning Commission/Ministry of Labour and Youth Development, op. cit, p. 1/25-1/26.

clear case - has been undertaken by foreign experts, with little local participation. Pressure from foreign donors and suppliers, political control over the larger enterprises, protectionist policies reducing exposure to competition and inadequate training facilities for the sector have militated against the building up of local expertise³³.

In the technology field, the country does have some innovative capacity. The universities offer technical and professional consultancy as well as R&D services³⁴: the Institute of Production Innovation at the University of Dar Es Salaam specializes in solar refrigeration, chemical engineering and food processing. R&D takes place up to prototype level, and there are close links with industry. The Sokoine University of Agriculture is among others involved on crop processing research and design of machinery. A non-university organization, the Tanzania Industrial Research Development Organization, is active in the fields of chemistry, chemical engineering and food technology. All these institutions suffer from a shortage of funds. Such R&D as took place in the large enterprises has been discontinued for lack of resources.

With regard to factory management, localization efforts have been made both by the Government and by individual industries. But the issue was not given enough attention, and progress has been slow. This is partly a result of the concern with everyday operations which has tended to overshadow the training and learning objectives. Consequently, local management has in a number of cases been unable to solve operational problems of enterprises, and foreign management and technical expertise had to be brought in once more. This is very evident in the rehabilitation programmes now being carried out, where the "same logic which inhibited local participation in pre-investment activities...seems to be replicated"³⁵.

The problems of a weak human resource base for industrial management have been compounded by the fact that during the past decades, the country has had a "command economy": the economy was largely run on the basis of government directives. Managers therefore have never really learned to manage independently, to be fully responsible for their work - especially in parastatals, where political control was very strong. Personnel management was one

³³ Some of these factors are discussed in S.M. Wangwe, Building Indigenous Technological Capacity: A Study of Selected Industries in Tanzania, paper presented at the Workshop on Alternative Development Strategies in Africa, Oxford, 11-13 Dec. 1989.

³⁴ ILO/JASPA, Tanzania, Meeting the Employment Challenge, Addis Ababa, March 1991, p.76.

³⁵ Ibid., p. 41.

area; as a consequence, overstaffing is common, as is the presence of workers who do not have the right qualifications. The scope for managerial action is increasing now, as the economy is becoming more liberal. But many managers seem ill-prepared - by training and experience - to deal with increased responsibility.

Apart from not having learned to act independently, managers in many Tanzanian enterprises do not seem to have learned teamwork. This is not a typical Tanzanian problem (although the "command economy", with its top-down lines of communication, was an additional obstacle to the emergence of horizontal co-operation among managers). It has been noted that in many LDCs, authoritarian management styles are common, and reviews of management issues in Africa have found that "many managers were 'disenchanted' with the way their enterprises were run by senior managers and were frustrated by the red tape involved"³⁶.

As a result there is, within most enterprises, no integrated approach to manufacturing - an integrated approach implies taking account, simultaneously, of supply, production, marketing, maintenance, personnel and financial management aspects. "Often, only managing directors or their equivalents are aware of [the importance of] these interdependencies for the whole organization"³⁷. Financial management would appear to be particularly weak. Long-term planning appears to have been virtually unknown; this has exacerbated supply problems, as inputs are not ordered long enough in advance.

The lack of attention to good internal organization has led to an underestimation of what a "healthy" organization can do under adverse external circumstances. This has resulted in a paralyzing fixation, among many managers, on the (admittedly difficult) external economic environment in Tanzania³⁸. As Tanzania's Principal Secretary of the Ministry of Industries and Trade has pointed out³⁹, "Improvement in management skills with regard to

³⁶ UNIDO - Training Industrial Managers in Least Developed Countries (LDCs), paper presented at the UNIDO Workshop on Industrial Development in the Least Developed Countries: Towards an Industrial Action Plan, Vienna 19-23 August 1991, p. 10.

³⁷ Ibid., p. 11.

³⁸ This attitude was very noticeable during the discussions at the Workshops on Industrial Management and Training, organized by UNIDO in co-operation with the Ministry of Industries and Trade and the Matsushita Electric Company (East Africa) Ltd., and held in Dar Es Salaam from 25-27 January 1993.

³⁹ In his Opening Speech at the Workshops on Industrial Management and Training, January 25, 1993.

optimum labour utilization, proper maintenance of machinery and equipment and effective quality control and marketing will result in improvement in the performance of many of our manufacturing firms."

One result of weak management is that workers are not motivated, even if material rewards - wages plus an incentive package - in the parastatals are often comparatively good. As they are not informed and cannot understand the way in which management operates, and are not inspired by the management, they do not acquire a feeling that their contribution to the company matters. Absenteeism is a major problem, and labour productivity is far lower than it could be.

The above is based on the experience of large-scale enterprises. There was little information on management and other HRD issues in the smaller enterprises. It is clear that in the future, better management and labour skills will also be needed by SMI, allowing it to maximize its contribution to industrial development by expanding its range of products and exploring new markets. This was not often perceived as an issue until recently, because of the limited scope for private enterprise. If any lack of skills was perceived, it was usually in the technical field. Managers usually care little for systematic in-house training, or feel that they cannot afford such facilities. This is in particular true for the smaller enterprises. SMIs also had (and have) more problems than the large-scale parastatals in getting government support for training. The Government however does have a commitment to SMI development and efforts are being made, in particular through SIDO, to provide training.

In the informal sector, the lack of more formalized managerial and technical skills is usually not seen as a major problem either because entrepreneurs are mainly concerned with everyday survival, and operate in a very limited market. But it is an obstacle to growth of the individual enterprises in this case as well. Better skills will also be needed by many of these small enterprises to defend their local market segments against the increasing stream of cheap imports from other, more advanced developing countries. Section 3.4 will discuss the matching of the supply and demand for human resources in more detail.

3.4 Human resources for industry: matching supply and demand

For the industrial sector, in-house training is probably the most important way of transferring skills and know-how to shop-floor workers. Few details are available on this type of training, but it seems likely that the weaknesses of the industrial management will have had a negative effect on the quality of in-

house training as well⁴⁰. In many cases, in-plant training in large and medium-scale enterprises is combined with evening classes at one of the NVTC centres. In 1988/89, 5,130 trainees participated in such evening courses.

As indicated above, the NVTC centres also offer full-time training, and the placement records are good. Much of the training is directly relevant to manufacturing (machine shop and metal working skills), but it is not clear from the available documentation whether courses in all the major lower-level skills required by the manufacturing sector are offered, or whether it is left to the companies themselves to provide training in skills not related to machining and metal working (for example for the important textile industries). The Technical Secondary Schools offer a fairly wide range of courses in relevant subjects (mechanical engineering, electrical engineering, draughtsmanship), but their output is very modest⁴¹. There was no other information on these schools. Middle-level management skills are apparently not taught.

Information on higher-level education and training is relatively plentiful. During 1988-1992, an average of 314 students graduated yearly from college-type technical education for the manufacturing sector (see Table 12). This type of education, with courses lasting from one to three years, is not provided beyond the post-graduate diploma level (which is actually one level below a bachelor's degree), but small numbers of students are enabled to pursue such studies in other countries. A much larger number of students graduated from business courses, which in many cases could provide potentially useful knowledge and skills for higher management positions (accounting, business administration, marketing)⁴². The manufacturing sector, of course, has to compete with other sectors for graduates from these courses, there being no special facilities for teaching industrial management.

A more detailed overview of college-level education and training for manufacturing is given in Table 13. It shows that

⁴⁰ A recent UNIDO mission gained an impression of the in-house training methods and programmes of the Matsushita Electric Company in Dar Es Salaam, a firm which is probably not representative for the average large-scale establishment. For details, see UNIDO - Industrial Management and Training in the United Republic of Tanzania: a Case Study of the Matsushita Electric Company (East Africa) Ltd., PPD.244(SPEC.), June 1993.

⁴¹ ILO/JASPA, op.cit., p.85-86.

⁴² ESAURP, Tertiary Training Capacity in Tanzania - a Report to the Planning Commission, United Rep. of Tanzania, Dar-es-Salaam, 1992 (draft report), p.111-113.

Table 12. Certification level by sector and gender, yearly average for 1988-1992

Sector	Award	Enrolment			Output		
		Male	Female	TOTAL	Male	Female	TOTAL
Manufacturing	Certificate	272	9	281	239	34	273
	Diploma	-	-	-	-	-	-
	Advanced diploma	83	8	91	34	7	41
	Post-graduate diploma	-	-	-	-	-	-
Business	Certificate	610	527	1,163	407	335	900
	Diploma	581	225	801	254	114	449
	Advanced diploma	127	47	174	101	32	133
	Post-graduate diploma	68	18	86	47	17	64

Source: ESAURP, Tertiary Training Capacity in Tanzania, (draft).

mechanical and electrical engineering were the most commonly taught subjects. There are also institutes for textiles and pottery; the latter however was not functioning. Total average enrolment was 372, against an intake capacity of approximately 550. Women constitute only a small minority of students and graduates; there is however a surprising concentration in electrical engineering and electronics/telecommunications, where they constituted 40 per cent of all graduates.

Apart from college-type education, relevant courses are also available at the University of Dar-es-Salaam. In 1990, the number of students of engineering and commercial studies was 605 and 356, respectively. Women represented only 5 per cent and 20 per cent, respectively, of the students enrolled in B.Sc.Eng. and B.Comm. courses. The average annual output of graduates in engineering is about 130 (37.5 per cent civil engineers, 25 per cent mechanical engineers, 12.5 per cent electrical engineers, 25 per cent chemical

Table 13 Tertiary level courses for the manufacturing industry, by institute and specialization: average yearly enrolment and output, 1988-1992

Sector Code	Profession	Award	Offering institution	Enrolment			Output			
				Male	Female	Total	Male	Female	Total	
MAN	22	TEXTILE TECHNOLOGY	M/S Mwater Textile Craft centre							
		Textile Technology		Cert.	6	-	6	6	-	6
		"		"	19	1	20	11	-	11
		"	"	37	4	41	37	4	41	
TOTAL				62	5	67	54	4	58	
	23	POTTERY/CERAMICS								
		Ceramic & Technology	Cert.	Mbeya Pottery Ceramic Inst.	-	-	-	-	-	
		Bricks & Textiles Manufacturing	"	"	-	-	-	-	-	
	24	GEOLOGY (MINERAL TECHNOLOGY)								
		Mineral Resources Technology	Cert.	Madini Institute	29	-	29	23	-	23
	25	ENGINEERING (INDUSTRIAL)								
		Civil Engineering	Cert.	Arusha Tech.Col	-	-	-	33	3	36
		PTC Civil Eng.	"	Dar Tech. Col	45	-	45	43	-	43
		Mechanical Eng.	"	TANESCO Tech. Inst.	-	-	-	8	-	8
		Mechanical Eng.	"	Technical College Dar	123	1	124	33	1	34
		Mechanical Eng.	"	Technical College Arusha	-	-	-	-	-	-
		Electrical Eng.	"	Arusha Tech.Col	-	-	-	15	16	31
		Electronics & Telec.Eng.	"	Dar Tech.Col	-	-	-	19	9	28
		Ind. Electronics Eng.	"	TANESCO Tech. Institute	7	2	9	5	-	5
TOTAL				175	3	178	156	29	185	
		Electrical Eng.	Adv.Dip	Dar Tech.Col	12	7	19	8	6	14
		Mechanical Eng.	"	Dar Tech.Col	53	1	54	8	1	9
		Civil Engineering	"	Dar Tech.Col	18	-	18	18	-	18
TOTAL				83	8	91	34	7	41	
	26	INDUSTRIAL TECHNOLOGY								
		Electrical & Electronics	Cert.	High Precision Tech. Centre	6	1	7	6	1	7
		Precision Metal Machining	"	HPIC	-	-	-	-	-	-
		Tool & Die Making	"	HPIC	-	-	-	-	-	-
		Pressed Parts Manufacturing	"	HPIC	-	-	-	-	-	-
TOTAL				6	1	7	6	1	7	

SOURCE: ESAURP - Tertiary Training Capacity in Tanzania (draft study).

and process engineers)⁴³. The Agricultural University at Sokoine offers B.Sc. courses in food technology as well as courses on the subject for outsiders.

By Tanzanian standards, graduates from tertiary training institutions usually have good employment prospects, some 75 per cent of both men and women being employed soon after graduation. The figure for those graduating from manufacturing-related courses however is lower, only 67 per cent of the graduates securing employment within a year; two-thirds of these need more than nine months to find work. Graduates in electrical engineering are a favourable exception in the category, with an employment figure of 73 per cent. The reason for the relatively low employment figure is apparently that the jobs offered through the government (which places most of the graduates) are unattractive, offering low salaries, low job security and few career opportunities. In the case of textile technologists, there was a shortage of employment opportunities⁴⁴.

While this reluctance to accept jobs in manufacturing indicates that the sector is still (perceived to be) a stagnating sector, it could also mean an absence of enterprising spirit among the graduates. Training apparently does not produce people with an entrepreneurial spirit needed in a liberal economy: "...it appears that training programmes offered by tertiary training institutes are geared to preparing students to be job seekers rather than job creators". And, although training is usually considered appropriate to the job at hand, "...it was also revealed that tertiary training programmes do not seem to prepare graduates adequately to adapt to changing professional demands"⁴⁵. In other words, skills taught at this level may look impressive enough on the surface, but they are not sufficiently adapted to the needs of a dynamic economy. The great majority of graduates indicate that they would need follow-up training⁴⁶.

The shortcomings of tertiary education imply that the ability to innovate and assimilate imported technologies is not developed

⁴³ Bureau of Statistics - Women and Men in Tanzania, p. 29; G. Msolla - Capital Goods Manufacture: the Case of Tanzania, paper presented at the Fourth UNIDO Consultation on Capital Goods Industry with Emphasis on Machine Tools.

⁴⁴ ESAURP, op. cit., p. 235-250.

⁴⁵ Ibid., p. 284.

⁴⁶ Ibid., p. 278.

in large and medium-scale enterprises either". Industrial management skills moreover are in short supply, especially outside the larger urban centres and in the smaller enterprises. Only Dar Es Salaam university provides specialized education in this field. General management skills are more widely available, but other sectors, such as services, may have more to offer than the manufacturing sector which is not in a particularly strong position to compete for, among others, qualified managers. There may not be as many of these as the number of available management courses seems to indicate: resources are scarce, training tends to be theoretical, there is little co-ordination among institutes (resulting in overlaps and inefficient resource use) and employers are hardly involved in planning tertiary training".

Most training for small-scale industry (SSI) is channelled through SIDO, which was specifically established to provide support services for this category of enterprises and local entrepreneurs (the sector is strongly dominated by Indians). SIDO's most important HRD programmes are run by its ten Training cum Production Centres (TPCs), which primarily cater for school drop-outs, older people and those seeking self employment. Courses include woodwork, blacksmithing, sheet metal work, tailoring, food processing, and several crafts. Some 300 people are trained on average every year, and 40 per cent of the trainees are now women". Courses range from two weeks to two years. A fee of Tshs 5,000 is paid (Tshs 10,000 for residential courses), usually by a sponsor (village, co-operative) because it is high by Tanzanian standards. In return for being sponsored, the trainee has an obligation to return to work in his/her community for several years. Graduates can get loans or free tools to set up a business.

About one-third of the costs of the centres is recouped through sales of products; the rest is financed through development assistance. In relation to the need for training, funds are considered insufficient, and access to SIDO services is difficult for people in the more remote rural areas. Participation in courses is therefore well below nominal capacity. The few evaluations of the TPCs which have taken place moreover question the relevance of much of the training, and the wisdom of obliging graduates from courses to work for their sponsors for several years, as this does not necessarily result in optimal use of their skills⁵⁰.

⁴⁷ S.M. Wangwe, op. cit., p. 30.

⁴⁸ ESAURP, op. cit., p. 285.

⁴⁹ SIDO - Technology for the People through Small Scale Industries in Tanzania, Dar-es-Salaam 1992, p. 9.

⁵⁰ ILO/JA&PA, op. cit., p. 89; SIDA Report p. 130-131.

SIDO also provides entrepreneurial and management training; a total of almost 1,800 SSI entrepreneurs had received various forms of training by SIDO by late 1990. Its programmes concentrate on the skills needed to set up a business. Shortage of resources restricts the impact of the programmes, and apparently there are few attempts to get feedback from the entrepreneurs about the contents of the courses. But it is clear that they are basically useful: managers have expressed their "regret that this type of training had not been provided at an earlier stage", and felt that it could replace part of the vocational training⁵¹. A special pilot project for female entrepreneurs has been set up in 1989 in four of the larger industrial regions⁵².

A different approach to SSI development has been tried in the Sister Industries Programme (SIP), which linked small-scale industries in Sweden with industrialization projects in Tanzania. Apart from providing the hardware, some 200 participants (representing 15 per cent of all employees and managers in the Tanzanian firms) received training in the counterparts' plants in Sweden⁵³. For the new enterprises being established under this projects, SIDO selected the local managers, often persons with a civil service background. No existing firms and "self-made" entrepreneurs were involved.

A recent evaluation of the project⁵⁴ concludes that the new firms (which are rather large by Tanzanian standards) are well-run by their managers. "What has emerged is a picture of a person (who) has successfully learnt to convert the subsidies, inputs and support provided into something that makes reasonable sense in its own environment"⁵⁵. In other words, while technically doing a good job, they have not become independent entrepreneurs. And in most cases no new technologies been transferred from Sweden to the local enterprises (some 30 altogether). Production techniques have been improved, but expansion has mainly taken place in existing types of industry. The new firms have also shown relatively little innovative capability. And as they probably would not survive without the protected environment in which they were created, the conclusion is that the positive demonstration effects of such a programme are very limited.

⁵¹ ILO/JASPA, op. cit., p. 139; SIDA Report p. 127.

⁵² SIDO, op. cit., p. 7.

⁵³ SIDO, op. cit., p. 7; SIDA Report, op. cit., p. 126.

⁵⁴ Ibid., p. 104-110, 128.

⁵⁵ Ibid., p. 107.

The remaining SSI programmes with an HRD component which may be mentioned are:

- National Bank of Commerce (NBC): does not provide training in the usual sense, but assists entrepreneurs in acquiring the skills needed to formulate loan requests, etc. Interestingly, NBC-supported firms have shown higher rates of innovation than the larger, more extensively supported SIP firms⁵⁶;
- Rural Hire Purchase Scheme (RHP): under this scheme some technical and management training is given to staff in procedures for setting up an enterprise (loan applications, etc.);
- Indian Tanzania Programme (ITP): a transfer of technology (hardware + training) programme which involved 48 small enterprises; their managers received training in India. Otherwise, the training component appears to have been limited: it has been described as "inadequate"⁵⁷;
- Association of Tanzanian Entrepreneurs: with ILO support a series of seminars was held to train entrepreneurs. This was stopped, apparently for lack of funds.

All in all, only a relatively small number of SSI entrepreneurs and employees has been reached through effective training programmes. The appreciation of training seems to increase with training, as the case SIDO's courses in management skills shows. While actual demand is limited, there may thus be a large potential demand, hidden as yet. There is a variety of programmes, which seems logical because the SSI sector is varied. But programmes are not complementary and exchanges of experience seem uncommon. Resources which are obviously scarce are thus not used optimally, as in tertiary education.

In the informal sector, formally acquired skills are uncommon so far: almost 50 per cent owners of the establishments have no or incomplete primary education, and skills are usually self-taught, although a sizeable minority has acquired them in SSI. Among those who have recently set up informal manufacturing enterprises there is a small but growing number of people with secondary and tertiary education. Very few employees receive anything but on-the-job training. If provided, it tends to be rudimentary, in accordance with the low technological level of the sector⁵⁸.

⁵⁶ Ibid., p. 128.

⁵⁷ ILO/JASPA, op. cit., p. 133.

⁵⁸ Ibid., p. 1/53-1/54, 1/66.

There are no specific industrial training institutes for the sector yet, but several projects aiming at transferring skills have been initiated by the Government and several donor agencies (such as the German GTZ). For micro-scale food processing, the Government among others provides courses through the Tanzania Food and Nutrition Centre.

With regard to demand for HRD, the recent ILO-JASPA study showed that few informal sector entrepreneurs and employees are interested in training, and least of all in managerial training. But policy makers are aware that formalized training is needed to make more of the available potential. An increasing interest in training has been noted among those in the informal sector who have more than primary education. Higher educational levels evidently stimulate the awareness of development possibilities".

SIDO is sometimes mentioned as the most appropriate organization to establish the foundations of a training programme for the sector. Quite a few among those who took courses at the TPCs will have set up informal sector enterprises, as the courses are among others intended for self-employment, and many of the trainees must have found it impossible to establish an enterprise which would be large enough to qualify as formal. The same is likely to have happened to those who followed SSI training arranged by other institutions.

In the present situation, it must be questioned whether SIDO could expand its services to serve the informal sector systematically. The survey of its HRD activities for the small-scale sector in the preceding paragraphs has shown that these have not always been successful. SIDO should probably first take stock of its financial as well as its human resources and establish what its strong points are before it becomes involved in additional tasks.

3.5 The role of development assistance

Training for the manufacturing sector depends heavily on development assistance. As indicated in Section 3.3, some 40 per cent of all HRD expenditure is earmarked for technical and managerial training, part of which would go to manufacturing. Total assistance for the industrial sector amounted to US\$ 163.3 million in 1990, and was estimated at US\$ 115.5 million in 1991. There is a considerable training component in many of the projects, both in the area of technology and of management. Some projects aim at improving Tanzania's industrial R&D capabilities (for example IND/0013 - Tanzania Industrial Research and Development Organization [TIRDO], financed by the EEC; IND/0024 - Institute of Production Innovation [University of Dar Es Salaam] financed by the

" Ibid., p. 1/46.

German Government⁶⁰). In the absence of detailed information it is difficult to assess the characteristics of industrial HRD more exactly, with the exception of UNIDO's projects.

UNIDO's operational or approved projects are listed in Annex 1. Most of these projects have an HRD aspect. Some recent projects with a particularly strong focus on upgrading industrial human resources are:

- Assistance to Auto Mech Ltd.
This is a major repair and maintenance firm, and enhancing its performance would not only have positive effects on the transport sector, but also add to the country's capacity to produce spare parts and tools and to develop new automotive products. Enhancement of technical and managerial skills is a major component of this project, and it is also intended that the firm will provide consulting services to clients and other workshops, passing on its know-how.
- Workshops on Industrial Management and Training.
A series of one-day workshops held at the premises of the Matsushita Electric Company (East Africa) Ltd. in Dar-es-Salaam. The Workshops, attended by some 80 middle-level Tanzanian managers, provided a platform for discussions about management and training methods and problems against the background of an introduction to Matsushita's Japanese management methods. Interest in a follow-up has been expressed by numerous participants.
- Training Programme for Women Entrepreneurs.
Women play a key role in traditional food processing. Limited access to, among others, training and technology has been an obstacle to increasing their contribution to this key industry. Strengthening female entrepreneurs' skills can lay the foundation for viable small-scale units. Training will take place in co-operation with SIDO and is to be offered to 120 women. Management and technical skills will be taught in combination rather than separately.

SSI is targetted by many training projects. Swedish assistance is of essential importance in this context: not only SIDO but also NBC and RHP depend heavily on Swedish financing. Since 1978-79, Sweden has spent an average of SEK 55 million annually on SSI projects⁶¹. The ILO, which is involved in numerous projects for small-scale enterprises, implemented an "Improve Your Business" project for small enterprises some years ago. This project covered marketing, bookkeeping, costing and pricing, accounting planning

⁶⁰ UNDP, op. cit., p. 44, 283-284.

⁶¹ SIDA Report, op. cit., p. 31.

and the like; lack of resources have limited the impact of this project. ILO is also providing training in basic management skills, along with business counselling, through other channels. Its focus is not specifically on industry⁶².

Differences in perspective may reduce the effectiveness of the assistance provided - donors have not always understood which type of HRD is the most appropriate in the Tanzanian context. In formulating the SIP project, for example, the Swedish donors do not seem to have been fully aware of the vast difference between "small scale" operations at home and in Tanzania. This would partly be a cultural problem, but the fact that aid is not yet fully integrated into the country's planning and budgetary process contributes to misunderstandings about Tanzania's needs. Efforts are however being made by the Government and the donors to remedy this. In this context, there is an HRD issue here as well: in order to cope with its increased responsibilities under the new emphasis on national execution of multilateral projects, the Government will probably need more qualified personnel to properly channel the assistance which is made available.

⁶² ILO/JASPA, op. cit., p. 140.

4. EMERGING ISSUES FOR HUMAN RESOURCE DEVELOPMENT IN MANUFACTURING

Industrial HRD is requiring greater attention in Tanzania than in the past. The liberalization of the economy is increasing the emphasis on human resource qualities such as entrepreneurship, good management and technological know-how, to allow the sector to strengthen its position in domestic and export markets. Liberalization has also triggered off a process of growth, and therefore these essential qualities will be required in increasing quantity.

This survey has shown that in terms of human resources there are several obstacles to increasing dynamism in the Tanzanian manufacturing sector. While shortcomings can be found at all levels, the key problems in large-scale enterprises would seem to be management and entrepreneurship. Economic liberalization notwithstanding, external circumstances are likely to remain difficult. For an industrial sector with good entrepreneurs and managers, the difficulties can become challenges. In the past, the existence of a "command economy" has prevented the creation of a class of people capable of leading the industrial development process. This has among others had an effect on the quality human resources at the lower levels: workers' skills are often inadequate because in-house training (which plays an essential role in the sector) is deficient, and the lack of motivation often found among the labour force can partly be blamed on weak management.

In spite of the comparatively modest number of specialists required, Tanzania's manufacturing sector has remained heavily dependent on outside expertise. Even SMI depends on non-local (in this case mainly Indian) expertise and entrepreneurship. Local experience acquired in the course of running enterprises has not been properly assessed and utilized. During the economic downturn such R&D as existed in local enterprises was discontinued to concentrate resources on everyday operations. External R&D institutions such as TIRDO only have very modest resources.

As a consequence, very little absorption and transformation of imported technologies in a domestic technological base took place. Heavy reliance on foreign funding of development projects has not been conducive to the building of indigenous technological capacity either. The recent projects to strengthen local R&D (see Section 3.4) however seem a step in the right direction. It is essential that a close link of such R&D with local manufacturing is established.

Quite a few institutions provide higher-level training for manufacturing. But the range of subjects taught is fairly narrow, and industrial management is lacking altogether. Training in these institutions moreover is too theoretical, and does not prepare graduates for work in a dynamic economy. Women are strongly underrepresented, which mirrors their marginal role in modern

manufacturing. This is a socio-cultural issue; there are no formal barriers to female participation in industry-related training.

Some institutions are better adapted to the emerging requirements of the manufacturing sector for middle and higher-level personnel. An example of these is the government-owned High Precision Technology Centre (HPTC), established by the Tanzanian Government and Matsushita Electric (Japan) in 1981. The Centre has been entirely localized. The HPTC, open for trainees from all manufacturing enterprises, offers college-level training programmes in mechanical and electrical engineering. Although a tertiary-level establishment, it heavily emphasizes practical work to complement the theoretical courses.

The HPTC unfortunately has a very limited intake capacity, and management courses of a comparable quality are not offered. But its approach to training could serve as an inspiration to other institutes⁶³. Generally speaking, information exchange among training institutes should be improved, and the possibilities of improving the division of labour among them should be studied, so that the often very scarce resources can be used more efficiently.

The dialogue between training institutes and entrepreneurs should also be intensified. In the more liberal economic climate, there is a greater role for the Chamber of Commerce and professional organizations such as the Metalworking and Engineering Industries Development Association (MEIDA). With their practical experience of management and technological problems they should be able to contribute to the quality of industrial training. The Tanzanian Association of Professional Women would have the important task of stimulating the participation of women in training.

The growth of the industrial services will also increase the demand for management and technological skills. Maintenance and repair, quality control, design and marketing have in the past not been given much attention. The crucial importance of maintenance and repair is clear in the context of the present rehabilitation drive: many operational problems were certainly due to difficult external circumstances, but they have been exacerbated by a lack of systematic maintenance. Quality control, design and marketing are becoming essential to survive competition. In the past, the domestic market was a suppliers's market, and consumer preferences received little attention. This situation encouraged the production

⁶³ It is debatable whether entrepreneurs can be created through training; an environment which is conducive to private enterprise may be sufficient to bring out entrepreneurship. But in a modern economy, an industrial entrepreneur would need management skills and a basic understanding of technological issues which are transferred by formal training.

of sub-standard goods, which are no longer competitive.

Building up expertise in these fields will stretch the country's limited resources for industrial HRD even further. Some of the skills are not directly industrial, in which case there would be competition from other economic sectors. The expertise available within the sector should therefore be exploited, for example through exchanges of experience among firms - the vertical communication structures of the past should be replaced by horizontal structures also in this respect. Direct assistance from large firms to retailers and subcontractors is another possibility. Again, the clearest example is provided by the Matsushita Electric Company, which has provided assistance in the field of quality control to its subcontractors and is closely in touch with its agents which serve as "transmitters" of consumer criticism. In many cases, enterprises may not find it possible or economical to maintain such skill and know-how intensive services internally; this opens up a field for independent consultancy.

The survey has brought out the important role of small-scale and informal industries in Tanzania. Their main field of activity is likely to remain the domestic market, where small enterprises will also increasingly need formal skills to remain competitive. HRD is fortunately not focussed too narrowly the requirements of the large-scale formal sector. But many of the available facilities do not function optimally, are inadequately equipped for providing basic managerial skills (especially those required for running - as opposed to establishing - an enterprise) and do not provide the sector with the skills needed for future changes in technology and demand. Better co-ordination among training institutions and a reorientation of their curriculums would help to increase the quality and availability of training. Again, the entrepreneurs themselves should also assume an active role.

With regard to industrial services for SSI, their HRD intensity would often make the need for external suppliers even greater than in the large-scale sector. At present, these services are available on a modest scale through among others SIDO (feasibility studies, marketing and management advice). Its consultancy activities were greatly expanded in 1990/91⁶⁴, but an adequate response to the rapid growth of SSI would require more resources. Industrial services for the smaller-scale firms have been established through co-operation among firms in a branch. MEIDA provides an example with its Maintenance Services (MMS), providing maintenance and repair services and consultancy, assistance in the provision of spare parts, and courses on maintenance. MEIDA's experience in this field deserves to be studied by other industries; its maintenance courses, for example,

⁶⁴ SIDO, Technology for the People through Small-Scale Industries in Tanzania, Dar-es-Salaam 1992, p. 8.

would be of great interest to all SSIs.

The dynamization of the economy and the greater responsibility of government agencies for the management of development assistance also require that the government's capacity to handle industrial and general HRD issues be improved. Better analyses, for example, are required of industrial growth prospects per branch, of the effects of growth in other sectors, and of the possible consequences of various development trends for industrial HRD; and these analyses must be transformed into effective policies. A sharper policy focus on crucial (human resource) development issues in the manufacturing sector, would also require intensified communication of government agencies with training institutions and professional organizations.

Strengthening the human resource base for Tanzania's manufacturing sector will to a large extent depend on optimal use of existing local resources (which would include mobilizing the collective experience of manufacturing enterprises, an apparently unexplored resource). Development assistance however will continue to play a key role. To increase employment opportunities and to raise skill levels, the ILO has suggested a donor-supported National Employment Programme. Recognizing that the formal sector will not be able to absorb the growth of the labour force, the Programme (which would cost an estimated US\$ 106 million) strongly emphasizes rural non-farm and urban informal sector employment. In the context of the present document, the following elements of the proposed Programme are of particular interest:

- Improvement of the institutional (planning, implementing and co-ordinating) capability of the Ministry of Labour and Youth Development and the National Planning Commission;
- Identification of inter-sectoral linkages in employment;
- Technical training for non-farm activities;
- Stimuli to the development of technologies;
- Measures to transfer technical and managerial skills to the informal and small-scale sectors;
- Managerial capacity building for parastatals;
- Review of vocational training activities;
- Mainstreaming of women⁶⁵.

The formulation of an integrated programme of this kind, along with better co-ordination among donors and with government agencies, would represent a major step forward in HRD. The proposed Programme however hardly seems to involve the business community. In a liberalized economy its involvement would be of essential importance.

⁶⁵ ILO/JASPA, Tanzania, Meeting the Employment Challenge, Addis Ababa, March 1991, ch. 14.

UNIDO's Approved and/or Operational Technical Cooperation Projects
(approved = PAD issued)
and Technical Support Services at programme (TSS-1) and project (TSS-2) level

United Republic of TANZANIA (1)

<u>Project Number</u>	<u>Backstopping Responsibility</u>	<u>All.Acc.Code</u>	<u>Project Title</u>
DP/URT/86/023	IO/T/CHEM Ms. Sanchez	J13422	Livestock (veterinary) vaccines project - preparatory assistance
DP/URT/86/026*	IO/T/CHEM Mr. De Silva	J13422	Assistance to the essential oil industry - Zanzibar
DP/URT/86/027**	IO/IIS/IMR Mr. Farah	J12208	Assistance for strengthening the industrial management capabilities in selected enterprises (see also TF/URT/91/001)
US/URT/88/100*	IO/T/AGRO Ms. Calabro	J13104	National hides and skins, leather and leather products improvement scheme - East Africa (related to US/RAF/88/100)
DP/URT/89/005*	IO/T/AGRO Mr. Sabater de Sabates	J13103	Assistance in the establishment of a coconut cream plant
TF/URT/89/904	PPD IPP/REG	E03200	Workshops on industrial management and training - case study of Matsushita Electric Co., (E.A.) Ltd. in Dar-es-Salaam (see also TF/GLO/89/900)
DP/URT/90/027*	IPCT TDP/TAN	G07300	Establishment of a national system for technology acquisition, internalization and monitoring
DP/URT/90/029*	IO/T/ENG Mr. Shatravko	J13314	Establishment of a computer-based information collection, processing, storage and retrieval infrastructure at the National Development Corporation (NDC) (phase I)
DP/URT/90/032	PPD AREA/AFR	E02101	Preparation of an integrated industry sector programme for the 5th Country Programme (1991 - 1996)
DP/URT/91/010*	IPCT II/IIP/AFR	G06101	Strengthening the Investment Promotion Centre
DP/URT/91/027*	IO/IIS/IMR Mr. Farah	J12206	Strengthening the Ministry of Trade, Industries and Marketing, Department of Industries, Zanzibar
US/URT/91/110*	IO/T/AGRO Ms. Calabro	J13104	Extension of the national hides and skins, leather and leather products improvement scheme (related to US/RAF/88/100 and US/URT/88/100)
DP/URT/92/002*	IO/T/ENG Mr. Shatravko	J13314	Assistance to upgrade the technical facilities and skills at Auto Mech Limited in Dar-es-Salaam

* Large-scale project (= total allotment \$150,000 or above)

** Total allotment \$1 million or above

URT

UNIDO's Approved and/or Operational Technical Cooperation Projects
(approved = PAD issued)
and Technical Support Services at programme (TSS-1) and project (TSS-2) level

United Republic of TANZANIA (2)

<u>Project Number</u>	<u>Backstopping Responsibility</u>	<u>All.Acc.Code</u>	<u>Project Title</u>
US/URT/92/026*	IO/OS/IHRD Mr. Ramanantoanison	J14201	Training programme for women entrepreneurs in the food processing industry in Tanzania
XP/URT/92/055	IO/T/CHEM Mr. Puerto-Ferre	J13420	Assistance to TIP Soap Industries Ltd.
XP/URT/93/114	IO/T/ENG Mr. Anestis	J13314	Training course in maintenance management of vehicles, equipment and plant

* Large-scale project (= total allotment \$150,000 or above)

** Total allotment \$1 million or above

URT