2006 JICA Visiting Fellow Research Report

Vocational and Industrial Human Resource Development through TVET in Africa:

Changing Assistance Environments and Human Resource Demands

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Vocational and Industrial Human Resource Development through TVET in Africa:

Changing Assistance Environments and Human Resource Demands

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Abbreviations

AU	African Union
CBT	Competency-Based Training
COTVET	Council for Technical and Vocational Education and Training
DANIDA	Danish International Development Agency
DED	Deutscher Entwicklungsdienst gGmbH
EFA	Education for All
ESP	Education Strategic Plan
ESSP	Education Sector Strategic Plan
EU	European Union
FCUBE	Free Compulsory Universal Basic Education
FTI	Fast Track Initiative
GPRS I	Ghana Poverty Reduction Strategy 2003-2005
GPRS II	Growth and Poverty Reduction Strategy 2006-2009
GTZ	Deutsche Gesellschaft für Technische Zusammenarbeit
ILO	International Labour Organization
JBIC	Japan Bank for International Cooperation
KfW	Kreditanstalt für Wiederaufbau
LLDC	Least among Less Developed Countries
MDGs	Millennium Development Goals
MTEF	Medium Term Expenditure Framework
NACVET	National Coordinating Committee for TVET
NAI	New African Initiative
NEPAD	The New Partnership for Africa's Development
OAU	Organization of African Unity
OJT	On the Job Training
PCO	Project Coordination Office
PEAP	Poverty Eradication Action Plan
PEVOT	Programme of Employment Oriented Vocational Training and Education
PIF	Policy Investment Framework
PRSP	Poverty Reduction Strategic Paper
SADC	Southern African Development Community

SME	Small and Micro-Enterprises
SWAp	Sector Wide Approach
TEVET	Technical, Entrepreneurial and Vocational Education and Training
TICAD	Tokyo International Conference on African Development
TVET	Technical and Vocational Education and Training
UNESCO	United Nations Educational, Scientific and Cultural Organization
UNHCR	United Nations High Commissioner for Refugees
UNICEF	United Nations International Children's Fund
UNIDO	United Nations Industrial Development Organization
UPC	Universal Primary Completion
UPE	Universal Primary Education
UVQF	Uganda Vocational Qualification Framework
WFP	United Nations World Food Programme

Abstract Summary

Background and Objectives for This Research

To date, Japan has cast its initiatives in Africa targeting public pre-service education and training as belonging under Technical and Vocational Education and Training (TVET) assistance, thereby accumulating a long record of results. Also, as can be seen in the examples of Uganda and Malawi, recent trends show that in Africa control over the administration of TVET in its capacity as pre-service education and training is being shifted from Ministries of Labor or Vocational Training to that of Education, while, in line with progressive aid harmonization, TVET has also come to be cast squarely within education sector plans as well. Moreover, in the education sector, expansion of basic education (and in particular, primary education) was raised as a priority concern at the 1990 World Conference on Education for All in Jomtien, and while the inclination of developing country governments towards TVET and higher education had not gone away, it did indeed become dormant. However, in recent years, a desire has surfaced to actively recognize anew the role of the TVET sector from the perspective of promoting poverty reduction and human security, as given in the Millennium Development Goals, as well as with an eye to achieve national development through technical innovations spurred by the advance of globalization. At the Gleneagles G8 Summit in 2005, often called 'Africa's year' the G8 nations agreed to see that aid to Africa will be doubled by 2010 and the international community's concern over aid to Africa has grown with every subsequent year.

In response to these changes in the aid environment, the authors herein, after giving a general outline of present conditions and issues concerning human resource development suited to labor demand in Africa, shall present research on TVET viewed from the education sector based on field surveys conducted in Ghana and Uganda, where JICA provides TVET assistance, as well as in Malawi, where the government demand for assistance in this area is growing. In addition, based on this analysis of the present situation, the authors aim to provide concrete recommendations concerning the Japanese TVET assistance in Africa. According to JICA's thematic guidelines on TVET, the less-developed African countries focused on in this survey categorically qualify for skills development assistance – that is, assistance in vocational skills training primarily geared towards improving the livelihoods of the poor and socially vulnerable so as to directly contribute to poverty reduction by facilitating their ability to acquire basic skills and incomes. There is no question as to the importance of skills development for reducing poverty, but the authors, while deferring from becoming too involved in particular classifications from JICA's thematic guidelines, would like to discuss Japan's TVET assistance to Africa from the view of positive performance in industrial human resource development derived through public pre-service education and training assistance, as well as the need to comprehensively

manage assistance in skills development for the poorest segments of the population by including national economic policy, analyses of labor demand, and policy supporting entrepreneurs, so that a path to real improvements in livelihoods can be shaped.

Section 1: Relevancy of and Support Environment for TVET Assistance in Africa

This section gives a general outline of recent developments in Africa to show how the formation of the New Partnership for Africa's Development (NEPAD) and the African Union (AU) by African nations has demonstrated their ownership over African issues and efforts to resolve them, while at the same time examples of growing concern for Africa from within the international community, such as the World Bank's naming of the ten-year period between 2005 and 2015 to be 'the Decade of Africa', will be included.

In addition, in order to give context to educational development this section will look back on past changes in support trends, namely the fact that despite the concentration of aid in the TVET sector along with higher education in the 1960s and 1970s, in the 1990s the emphasis of aid was redirected away from growth-oriented approaches towards support for rectifying regional disparities and reducing poverty, thus resulting in a subsequent shift in the emphasis of educational assistance as well towards primary education. Also, the authors illustrate how poverty rates in Africa's less-developed countries have, to the contrary, been on the rise since calls for poverty reduction began in the 2000s, and – in response to unemployment rates growing disproportionately among youth who have completed basic education in comparison to the general population – the World Bank, International Labour Organization (ILO), United Nations Educational, Scientific and Cultural Organization (UNESCO), and other organizations have recently shown drive towards actively recognizing anew the role of TVET.

A large portion of Japan's educational support had for many years gone to TVET, but it has recently been in decline as increases in basic education assistance have taken place and Japan has concentrated regionally in Asia, thereby limiting programs targeting Africa. However, new undertakings in Africa are gaining attention such as intraregional cooperation (South-South cooperation), support in the form of policy proposals, and assistance for reintegrating demobilized soldiers into society.

Section 2: Present Conditions and Issues Concerning TVET Supply and Demand in Africa

This section gives an outline of general conditions in Africa's manufacturing industries and labor markets based on statistical data showing, among other things, that with the exception of South Africa most countries do not even have 10% of their workforce in manufacturing, that macroeconomic indicators in many countries declined from the 1980s, when structural adjustment policies were introduced, up to the 1990s, and that the proportion of Small and Micro-Enterprises (SME) within Africa's industrial structure is extremely high. Also, a sizable number of entrepreneurships and micro-businesses are located in the informal sector; however, the gap between those at the upper and lower strata of the informal sector is extremely wide, meaning that while growth-oriented programs are

applicable to those at the top, the principal task for those at the bottom is to improve earnings so as to reduce poverty.

Next, after reviewing major themes in previous works on industrial human resource development, from economic as well as political and social perspectives, this section continues by showing a variety of skills formation methods arranged according to the levels of skills and modes of education and training. Also, though basic education is extremely important as a foundation for skills acquisition, since that alone will not result in competitive competency skills for the market, the high social relevance of trainings for the informal sector, the provision of equal opportunity to the poorest segments of the population through voucher systems, and apprenticeship systems are all discussed in contrast to the primary target of past TVET assistance – secondary education. Furthermore, skills levels necessary at each stage of industrial development are visually presented as a reference for gauging policy.

In this discussion, the authors provide that the government's primary role in TVET is in designing systems and drafting law while simultaneously collaborating with industry and the private training sector, whereas it ought to keep direct implementation of trainings to a minimum. Upon establishing this, the authors go on to summarize the roles that government ought to play in TVET, the means to fulfilling those roles, and the strengths and weaknesses of the said means. Problems in industrial human resources policy are also addressed by looking at the fact that, at the present time, numerous African countries fail to accurately grasp labor demand as currently estimated based on data from the formal sector – which comprises only 10-30% of the workforce; as a result, industrial human resources policy ultimately attaches too much importance on the formal sector, and also less effective from a poverty reduction perspective.

Section 3: TVET as Viewed from the Education Sector

In section 3, the authors will first organize 6 vantage points, i.e. 1) the expansion of primary education and handling its graduates, 2) secondary education as vocational preparation for graduates that complete schooling at the secondary level without proceeding to the tertiary level, 3) recognizing anew the role of tertiary education in the cultivation of technical experts, 4) mastering artisan level skills through non-formal education, 5) the introduction of Competency-Based Training (CBT) and 6) aid harmonization, each covering top policy concerns relating to recent educational developments in Africa and the growing trend of putting administrative responsibility for TVET pre-service education and training under the jurisdiction of the Ministry of Education instead of other ministries. Based upon these points, the authors will analyze the relationship between TVET and national policy using case studies from Ghana, Uganda, and Malawi.

Moreover, limitations on TVET as covered by education sector plans will be provided as points to consider concerning the future of TVET assistance. This section also touches on difficulties faced when approaching, through the public education system, the problem of large numbers of school-age youth unable to go to school or find employment in Africa, though support for this strata is crucial for

the promotion of human security. Moreover, as aid harmonization extends through the education sector, the need to coordinate initiatives with the policy of respective host countries is currently being emphasized which may appear restrictive for parties that are used to running projects independently of government and other donor initiatives; however, as can be seen in the target countries for the case study herein, the education sector plans are, to the contrary, seen as having the potential for being flexibly modified as work progresses, thus demonstrating the importance of stimulating the government, local donors, and other related parties to form policy together through sustained dialogue.

Section 4: Issues in and Recommendations for TVET Assistance in Africa

In Africa, the formation of supporting industries capable of attracting foreign capital by cultivating the skills of workers at the SME is essential for providing people with the means to a stable livelihood and extending national economic growth; meanwhile, the authors emphasize that the degree to which organic collaboration can be formed between a variety of actors (i.e. private sector and non-education ministries) is one key point for supporting the course of such formation. In addition to the above points, Section 4 shows how Japan may, even within aid harmonization, effectively implement technical cooperation projects utilizing its own experiences as long as it is able to involve other partners in sustained policy consultations, as seen in examples set by Ghana and Uganda. Further mention is also made of expectations for what is to come in the design and implementation of the All-Japan initiatives including harmonization between schemes made possible under the 2008 JICA reform, and the utilization of trust funds established by Japan at United Nations (UN) agencies.

Also, the authors have put in order several points in discussion concerning what JICA ought to consider should it proceed with future TVET assistance in Africa. First, this section recommends that support for cultivating trades workers ought to both shift its aim away from employment in the formal sector more towards shaping domestic supporting industries, and be re-visualized in programs that comprehensively cross the social services sector, the economic infrastructure sector, and the direct manufacturing sector. Then, skills development support for the forgotten majority, one challenge for the future, is revealed as sharing a common foundation with the people-centered concept of ensuring human security. The authors close by suggesting to JICA the possibility of technical assistance covering data analysis and strategizing so that assisted governments would cast human resource development strategy within a more comprehensive policy analysis, while executing model projects relating to artisan-level human resource development in Small and Micro-Enterprises. Assistance will be two-tiered, so to speak, both at the levels of policy-making and of actual field intervention. The authors also recommend support for South-South Cooperation wherein these African countries can learn strategies in human resource development from the experiences of their Asian predecessors.

Introduction

Just as in many other regions, one great policy concern in Africa is cultivating human resources suited to labor demand. However, in order to effectively tackle this problem, human resource development plans must be clearly cast within, and simultaneously linked to, the economic development vision of the government concerned. For example, plans made for developing human resources will differ depending on what industries a government is inclined to cultivate, and conversely where there are social groups experiencing high unemployment due to the inability of current labor markets to absorb them. Therefore, it may be necessary to reevaluate industrial policy for the sake of stimulating equitable development in society based on the concept of creating employment through vitalization of the aforementioned groups' productive activities. While, education has universal elements (e.g. human development and the transmission of universal knowledge) that are thus unaffected by specific social conditions, at the same time, as education is meant to nurture members of each particular society, it would be impossible for it to stand independently without any relation to the varieties of social activities, including productive activities, taking place in the social realm.

Nevertheless, a large number of governments in Sub-Sahara Africa have not effectively facilitated rearing of human resources suited to the labor market. One reason for this failure is found in ambitious, yet unrealistic, policy. A great number of the poor countries in Sub-Sahara Africa have a strong desire to place their investments in tertiary education as a means to catch up to advanced industrial nations, even though their chances for introducing private foreign capital and developing high tech industries is not very high at all. Meanwhile, despite the fact that a majority of Africa's economy is composed of the informal sector, labor market surveys conducted sporadically only look at the formal sector, which means that governments have been unable to grasp a sizable portion of domestic economic activity and thereby fail to propose effective policy. Furthermore, too often, the education and industry sectors exist separately from each other and while the importance of the school-to-work transition of students is being advocated, discussion of these matters has failed to probe deeper than the surface, resulting in a lack of realistic policy linking school education to the labor market. Also, another reason for the low rate of people reaching employment through technical and vocational education is based in the unseasoned trust and collaboration found between governments and employers (from major enterprises to individual shops), all while socially-constructed and commonly-held beliefs dictate that technical and vocational education are lower in value than academic courses. In this way, direct operation of technical and vocational schools by the government are commonly criticized in view of both economic efficacy and public interest. However, the government's role in Technical and Vocational Education and Training (TVET) sector is not limited to the management of vocational training schools – to the contrary, in order that human resource development effectively contributes to industrial development, only the government has the capacity to carry out the establishment of laws and systems, assistance to private human resource development institutions and, moreover, the implementation of aid for development to the poor and socially vulnerable classes to whom market mechanisms have failed to

deliver training. In reality, the high unemployment rate among youth who have completed basic education has become a sizable social problem in African countries, and, at the present time, a reevaluation of education policy with reference to labor and industrial policy must be undertaken without delay.

Despite the great need for human resource development suited to labor demand in Africa, TVET is still given fairly low priority within policy discussions on the education sector and discussions relating to international development cooperation among aid agencies. In the 1960s, when a number of former colonies claimed their independence, there was a temporary expansion of aid into both tertiary and technical and vocational education out of the demand set by rapid nation-building; however, since the 1970s, aid to this category of education has gone into decline[1]. In particular, upon entering the 1990s, a large paradigm shift took place in the field of international development cooperation wherein the orientation of aid was transitioned from growth to poverty reduction. Basic education was cast as a vital social service for poverty reduction, alongside primary health care, and priority in policy and budgeting came to be directed towards basic education (i.e. primary and lower secondary education). By way of this paradigm shift in international aid, while the inclination of developing country governments towards TVET and higher education had not gone away, it did indeed become dormant; meanwhile assistance given by aid agencies to the education sector was re-concentrated in basic education. Furthermore, a new means of giving aid honoring the autonomy (i.e. ownership) of aid recipient governments also took place along with the paradigm shift towards poverty reduction. In the past aid agencies would provide aid in the form of projects carried out independently of other parties from planning to implementation, and owing to the fact that such operations often did not reflect the entirety of a given nation's development – since they were conducted neither in line with the financial and administrative systems of the governments concerned, nor under sufficient collaboration among aid agencies – aid was criticized for bringing about overlapping projects and overabundant support in certain favored fields. Based on this critical insight, from the latter half of the 1990s, the aid community came to endorse giving financial support to policy proposed independently by the government concerned and thereafter approved by them. This new method was introduced into the education sector at a particularly early time, compared to other sectors, and the switch over to harmonization and collaboration among aid agencies, as well as support in the form of financing, has been pushed forward by way of the structure provided by sector programs based on sector development strategy. With few exceptions, the education sector development strategies, and hense, the sector programs of various developing countries, prioritized primary education. Depending on the country, approaches to and the degree to which sector programs and financial support are utilized will vary, but generally speaking, the rapid speed by which this shift is taking place is most notable in Sub-Sahara

1 For example, assistance given by the World Bank to TVET (including those provided at different forms and levels of education, such as secondary, post-secondary, non-formal, and teacher training) comprised 51% of all investments into education over the period of 1963-1976, 44% for 1977-86, and 25% by 1990. Jones (1992) p.182.

African countries, where reliance on aid is high and the World Bank and other aid agencies promoting these new methods have great influence.

Within the structure set by this sector program framework and its emphasis on basic education, any aid in the form of a project applied in sectors outside of basic education would require careful handling. Japan International Cooperation Agency (JICA) has established a long history of results in TVET assistance, while Japan itself succeeded in industrial human resource development through education to support its own high levels of economic growth[2] and has also gained experience in supporting the economic development of Asian middle-income countries, thus lending credence to the idea of 'cultivating human resources through education so as to contribute to industrial development' has deep roots in Japan. Meanwhile, there is no doubt that African governments are clamoring for industrial human resource development, even if current planning and implementation may lack realism, or there is a shortage of information upon which policy analysis can be based. While the need for TVET is evident, the key to executing future TVET assistance in Africa is in whether TVET assistance can be presented in current support settings in both convincing and truly effective ways. In actuality, upon examination of excessive support put towards basic education in the past, the World Bank has itself released a report stating that TVET ought to be expanded while a balance with Universal Primary Education (UPE) be maintained[3]. It is often said that while basic education is necessary as a foundation for acquiring vocational skills, one cannot gain technical skills from basic education alone[4]. In consideration of the fact that poverty reduction cannot be achieved where employment is not gained, technical and vocational education is just as necessary for poverty reduction as basic education[5]. In other words, TVET assistance possesses sufficient relevance within the current poverty reduction paradigm. However, the argument that anything as long as it fits within TVET can potentially contribute to poverty reduction would be unfounded since the field of TVET itself is inclusive of programs ranging from human resource development for the informal sector and small and medium sized enterprises, to schooling at tertiary education institutions for engineering and high technologies skills. Also, there is no denying that the TVET sub-sector as a whole has been criticized for varying problems in its economic efficacy or relevance, while it is also quite complicated owing to the variety of agencies and private sector actors involved. Furthermore, in the current support environment it is becoming increasingly necessary for aid agencies to incorporate higher levels of policy discussions and the involvement of other agencies', due to how difficult it would be to give a logical explanation for independently carrying out projects, as had once been done in decades before.

In this report, while giving a general summary of the current conditions and issues surrounding industrial human resource development in Africa, the authors will make observations based on their field surveys of countries where JICA is already involved in TVET initiatives (Ghana and Uganda) as

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2 Institute for Social Engineering (1995); JICA (2005a).
3 Johanson and Adams (2004) pp.11-12.
4 Broadman (2006) p.21.
5 Bennell (1999) p.1, 3.

well as a country where the government is increasingly calling for aid (Malawi) so as to answer questions concerning: what kinds of TVET assistance aid agencies, including Japan, are providing in modern-day Africa; what types of results and issues could be derived from such assistance; and what kinds of assistance could be implemented in the future. In this way, the authors hope to contribute to the debate taking place concerning TVET, a field of growing importance in Africa. Moreover, this survey is limited to the low-income countries of Sub-Sahara Africa and excludes South Africa, Botswana, and other middle-income countries and, based on the common labor conditions and economies that link these countries, it aims to analyze industrial human resource development from the view of making poverty reduction practicable. Consequently, the reader must be advised that the 'Africa' referred to in this report does not include North African (Maghreb) or middle-income countries.

1. Relevancy of and Support Environment for TVET Assistance in Africa

1-1 Africa as an Aid Recipient

In 2001, the New Partnership for Africa's Development (NEPAD)[6] was put forth as a comprehensive commitment on the part of African governments to eradicate poverty, achieve sustainable growth and development, and integrate African nations into world politics and economics, while, later in July 2002, the Organization of African Unity (OAU) was restructured to allow for the foundation of a newly evolved African Union (AU) in order to bring about a higher-level of political and economic integration among African nations as well as reinforce efforts for the prevention and resolution of war; both these cases, among others, illustrate the ownership that African countries demonstrate over problems in the continent as well as the active steps taken towards addressing them.

Meanwhile, the international community's concern for Africa has grown by which, notably, 2005 was called 'the year of Africa'. UN Millennium Project reports were compiled in January 2005 and in their assessments of progress Sub-Sahara Africa had shown regression, Asia had shown considerable progress though it was still not satisfactory, and other regions had a mix of progress and regress marks, which demonstrated that, though less-developed countries unambiguously bear their own responsibilities for the eradication of poverty, in order for them to achieve the Millennium Development Goals (MDGs) significant increases in ODA for these countries are necessary. The report referred to the importance of mobilizing science and technology in the context of TVET while, on the flipside, developing countries have limited capacity to invest in their own science and technology sectors. Also, because of the lack of funds for research in science and technology, these countries suffer serious 'brain drains' – thus, it emphasized that donors ought to enhance support for tertiary institutions, the Consultative Group on International Agricultural Research, and other research institutions[7]. In March, the Commission for Africa, formed under the initiative of the British Prime Minister Tony Blair, released a report which held that in order for African countries to achieve their MDGs the amount of aid provided to them must increase twofold, or in other words, an additional 25 billion dollars of ODA ought to be secured by 2010. Then, at the July Gleneagles G8 Summit, it was agreed that aid to Africa would be doubled by 2010, just as the Commission for Africa had proposed, forming a new global trend towards seeing Africa as the main recipient of development assistance. Moreover, in September, the World Bank released its "Meeting the Challenge of Africa's Development: A World Bank Group Action Plan", which called the decade leading up to 2015 'the Decade of Africa'.

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6 At the OAU Summit of Heads of State and Government held in Lusaka, Zambia in July 2001, the New African Initiative (NAI) was adopted but, in October of the same year, its name was changed to NEPAD at the inaugural meeting of the Implementation Committee of Heads of State and Government.

7 UN Millennium Project Report (2005) p.92.

In recent years, China has also been galvanizing efforts to strengthen its relationship with African countries. China aims to construct a 'new, strategic partnership' with Africa by way of diplomacy, where it will revitalize investments through both economic cooperation as well as the formation of partnerships with the private sector. After China held the Forum on China-Africa Cooperation, designed to strengthen its trade and economic relationship with Africa, in Beijing in 2000 and Addis Ababa in 2003, it invited the ministers of Africa's 48 countries to Beijing and held the Third Forum on China-Africa Cooperation Ministerial Conference in November 2006 where it came up with support measures for Africa that included debt relief, extended investment, and human resource development. Since Foreign Minister Qian visited China at the beginning of 1991, China, in addition to making it customary for leading government figures to visit Africa annually early in the year, has been working to construct not only economic but also political partnerships with African states as evidenced by former President Hu's visit to Africa 2 years in a row, among other things.

Also, the Tokyo International Conference on African Development (TICAD), established under Japan's initiative, is also seen as fulfilling an important role within African development. TICAD has operated as an international framework for facilitating cooperation between Asia and Africa aimed at promoting African development, and at its 1st meeting (TICAD I) held in 1993, members agreed on the priority areas of African development and continuation of support to Africa. This process, after being reinforced at the 2nd meeting (TICAD II) in 1998, has led to proposals, heard at the 3rd meeting (TICAD III) in 2003, of strengthening human resource development and Asia-Africa partnership in coordination with NEPAD, the new foundation for development born from Africa itself. Here as the 4th meeting (TICAD IV) has been scheduled for 2008, even more intense discussion of matters concerning support for Africa is expected within and outside Japan.

1-2 International Trends in TVET Assistance

In recent years, TVET has ceased to belong to the mainstream of educational development assistance, but in the 1960s and 1970s it had been one sector, along with tertiary education, where aid was highly concentrated. For example, in 1963 the World Bank started a grand-scale lending program for vocational education geared towards developing countries, and from 1964 to 1969 secondary vocational education comprised 20% of the World Bank's lending in the education sector, thus ranking as the second largest sub-sector of all[8]. From 1963 to 1976, expenses relating to technical and vocational education made up 51% of total education expenses (Table 1-1). However, from 1980, despite an increase in the World Bank's overall funding for the education sector, disbursements to technical and vocational education continued to decrease until, by 2002, the ratio had dropped to no more than 9% of the World Bank's gross education sector assistance (Figure 1-1). Conversely, with every year, the proportion of primary education assistance grew at an inversely proportional rate, from

8 World Bank (1995).

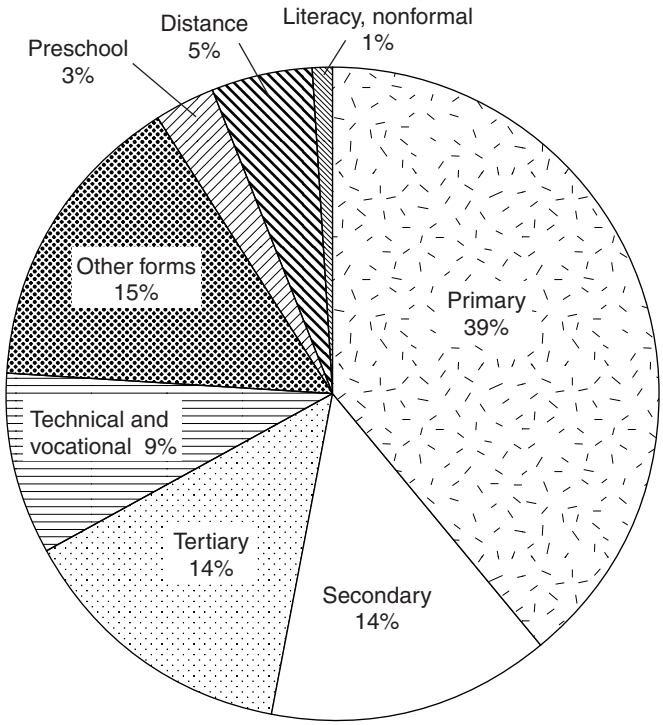
no more than 6% during the 1963-76 period to 39% in 2002. The trend towards emphasizing primary education becomes clearer when including other donors as well. Figure 1-2 shows all education assistance going to Least among Less Developed Countries (LLDC) as classified by sub-sector. One can see from this diagram that nearly 60% of aid in education goes to primary education. However, when analyzing policy and finance in the TVET sector, it is important to note that sub-sectors may be classified in different ways and the way of sub-dividing TVET in particular tends to be inconsistent. Unlike primary education and other sub-sectors where the dividing lines are evident, TVET consists of secondary, post-secondary, and non-formal sub-sectors – while stretching as far as teacher training as well. Consequently, it is not uncommon for elements of TVET to be found scattered throughout other sub-sectors, and the fact that Figure 1-2 includes no category for 'Technical and Vocational Education' reflects these conditions. Meanwhile, even where a category for technical and vocational education may be indicated, often it is still impossible to determine with any certainty what is meant to be included therein. As a result, it is better to consider the fact that only a general current can be grasped from education statistics and financial indicators relating to this sub-sector.

Table 1-1: Investment in education 1963–1990, classified by WB sub-sector

	1963-76		1977-86		1990	
	US$M	%	US$M	%	US$M	%
Regular	**963**	**42**	**6,171**	**52**	**1,222**	**64**
Primary	134	6	2,580	22	456	24
Secondary	461	20	1,176	10	163	8
Nonformal	30	1	48	0		0
Post-secondary	89	4	1,615	14	323	17
Teacher training	251	11	752	6	280	15
Tech. & Voc.	**1,150**	**51**	**5,220**	**44**	**489**	**25**
Secondary	511	23	706	6	69	4
Post-secondary	367	16	2,810	24	302	16
Non-formal	249	11	1,579	13	45	2
Teacher training	23	1	124	1	73	4
Other	153	7	368	3	207	1
Total	2,266	100	11,759	100	1,918	100

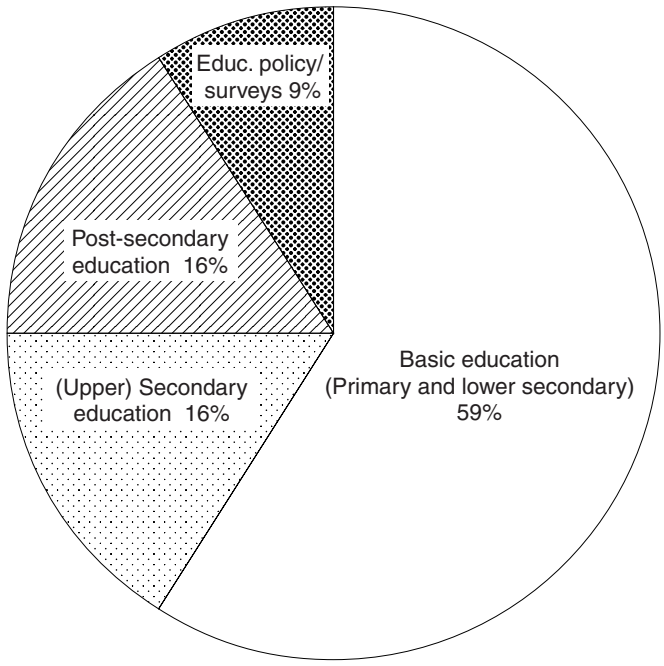
Source: Jones (1992) p.182.

Figure 1-1: Education assistance, classified by WB sub-sector (As of April 2002)



Source: World Bank (2006) p.2.

Figure 1-2: Breakdown of ODA in the education sector



Source: OECD (2006) p.19.

In this way, the emphasis within education assistance shifted from tertiary education and TVET during the 1960s and 1970s to primary education. This took place not only in the education sector, but rather reflected a new current in assistance as a whole. Since the 1990s, in the field of international development assistance, a great directional shift took place wherein the emphasis on growth-oriented approaches was redirected more towards support aimed at rectifying regional disparities and reducing poverty. MDGs were agreed upon in 2000, thus setting poverty reduction as an ultimate goal to be achieved through giving priority to social services for the poor and socially vulnerable segments of the population, while also requiring that each developing nation draft a Poverty Reduction Strategic Paper (PSRP). From the 1980s to the mid-1990s, structural adjustment policy aimed at shrinking the government sector while improving macro-economic indicators was introduced world-wide, but not only did many countries fail to show an increase in their macro-economic indicators (among which African countries are quite representative), in hindsight, as a result of the shrinking of government functions, fundamental social services such as those in education and health failed to reach countless people and the gap between rich and poor expanded. It was there that the poverty reduction framework made its appearance in the latter half of the 1990s so as to directly benefit the poor by promoting basic education and primary health care as social services for the purpose of rectifying regional disparities and reducing poverty. During this course, 2 of the Educational for All (EFA) goals agreed upon internationally at the 1990 conference in Jomtien, Thailand, namely, complete expansion of primary education by 2015 (i.e. Universal Primary Completion: UPC) and eliminating gender disparities in primary and secondary education by 2005, were incorporated within the MDGs and numerous donors and developing nations' governments took on collaborative efforts for their achievement. As a whole, government public expenditures on education in developing countries were on the rise, while in many cases the proportion allocated to primary education was growing as well[9].

Also, in relation to the poverty reduction paradigm, new theories on how to give assistance have been introduced as part of changes to the support environment. Since the 1990s, partnerships among development actors such as between aid agencies and developing governments, between developing governments and civil society organizations (e.g. NGOs), or between aid agencies themselves, have been promoted and the concept of honoring the independent determination and implementation of policy by governments (i.e. ownership) has been shared widely within the international community. In line with this, a variety of mechanisms have been installed within developing countries to facilitate consultation and coordination between groups of aid agencies and governments. At the same time, aid agencies, underscoring their respect for the host country's ownership, have come to press each other for an implicit consensus on being prudent in avoiding implementing independent projects run by their own steering committees outside of the Education Ministry's line of regular operations in favor of

9 The Fast Track Initiative, a global partnership for supporting work towards UPC, has cast education indicators taken from the experience of countries that have already achieved EFA as its indicative framework. According to this framework, it is desirable that 20% of the government's budget goes to education, and 42-64% of the education budget goes to primary education.

giving support in line with each government's administrative procedures and organizations. Based on this way of thinking, budget support, i.e. delivering assistance funds to the budget of the Ministry of Education or the National Treasury (under the Ministry of Finance), has been labeled as a means of assistance least likely to interference in ownership and has thus become roundly encouraged by a portion of aid agencies (incl. England and other European aid agencies and the World Bank). Financial assistance would then be provided under the precondition that once agencies have given approval to government policy, they would not interfere in details of the implementation. Thus, quite a few aid agencies have moved away from running on-site technical cooperation projects in many countries simultaneously and, instead, now focus more on actively contributing to limited number of countries or sectors through policy dialogue and systems design while providing financial assistance for these agencies, technical assistance is limited to cases where conditions apply. There are countries and regions that do not yet see any strong influence of this new trend in assistance, but in highly aid-dependent African countries that are susceptible to external influence there has been rapid progress in the switch to sector programs emphasizing primary education. As a result, in this region, the prerequisite for support for the TVET sub-sector involves casting the need for vocational human resource development[10] in convincing terms. Among a portion of programs assisted by aid agencies, some implement technical cooperation projects while, on the other hand, advising and taking part in policy consultations to facilitate the construction of a framework for establishing policy and competency skills qualifications systems. One example of such a program would be Germany's Programme of Employment Oriented Vocational Training and Education (PEVOT) in Uganda. The TVET project that JICA has just started in Ghana is an initiative which links policy consultations and improving government capacity to concrete educational activities, and it is believed that the importance of this approach will grow from here on (more fully discussed later).

Yet, even the post-1990s trend towards emphasizing basic education on the part of aid agencies has begun to show a little reworking in recent years. As will be explained later, after a Poverty Reduction Framework was introduced in the 2000s, poverty rates in the less developed countries of Sub-Sahara Africa had, to the contrary, begun to rise and the unemployment rates among youth that had completed basic education were also rising when seen alongside the same rates given for the general population. Evidently, a large part of the population receiving basic education was not being absorbed into the labor market, thus showing that the expansion of basic education alone was insufficient for developing industrial human resources. With this as background, the World Bank also publicized the importance of establishing a balance with TVET when expanding basic education[11]. The World Bank, while recognizing the substantial role played by government in basic education, has been promoting

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10 In this report, the expression 'vocational human resource development' is used separately from 'technical and vocational education and training (TVET)'. TVET is itself limited to education and training activities for the development of human resources, whereas vocational human resource development is defined more broadly to include various activities – educational and non-educational – which contribute to meet the labor demand. At the present time, there are several terminologies within this field, such as 'skills development', which are not been clearly defined.

11 Johanson and Adams (2004) pp.11-12.

cost-sharing with recipients and the private sector in other education sub-sectors to reduce the financial and administrative cost of the government. In the TVET sub-sector, this approach of the World Bank has taken the form of promoting efforts to improve the quality of training and reduce the burden of costs shouldered by the government by forming a competitive training market and actively involving private training institutions in that market, in addition to both clarifying the government's role in TVET and preventing TVET operations from becoming scattered. Also, international organizations other than the World Bank that have announced their own comprehensive TVET assistance policies include International Labour Organization (ILO) and United Nations Educational, Scientific and Cultural Organization (UNESCO). ILO is an organization whose major concerns are labor issues, and its policy paper examines the efficiency and effectiveness of TVET within the global economy. According to the ILO, within modern-day international economic settings characterized by the high turnover of technology and product cycles, to develop human resources effectively, certain measures should be adopted by the government, such as: 1) setting the standards for technical skills and developing a skill qualification system which corresponds to the standards, so as to enable employers to more objectively grasp the capabilities of workers, 2) reinforcing collaboration with the private sector, and 3) offering incentives to encourage the private sector to share the burden of human resource training costs with the government[12]. Also, UNESCO has spearheaded discussion on the education sector since the days of its establishment, and, in that capacity, it has been bringing attention to the expansion of education based on a human rights approach. Regarding TVET, UNESCO has stated that every person must have the chance to learn life skills and vocational skills as a part of his/her right to lifelong study, and for the sake of sustainable development[13]. UNESCO approaches TVET from the perspective of ideals in education, ILO from the perspective of labor, and the World Bank from macro-economics. But within fundamental policy for the promotion of TVET, there is not much difference between these aid agencies seeing as they all advocate that the government focus on preparing guiding laws, regulations and frameworks while it keeps its own implementation of trainings to a minimum and utilizes the private training institutions for the rest. However, within the framework for this public-private collaboration, specific human resources that TVET ought to be cultivating will differ according to conditions within each country, and these aid agencies have not specified matters concerning training demand in the policy documents mentioned above.

1-3 Overview of Japan's TVET Assistance

Japan's international cooperation has consistently followed the aim of supporting economic development through the cultivation of human resources and, as such, TVET cooperation has shown constant results since the 1970s, wherein both the number of initiatives and their scale have been

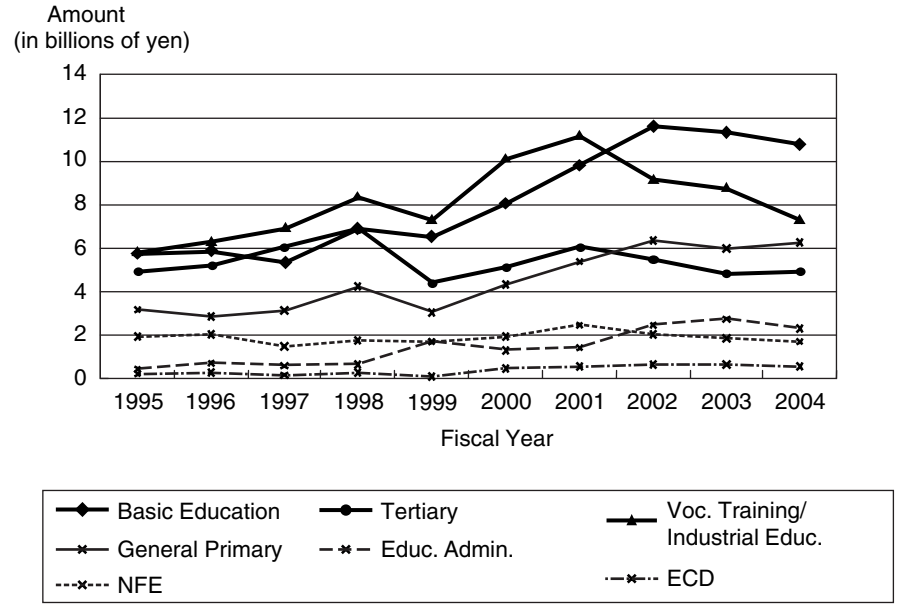
12 ILO (2000) pp.3-15.
13 UNESCO–IIEP (2001) p.45.

stabilized and sustained at a certain level to present day. TVET assistance provided by the Japanese government includes JICA technical cooperation projects, grant aid from the Ministry of Foreign Affairs; loans from Japan Bank for International Cooperation (JBIC), the acceptance of trainees by the Association for Overseas Technical Scholarship (AOTS) under the supervision of the Ministry of Economy, Trade and Industry (METI), the Japan Overseas Development Corporation (JODC)'s dispatch of Japanese experts with private enterprises, and, moreover, the Overseas Vocational Training Organization (OVTA) under the Ministry of Health, Labor, and Welfare provides human resource development information, develops educational materials, and delivers trainings overseas[14].

Most of JICA's technical cooperation projects are entirely or in part for the capacity development of people who are involved, and it is believed that a majority of initiatives not classified within the education sector, such as those in agriculture, fishery, machinery, electricity, or IT, can be seen as forming a part of industrial human resource development. According to JICA's 2005 report, *Assisting Middle-Income Countries in Industrial Human Resource Development,* the 961 technical cooperation projects JICA has carried out from the time of its foundation to date can be arranged into 3 categories – 'skill formation', 'research and development', and 'human resource development' – of which human resource development comprised 28.9% of the whole. Also, roughly 30% of the technical cooperation projects in the category of 'human resource development', conducted in the last 10 years, are said to "specialize in developing the human resource in industrial sectors"[15]. However, TVET's share of JICA's technical cooperation applied in the education sector has been dwindling, reflecting the emphasis on the importance of basic education within the current international support environment. Until the 1990s, the largest portion of JICA's education sector spending had gone to TVET. For example, from 1995-1998, TVET made up 31-34% of operations expenses in the education sector and was followed by primary education[16] (26.7-30%). However, since the year 2000, spending on basic education overtook TVET (Figure 1-3). In addition, JICA's overall spending on technical assistance for the education sector has also been declining (Figure 1-4), which means that the amount of aid to TVET has fallen off.

14 JICA (2006) p.8.
15 JICA (2005) pp.14-17.
16 JICA (2001) .

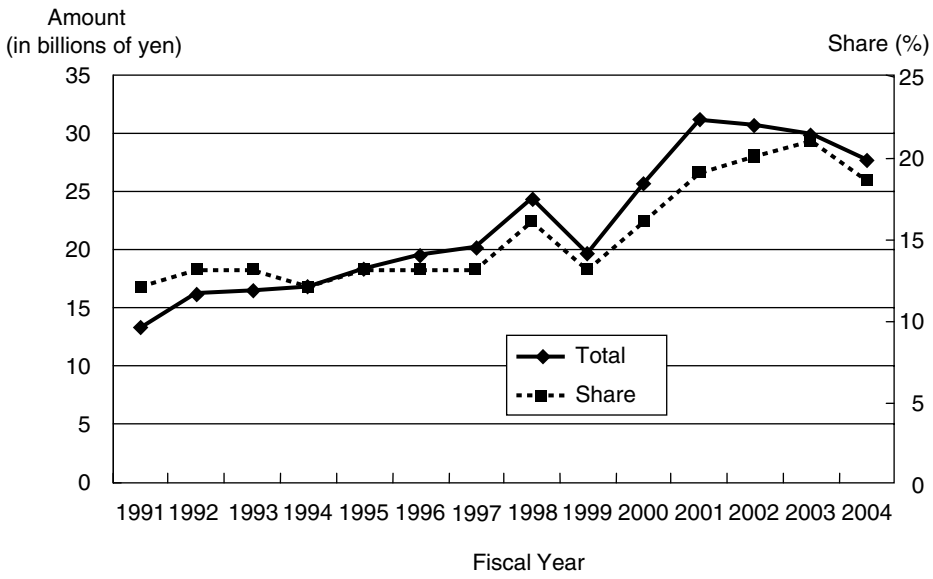
Figure 1-3: Trends in JICA's technical cooperation in the education sector, classified by sub-sector



Values based on: JICA Global Issue

Source: Provided by JICA

Figure 1-4: JICA's technical cooperation resources allocated to education sector



Source: Provided by JICA

Moreover, illustrative of overall Japanese trends in aid disbursement, regions with a history of receiving support in TVET are concentrated in Asia – making up roughly half of the whole. Asia is then followed by Latin America and the Middle East, while in this same sector, support given to Africa is at the moment quite limited[17] (Figure 1-5).

Japan's TVET assistance in Africa has focused on pre-service training for middle-level technicians through the provision of technical and material assistance to vocational training centers, as can be seen by the examples of operations in Senegal and Uganda. Also, new efforts are gaining attention, such as a) the progressive evolution of Japan-supported vocational training centers in these countries into bases for intraregional (South-South) cooperation[18], b) the Ghanaian government's adoption of national TVET policy as recommended by JICA's development study team and its implementation with JICA's technical assistance, and c) a new form of skills development support recently started in post-conflict countries such as Eritrea and Rwanda as a part of effort to reintegrate demobilized soldiers into society.

17 JICA (2005) p.16.

18 From 1999 to 2004, Japan supported Senegal-Japan Vocational Training Center to conduct third country trainings (trainings for people in some developing countries conducted by institutions from other countries. An alternative to bringing the trainees to Japan) targeting Africa's Francophone countries (Mali, Mauritania, Togo, Niger, Burkina Faso, Guinea, Gabon, Benin, the Central African Republic and Cote d'Ivoire) . It also supported third country trainings targeting East African Countries (Kenya, Tanzania, Zambia and Eritrea) from 2004 to 2006 as provided by the Nakawa Vocational Institute based in Uganda as well.

Figure 1-5: Japan's major TVET initiatives in Africa

Country	Timeframe	Cooperation initiative
Uganda	1968-1974	[P] Uganda Vocational Training Center Project
	1997-1998	[G] Project for Improvement of Nakawa Vocational Training Institute
	1997-2002	[P] Nakawa Vocational Training Institute Project in Uganda
	2002-2004	[P] Nakawa Vocational Training Institute Project in Uganda (F/U)
	2004-2006	[P] Training Project at Nakawa Vocational Training Institute in Uganda
	(Under preparation)	[P] Project for Instructors and Managers Training for Vocational Education and Training
Senegal	1983-1984	[G] Project for Construction of Senegal Vocational Training Center(BT)
	1984-1991	[P] The Senegal-Japan Vocational Training Center Project
	1991-1993	[P] The Senegal-Japan Vocational Training Center Project (F/U)
	1995	[P] The Senegal-Japan Vocational Training Center Project (A/C)
	1999-2004	[P] High-Level Technician (BTS) Training Project at the Senegal-Japan Vocational Training Center (Third Country Training)
	2002-2003	[G] Project for Extension of Senegal Vocational Training Center(BTS)
Zambia	1987-1994	[P] Technical and Vocational Improvement Project in Zambia
	1994-1996	[P] Technical and Vocational Improvement Project in Zambia (F/U)
	2001-2003	[P] Technical and Vocational Improvement Project in Zambia (A/C)
Kenya	1985-1986	[G] Construction Project of the NYS Engineering Institute
	1988-1992	[P] NYS Engineering Institute Project
	1993-1994	[P] NYS Engineering Institute Project (extended)
	1995-1997	[P] Follow-up Cooperation for the Construction Project of the NYS Engineering Institute
Ghana	2000-2001	[D] Study for Development of a Master Plan to Strengthen Technical Education In the Republic of Ghana
	2005-present	[E] Expert on Promotion of Competency-Based Training (CBT)
	(Under preparation)	[P] Technical and Vocational Education and Training Support Project
Tanzania	2000	[G] Project for the Supply of Training Equipment to Mtwara Vocational Traning Center
	2001-2003	[G] Project for the Supply of Training Equipment to Mtwara Vocational Traning Center
	2004-2005	[P] Follow-up Cooperation for Mtwara Vocational Training Centre
Eritrea	2003-2004	[E] Coordinator for Vocational Education and Training
	2003-2007	[P] Basic Training for Reintegration of Demobilized Soldiers in Eritrea
Rwanda	2005-2008	[P] Project for Strengthening the Capacity of Tumba College of Technology
Sudan	2006-2009	[P] Project for Improvement of Basic Skills and Vocational Training

[G] Grant Aid, [P] Technical Cooperation Project , [D] Development Studies, [E] Expert

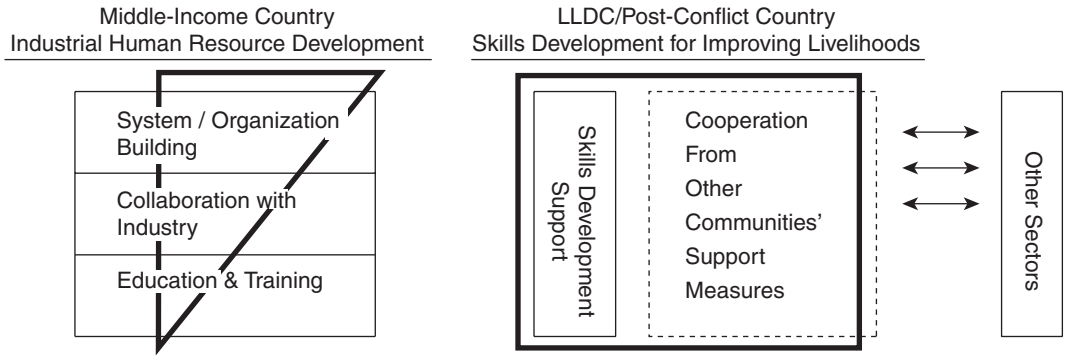
Source: Drafted by the authors.

1-4 The Scope of TVET and Location of This Survey

According to JICA's thematic guidelines, TVET has been defined as "human resource development aimed at providing the skills and knowledge necessary to carry out productive activities that lead to employment or entrepreneurship". Also, TVET has been roughly classified into two categories – 'pre-service training' and 'in-service training', whereby the former is implemented as a part of public education system from the upper secondary level and the latter includes in-company training, non-formal education, long- and short-term training at educational institutions, and apprenticeships[19]. Furthermore, the same thematic guidelines give (1) human resource development for industrial advancement, and (2) skills development for improving livelihoods, as 2 approaches for the implementation of TVET[20]. "Skills development", on the other hand, is defined as support given primarily to the poor and socially vulnerable segments of the population for mastering vocational technical skills, and carries the aim of directly contributing to poverty reduction by enabling individuals to take in income via the acquisition of fundamental technical skills. It is believed that the efficacy of poverty reduction can be synergistically enhanced by linking skills development to other community development approaches[21], such as the improvement of life skills. Meanwhile, "industrial human resource development" sets employment at businesses in the formal sector at its aim, and is thus defined as enhance international competitiveness of a country's industry.

Also, an underlying estimation in JICA's assistance policy is that "industrial human resource development" is for middle-income countries, and "skills development" for less developed and post-conflict countries (see Figure 1-6). The report released from JICA's study group on Assisting Middle-Income Countries in Industrial Human Resource Development[22] is also considering the possibility of supporting industrial human resource development based on the above inferences.

Figure 1-6: Relationships between development strategy and target countries (Areas framed by thick lines are areas of JICA's priority assistance)



Source: JICA (2006) p.33.

19 JICA (2006) pp.4-5.
20 *ibid*, pp.15-39.
21 Details relating to this theme are given in a JICA visiting fellow research report. Yoshida (2005).
22 JICA (2005a).

When thinking in terms of these classifications, the target countries of this survey – the less-developed nations of Sub-Sahara Africa – would be provided with skills development support. Indeed, economic growth in Africa has been low; in the 1990s, the overall growth rate for per capita earnings were negative (-1.8%)[23]. It is estimated that 46% of Africa's population lives on less than one dollar per day, which is worse than the 1980s and 1990s[24]. Poverty, contrary to what one would expect, appears to be growing. Consequently, it is undeniable that skills development for poverty reduction in Africa is crucial. On the other hand, if skills development was implemented, but implemented separately from analyses of national economic policy and labor demand, problems would arise, such as a work force that could not be absorbed into the labor market or support for poor entrepreneurs remaining unavailable, thereby quite possibly making implemented support itself moot in the end. The informal sector of most countries in Africa is home to over 90% of the population's economic activity and, furthermore, anytime the formal sector shrinks, or the economy stalls, the informal sector tends to expand. Whether officially registered (formal sector) or not (informal sector), support for Small and Micro-Enterprises (SME) as well as for entrepreneurs is not just specifically for poverty reduction, but also is conducive to improvements in the economic activities of many African people outside of agricultural work. At the same time, if industrial human resource development is limited to education in high technologies for employment at medium and large sized enterprises in the formal sector, then it would only reach the already limited number of workers within Africa's formal sector – which currently employs only 10-35% of the workforce[25]; that is, it would be biased from the perspectives of both poverty reduction and national industrial development strategy. Also, as will be discussed later, enterprises in Africa cultivate higher-levels of industrial human resources within their own in-firm trainings, and enterprises in general do not even expect much from publicly-run pre-service trainings[26]. In this way, introducing education for state-of-the-art technologies while keeping a blind eye to the unique elements of each country's workforce and its overall industrial structure would hardly lead to any long-term vision for economic development. There is no need to constrict industrial human resource development in Africa to engineering and technologies studies at tertiary and polytechnic institutions for, clearly, industrial human resource development ought to be considered by its suitability to demand rather than the complexity of its technologies.

Also, as has already been stated, the expected roles for aid agencies have changed under the sector programs that it is now prerequisite for such organizations to take part in policy discussions and systems design while keeping an eye on the whole of the TVET sector. Whether it be skills development for the poor, or the cultivation of human resources with skills in higher-level engineering technologies, technical cooperation projects in the TVET sector, such as those of JICA, must

23 Fukunishi and Yamagata (2003) p.25.

24 Economic Commission for Africa (2005) p.1.

25 For example, the percentage of the workforce in the informal sector is 87% for Ghana, 85.2% for Cameroon, and 74.6% for Ethiopia. At 24%, South Africa has an exceptionally small portion of its workforce employed in the informal sector. Fluitman (2001) pp.17-18.

26 Grierson (2002) p.33, 60; Dabalen, et al. (2003) p.32.

coordinate with interventions by other actors and act as part of the system to be hereafter constructed.

As such, the authors will refrain from strictly adhering to classifications for industrial human resource development and skills development as contained in JICA's thematic guidelines and discuss both the issues of TVET system design and actual education and training activities as indispensable conditions for the development of this sub-sector. In the next chapter, the authors will examine the models of human resource development in relation to demands for poverty reduction and economic development in Africa. To provide analysis better suited for the specific conditions in this region, the authors will categorize African workforces into a few groups along the lines of skills in demand, technical levels and the sizes of enterprises.

2. Present Conditions and Issues Concerning TVET Supply and Demand in Africa

2-1 General Conditions in the African Manufacturing Industry and Labor Market

Africa's agriculture sector comprises 62.5% (2000 data) of the continent's economy, which greatly exceeds the 55.4% average given for developing nations. However, agricultural production makes up no more than 17.4% of gross domestic production, meaning that production rates are actually lower in relation to the large size of the agricultural workforce. Also, many African countries are characterized by their heavy dependence on primary commodities exports in foreign exchange stemming from colonial times; 65% of Ethiopias total exports and nearly 90% of Burundi's are reliant on coffee. This exporting of agricultural commodities leads to vulnerabilities broadly affecting trade revenues that depend on the fluctuating international market. At the same time, when looking at Africa as a whole, the portion of agricultural production marked for export is quite low (12.8%) since a majority of agricultural products are kept for domestic consumption, whereas countries that do show high concentrations of agricultural products among their exports are generally those that either have to rely on agriculture due to a lack of other likely export goods, or those that possess economies where exports overall are very small[27]. In sum, with evidence of limitations on food processing and distribution – 2 means to lend impetus to the export of agricultural commodities – it is thought that by reinforcing coordination between production, distribution, and export, along with technical training pertaining to processing, the furtherance of exports based on existing production capability would be possible.

On the other hand, with the exception of South Africa, most countries in Africa do not even have 10% of their workforce in manufacturing (Table 2-1). In addition, Africa comprises only 0.7% of the world's production in manufacturing and, furthermore, if we were to exclude South Africa's turnout, then that number would drop to under 0.3%[28]. Therefore, as far as the government grasps, the manufacturing industry only makes up a slight part of the nation's economic activity and thus appears to be only marginal within the scheme of international economics. However, as will be discussed later, Africa's economy is distinguished by the fact that a large portion of its manufacturing and service industries depend on the informal sector, where neither licensing nor taxation apply, yet whether the informal sector contributes to the productive power of African countries, or the degree to which it can, is unknown.

Macroeconomic indicators in many countries began to deteriorate coinciding with the time structural adjustment policies were introduced in the 1980s up to the 1990s. Table 2-2, which shows macroeconomic indicators for 18 African countries that had implemented structural adjustment, evidences a drop in the real GDP growth rate from a pre-adjustment 3.4% to 2.4% afterwards. On top

27 Hirano (2004) pp.146-149.
28 Muroi (2004) p.126.

Table 2-1: Composition of the workforce in 11 African countries (1980 & 1997 data) (%)

	Agriculture		Manufacturing		Services	
	1980	1997	1997	1997	1997	1997
Congo	72	66	12	14	16	20
Ethiopia	89	84	2	2	9	14
Ghana	62	58	13	13	25	29
Kenya	82	78	6	8	12	14
Madagascar	82	76	6	7	13	17
Mozambique	84	82	8	9	8	10
Nigeria	54	36	8	6	38	58
South Africa	17	11	35	30	48	59
Sudan	72	68	8	9	20	24
Tanzania	86	84	5	5	10	11
Uganda	87	83	4	5	9	12

Source: Fluitman (2001) p.16.

Table 2-2: Economic indicators for 18 African countries that had implemented Structural Adjustment Plans (late 1980s - early 1990s)

	Before adjustment	During adjustment	After adjustment
Real GDP growth rate (%)	3.4	2.5	2.4
Real GDP growth rate per capita (%)	0.5	-0.8	-0.6
Gross domestic investment/GDP (%)	22.1	16.0	13.5
Fiscal revenue/GDP (%)	-6.0	-6.8	-7.0
Tariff revenue/GDP (%)	5.2	6.0	5.1
Current account/GDP (%)	-6.9	-6.1	-2.8
Health and education expenditure/GDP (%)	4.8	4.8	4.6
Inflation rate/year (%)	21.5	26.1	37.2
Real export growth rate (%)	3.0	4.4	2.6
Manufactured goods export/gross export (%)	1.9	2.2	2.4
Foreign debt/GDP (%)	40.4	96.7	95.5
Debt repayment/GDP (%)	3.0	6.2	8.4
Debt repayment/gross export (%)	10.6	22.6	31.6
Real exchange rate (1980=100)	96.5	94.3	80.9

Source: Muroi (2004) p.137 Tables 5-8. First published in World Bank (1993), *Adjustment Lending: Lessons of Experience*

of droughts, other natural disasters, domestic conflicts and general declines in political situations, structural adjustment policies had delivered a heavy blow to the fragile economies of African nations. Since the structural adjustment aimed at tightening the budget to minimize government functionality and reducing trade barriers to facilitate market liberalization, means to protect Africa's domestic industries, still in their infancy, could not be instilled through policy. Owing to market liberalization, the chances of local markets being washed over by the growing inflow of foreign products (with a

Table 2-3: Manufacturing industries around the world (By technological level and region) (1985 & 1998 data)

	1998			1998			Change in the mid to high technology sector
	Resource dependent	Low technology	Mid to high technology	Resource dependent	Low technology	Mid to high technology	
1. Value-added production							
World	27.1	16.2	56.8	27.1	14.1	58.7	1.9
Least developed countries (except China and India)	52.4	21.3	26.4	47.6	27	25.4	-1
East Asia	31.9	23.8	44.3	28	17.6	54.4	10.1
South Asia	30.3	19.9	49.8	27.6	19.7	52.7	2.9
Latin America/Caribbean	39.6	18	42.5	44.6	15.7	39.7	-2.8
Sub-sahara Africa	42.7	18.7	38.6	436	18.8	37.6	-1
Sub-sahara Africa (except S. Africa)	51.8	21.6	26.5	55.3	20.5	24.2	-2.3
Middle East / N. America / Turkey	48.6	20.7	30.7	41.4	21.8	36.8	6.1
2. Exports							
World	23.7	18.6	57.7	17.4	18.8	63.8	6.1
Least developed countries (except China and India)	37.8	52	10.1	17.8	72.9	9.2	-0.9
East Asia	22.7	38.2	39.1	12.1	28.1	59.7	20.6
South Asia	32.3	55.8	12	21.4	62.8	15.8	3.8
Latin America/Caribbean	51.3	16.9	31.8	24.9	18.2	56.9	25.1
Sub-sahara Africa	57.9	17.3	24.8	45.8	23.3	30.8	6
Sub-sahara Africa (except S. Africa)	67.8	19.2	13	50.5	36.8	12.7	-0.3
Middle East / N. America / Turkey	59.9	24.5	15.6	39.9	37.6	22.5	6.9

Source: UNIDO (2002).

particular increase in Asian imports in recent years) was high and, furthermore, the competition with foreign products compelled domestic producers to resign to lower quality and lower priced production. As can be seen in Table 2-3, the export of manufactured goods from Africa's mid- to high-level technologies sector[29] showed negative growth from 1985 to 1998.

From this data it can be gathered that policy for the development of human resources capable of seeing through current African national trade environments is necessary in order for African countries to establish economic growth strategy – whether that be though processing agricultural produce, substitution of import products, or promotion of exports through the introduction of foreign capital – and it is not very likely that blindly investing in human resource development in the high technologies

29 Classification of technical levels is according to reports from each country's United Nations Industrial Development Organization (UNIDO) office.

Table 2-4: A comparison of GDP growth rates in Africa (1996-2005) (%)

Little or No Growth Countries (Avg. GDP growth rate, 1.3%; 20% of Africa's population)		Low Growth Countries (Avg. GDP growth rate, 3.4%; 16% of Africa's population)		Sustained Growth Countries (Avg. GDP growth rate, 5.5%; 35% of Africa's population)		Oil Exporting Countries (Avg. GDP growth rate, 7.4%; 29% of Africa's population)	
Swaziland	2.8	Namibia	4	Mozambique	8.4	Equatorial Guinea	20.9
Kenya	2.8	Zambia	3.6	Rwanda	7.5	Angora	7.9
Lesotho	2.7	Guinea	3.6	Cabo Verde	6.5	Chad	7.8
Eritrea	2.2	Niger	3.5	Uganda	6.1	Sudan	6.4
Comoro	2	Togo	3.3	Mali	5.7	Nigeria	4
Seychelles	1.5	Madagascar	3.3	Botswana	5.7	Congo	3.5
Cote d'Ivoire	1.2	Malawi	3.2	Ethiopia	5.5	Gabon	1.7
Burundi	1.1	S. Africa	3.1	Tanzania	5.4		
Central African Rep.	0.9	Saotome/Principe	3.1	Mauritius	4.9		
Guinea-Bissau	0.6			Mauritania	4.9		
Congo	0			Benin	4.8		
Zimbabwe	-2.4			Ghana	4.7		
				Senegal	4.6		
				Burkina Faso	4.6		
				Gambia	4.5		
				Cameroon	4.5		

Source: The World Bank (2006b) p.3.

Table 2-5: Percentage of population living below the national poverty line

Benin	29	Burkina Faso	46.4
Senegal	33.4	Kenya	52
Nigeria	34.1	Eritrea	53
Zimbabwe	34.9	Gambia	57.6
Tanzania	35.7	Rwanda	60.3
Burundi	36.4	Niger	63
Uganda	37.7	Mali	63.8
Ghana	39.5	Chad	64
Guinea	40	Malawi	65.3
Cameroon	40.2	Mozambique	69.4
Ethiopia	44.2	Sierra Leone	70.2
Mauritania	46.3	Madagascar	71.3
		Zambia	72.9

Source: The World Bank (2006b) p.48.

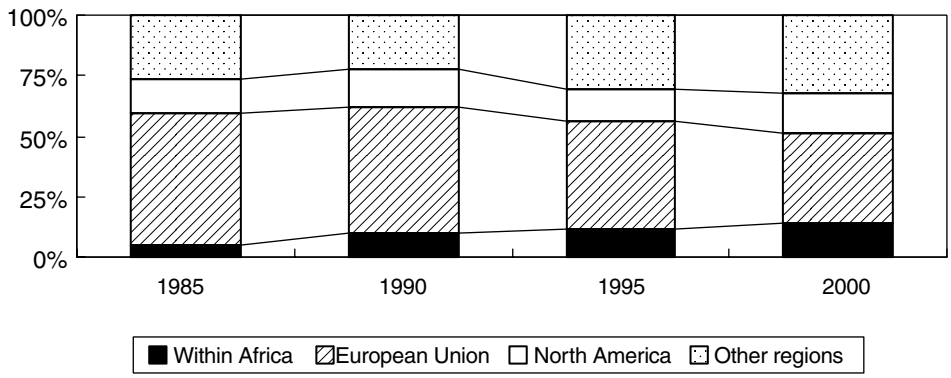
sector will lead to industrial development. Table 2-4 is a regional comparison of the GDP growth rate in African countries from the late1990s to 2005. While, overall, Africa is continuing to demonstrate low growth, the speed of growth and its relative economic base differs with each country. Also, as can be seen in Table 2-5's country-by-country breakdown of the percentage of all populations living below poverty line, while some countries with high poverty rates still show a GDP growth of over 5.5% (Mozambique, Rwanda, etc.), some countries such as Zimbabwe, on the other hand, despite negative growth due to the impact of political unrest in recent years, have poverty rates lower than surrounding regions. Also, though South Africa and Nigeria have shown a GDP growth rate of 4% or below (Table

2-4), these 2 countries alone accounted for half of Africa's sum GDP (i.e. Nigeria at 72 billion dollars, South Africa at 215 billion dollars, and the remainder of Africa at 234 billion)[30]. Further, half of the Foreign Direct Investment (FDI) in Africa is being invested in the natural resource-rich countries of Nigeria and Sudan (i.e. Nigeria at over 4.4 billion, Sudan at nearly 1.5 billion, and the remainder of Africa at nearly 4.25 billion dollars)[31].

Moreover, Africa's trade partners have long been concentrated in Europe, including the countries of its former colonial powers. This state of conditions has continued through to this day, though intraregional trade in Africa and trade with Asia have been on the rise – albeit by only small degrees (Figure 2-1). Trade with India and China in particular, from among its external partners, has rapidly expanded (Figure 2-2) and the value of exports sent by China to Africa rose from 4 billion dollars in 1998 to nearly 14 billion by 2004. Also, China's direct investment in Africa was just under 8 million dollars in 2001, but by 2004 it had reached nearly 45 million[32]. At the same time, South Africa has taken the initiative in intraregional trade and, of particular note, trade among the Southern African Development Community (SADC) has been increasing (Figure 2-3). Seeing as trade partners have been diversifying in this way at present, it is conceivable that conditions are pointing towards a transition hereafter, from the traditional model of 'vertical' trade relations, wherein raw material exports are exchanged for the import of manufactured goods, to mutually-dependant intraregional or South-South styles of trade.

Enterprises based in India and China that have been gaining ground in Africa have also been independently building overseas networks whereby Chinese ventures link with other Chinese ventures and, identically Indian ventures link to their Indian counterparts; these networks have integrated themselves inter-regionally more effectively than African businesses, and, by the forward-looking

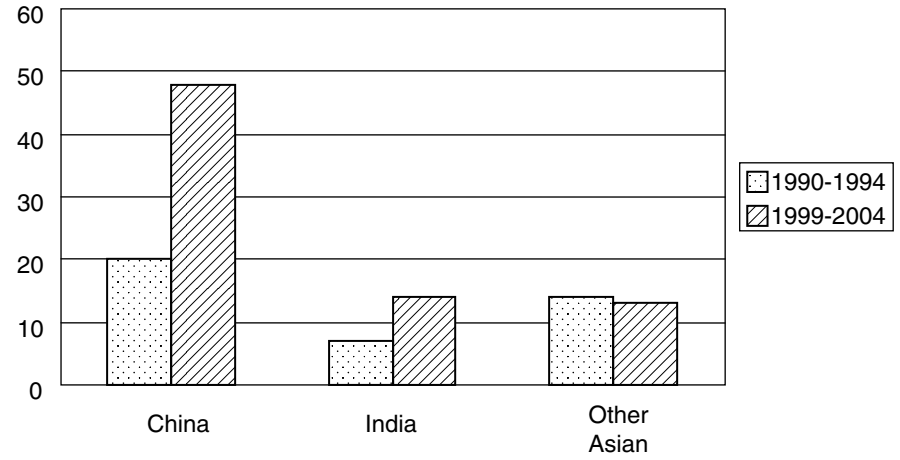
Figure 2-1: Shifts in Africa's trade (export & import) classified by region



Source: Taniguchi (2004) p.214.

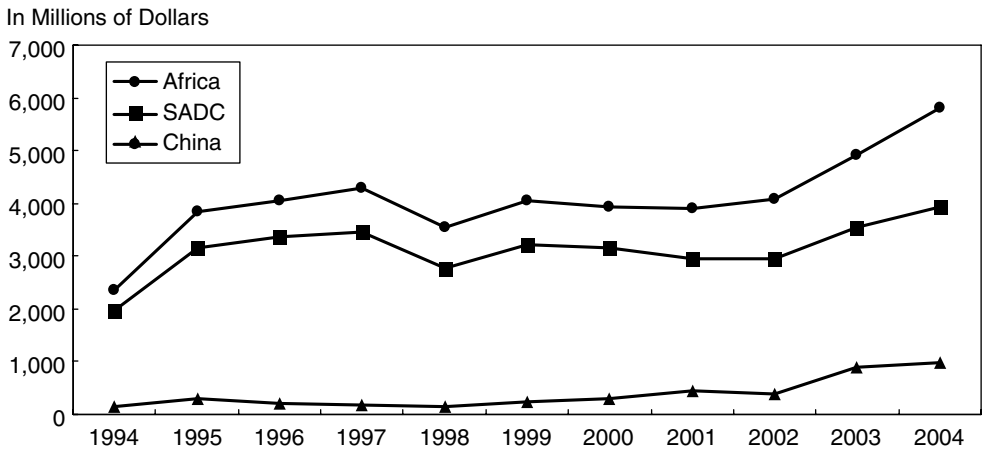
30 The World Bank (2006b) p.6.
31 *ibid*, p.7.
32 Kamiwazumi (2006) pp.241-243.

Figure 2-2: Increase in African exports to Asia



Source: Broadman (2006) p.9.

Figure 2-3: Shifts in the value of South Africa's exports by country/region



Drafted from IMF: Direction of Trade Statistics Yearbook 2001, 2005
(Does not include trade from within Southern African Custom Union (SACU) region.)

Source: Kodama (2006) p.74.

opinion of some experts, may just act as a catalyst for organically unifying the African region with the global economy[33]. On the other hand, there are cases of markets for local products being lost as a result of the arrival of cheap, mass-produced goods from Asia, and some believe that advantages in the form of technical 'spill-overs' or employment generation, brought by the advent of these businesses, are limited, at least for the moment. It is especially so with recently emergent Chinese corporations, which bring their own executives and laborers and channel profits back to China, unlike Indian and other enterprises which have long established roots in African-settled ethnic-Indian communities[34].

33 Broadman (2006) pp.24-25.
34 Mochizuki (2006).

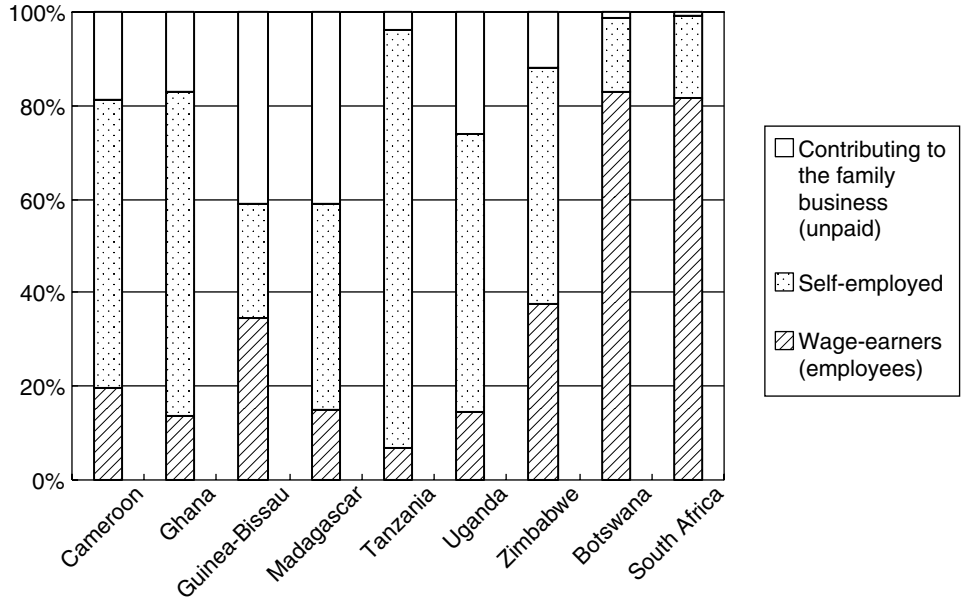
Regardless, whether African businesses more effectively strengthen their bases or see their markets taken by cheap Asian goods owing to the competition in domestic markets is largely dependent on policy for fostering industrial development and trade in African countries. As accompaniment to the advance of their business enterprises, Chinese and other Asian governments have invested in ODA for the transfer of technology to business, while also strategically carrying out investment support through Export-Import Banks[35]. In response to this penetration by united Asian governments and businesses into the African economy, the Nigerian government, among others, is said to be pushing for technical transfers in negotiations by making them conditional in exchange for allowing direct investment into its mineral resource mining[36]. In addition, Africa may be thought of by Asian countries as not just a market, but also a potential transfer point where exported goods may be assembled or processed on their way to the European market. If African governments invest in developing an employable, high quality workforce then, under the right investment conditions, such an infusion of intermediary goods would be more than possible. This means that the human resources required for Africa to facilitate direct investment as such would be the women and men laboring at the supporting industries capable of providing parts and materials to meet business demand. It is expected that these personnel, rather than having learned about the newest technologies through higher education, have fundamental knowledge as acquired by completing basic or secondary education, upon which they can absorb and apply new technologies through work.

Here, the authors would like to point out one thing that must not be forgotten when trying to understand the industrial structure of Africa – the overall proportion of Small and Micro-Enterprises (SME) is extremely high. Figure 2-4 is a comparative outline of labor pool formations in African countries divided by modes of employment. With the exception of South Africa and Botswana, where the per capita Gross National Income (GNI) is overwhelmingly high and levels of industrial development befitting middle-income nations are being achieved, self-employment or helping with the family business are the most popular modes of employment in most countries. A large portion of these self-employed individuals, and the small and micro-enterprises belong to the informal sector. The informal sector is a sphere of labor and entrepreneurship where small businesses and individuals can easily take part with a minimum of resources, and the majority in this sector is neither officially registered nor paying taxes. Actual work includes many different things such as retail, manufacture, processing, and repair[37]. Since anyone can easily join, it seems that in Africa 20-30% of all enterprises seen each year are newly established ones, whereas half of those will close down within the subsequent 3 years[38].

It is difficult to fully grasp the situation since individuals will repeatedly start and cease different businesses and no official registration of these ventures has taken place, but persons employed in the

35 Broadman (2006) pp.20-22.
36 Mochizuki (2006).
37 Honig (1993) p.2; Haan (2002) pp.1, 5-6.
38 Haan (2002) pp.10-11.

Figure 2-4: Labor pool formations in nine African countries



	Cameroon	Ghana	Guinea-Bissau	Madagascar	Tanzania	Uganda	Zimbabwe	Botswana	South Africa
GNI growth rate (2000-2004)	2.7	2.4	3.8	-1.5	4.6	1.8	-6.2	5.7	2.2
Per capita GNI (2004)	810	380	160	290	320	250	620	4,360	3,630

Source: Drafted by the authors from The World Bank (2006b).

informal sector's workforce far exceeds the number of salaried workers in the corporate and government sectors categorically. Among the few countries where the situation of the informal sector was studied, the percentage of the national workforce employed in the informal sector has been estimated at 87% in Ghana, 85.2% in Ethiopia, and 63% in Kenya[39]. In fact, the situation is even more difficult to assess when considering that a significant number of persons engaged in agriculture and the formal sector also supplement their income with side work in the informal sector.

Since the formal sector itself does not grow when economies stagnate, it is inevitable that the workforce would then flow into the informal sector, and expand it[40]. For that reason, the informal sector in African countries has been growing rapidly since the 1970s; however, at the same time, in middle-income countries like South Africa the percentage of persons employed in the informal sector has shrunk to as low as 24%, meaning SME have, to a certain degree, come into their own and stabilized along with economic growth. Also, the fact that work in the informal sector is mounting, while a majority of SME are closing just a few years after starting, shows that a portion of SME are

39 Fluitman (2001) pp.17-19.
40 Haan (2002) pp.10-12.

Table 2-6: Support needs in the informal sector

Form of Support	Level of Need		
	Self-employed, poorest	Micro-business of under 10 people	Small business of 11-50 people
Lending, loans	High	High	High
(As) Capital	*High*	*High*	*Moderate*
For the purchase of equipment	*Low*	*Moderate*	*High*
For the purchase of land	*None*	*Moderate*	*High*
Savings	High	Moderate	Low
Management guidance	Low	Moderate	High
Marketing guidance	High	High	High
Industrial technology guidance	Moderate	High	High

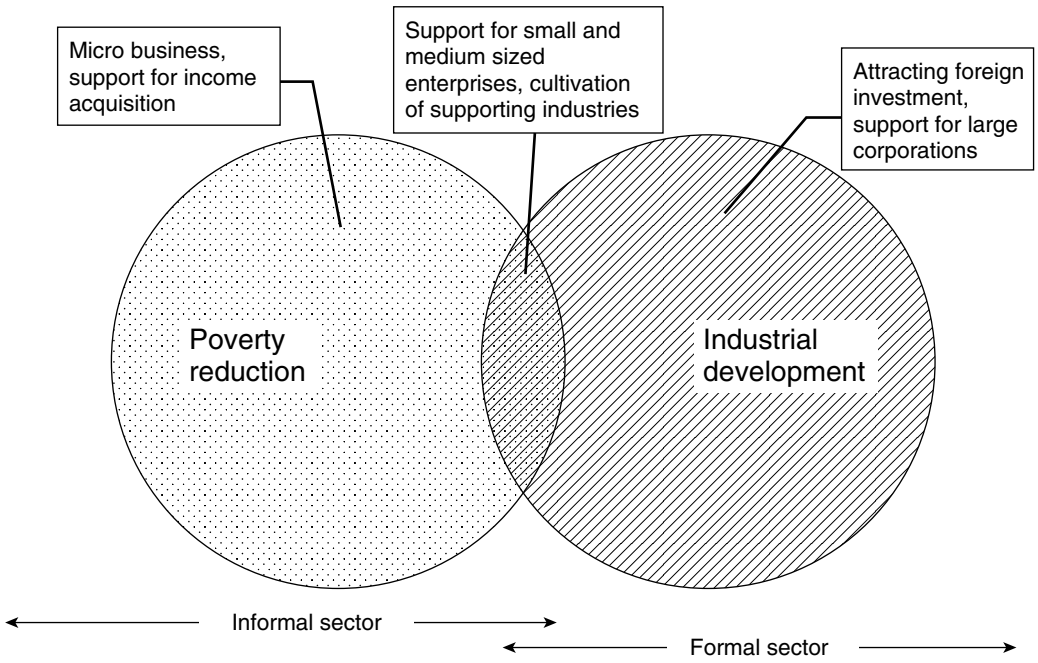
Education-related activities
Source: Haan (2002) p.7 Table 2.

maturing and expanding employment. In fact, it is said that about 1% of micro enterprises will grow to become small businesses that employ 10 or more persons[41]. As one would have seen by now, the gap existent between the upper and lower strata of the informal sector is quite large. While the need to improve earnings for those at the lower strata so as to facilitate their survival and, ultimately, reduce poverty, is dire, those in the upper strata should receive concentrated support for achieving growth while acquiring competitive technical skills from within Sub-Sahara Africa's labor-intensive industries[42]. Table 2-6 brings together the support needs of different groups such as these, including their education-related needs as well.

When considering that the informal sector itself will begin to shrink once a certain degree of economic growth has been attained, input given to the upper strata is indeed important as an industrial strategy. On the other hand, support to the lower strata would serve more as a fortification of social security service than as industrial strategy, therefore careful efforts clarifying both aims and target groups is necessary. In sum, from the standpoint of growth-oriented poverty reduction, middle and upper strata support for SME existing at the nexus of industrial development and poverty reduction (Figure 2-5) seems highly appropriate and furthermore, is in great demand among the target population as well.

41 Haan (2002) pp.10-12.
42 Johanson (2002) p.28; Johanson and Adams (2004) p.9.

Figure 2-5: The nexus between industrial development and poverty reduction



2-2 Debate over the Cultivation of Industrial Human Resources

2-2-1 From an Economic Perspective

Among classical analyses of the relationship between education and economic development, Harbison and Myers' research is highly representative[43]. Harbison and Myers used 1957-1958 data on secondary and tertiary education enrollment rates for 65 countries as indicators of national skill levels and look into the correlation between educational indicators and income. They came to the conclusion that in affluent industrialized countries, education indicators and the wages individuals received were both high. Since that time, 'human capital theories' have come to be broadly applied as theoretical framework for securing suitable education policy when looking to develop human resources for national economic development. Even in recent years, attempts at measuring the economic efficacy of human resource development have been made by reviewing the correlation among years of enrollment at public schools, post-graduation income, and national GDP[44].

Other than measuring economic efficacy in human resource development by years spent in school, ways to estimate the rate of return by comparing investments in formal schooling with earnings have also been broadly used. For this, public expense invested by the government in the education system and personal expense invested by households for the completion of each student's education are

43 Harbison and Myers (1964).
44 For example, see Barro and Lee (1993).

collectively summed at each level of education for comparison with the individual's post-graduation earnings. According to this estimation, the greater the ratio of post-graduation earnings against private and public investment, the more efficient the education process is. When one assesses the quality of human resources based on the length of their schooling, it is generally assumed that the more time one spends in school, the higher one's earnings will be; yet, when thinking in terms of rate of return, the suitability of investing is harder to justify the higher that education costs per student climb.

As was explained in Section 1-2, during the 1960s and 1970s, when a majority of former colonies gained their independence, the bulk of support provided to developing countries in the field of education was concentrated in secondary and higher education as well as in post-secondary technical and vocational education. Analyses concerning the correlation between the number of years in school and economic development often acted as the theoretical grounding for this kind of support. Even today the idea that technical and vocational education at the post-secondary level contributes to economic growth is widely held, but at that time this idea was even more dominant. However, upon entering the 1980s, the rate of return analysis came to be more extensively applied as the emphasis in assisting education shifted from vocational to general education, and from tertiary to primary and secondary schools. Research by Psacharopoulos, then a World Bank economist, published in 1988, substantially influenced the international community's debate on technical and vocational education. Based on data from Tanzania and Colombia, he determined that, when comparing graduates from technical/vocational tracks of upper secondary schools with those from academic tracks, the former do not find work any sooner after graduation, nor do they attain higher earnings, than the latter despite the higher costs of running vocational/technical education programs[45]. Psacharopoulos's research has been cited extensively ever since as evidence of the marginal relevancy of investing in technical and vocational education. Indeed, investment into equipment necessary for vocational programs includes large sums of costs not found in academic programs. Additionally, since there is a diversity of technical fields, often with practical exercises, student-to-teacher ratios tend to be kept quite low. For these reasons, the per-teacher cost efficiency drops. As such, technical and vocational education generally comes at a higher cost than general education. It would be inefficient for the government to lay too much money into vocational education without aptly grasping labor needs, since otherwise graduates could not be absorbed into the market. For reasons such as this, innumerable cases were given to show how technical and vocational education was not directly connected to employment[46]. On the other hand, there are reports which present cases of high rates of return on technical and vocational courses at secondary schools. Ziderman showed that male graduates from a Turkish technical and vocational school were not only more likely to find employment, but also earned higher wages[47]. From the 1990s, even Psacharopoulos himself has been easing his claims concerning the rate of return on technical and vocational education. According to his analysis of 11 Latin American countries released in 1994, in

45 Psacharopoulos (1988) p.275.
46 For example, Ziderman (1997) p.357; UNESCO (2003b) p.16.
47 Ziderman (1997) p.359.

half (6) of the countries looked at, the social returns from investment in vocational courses were higher than those of general courses, while in 7 countries there was no distinguishable difference in individual returns from investment in the former over the latter[48]. In other words, although school-based vocational education has its own limitations (discussed later), whether its rate of return is low or not has not been clearly proven to the degree popularly believed and must be judged on a case-by-case basis. Also, it is necessary to recognize that even Psacharopoulos's influential research demonstrating the low rate of return from vocational education was derived from comparisons between vocational and general tracks solely at the upper secondary level. As the sharing of roles with the private sector has progressed, education no longer needs to be exclusively school based – thus meaning that Psacharopoulos's argument has not at all negated the cost performance of the TVET sector as a whole, which is diverse in its ability to include various forms of provisions from non-formal to in-company training.

Human resource theory is premised on the idea that as long as the private and public educational institutions and businesses actively take part in the education and training of industrial human resources, and the training and labor markets are functioning competitively, the income of cultivated personnel will be justly determined by pricing mechanisms of the free market. However, in the industrial labor markets of many developing countries, the value of educated and trained workforces is not aptly determined by this principle of lassez-faire. For example, if an individual's real income is lower that what could be determined on the free market, then the rate of return on her or his education and training will be appraised at a lower ratio than what it actually should be. In Africa the mismatch of the kinds and levels of skills that are developed through education and training with the skills demanded on the part of businesses and the labor market has caused the current situation where labor forces are not being reasonably appraised. While a great number of governments in Africa are inclined to invest in the newest high technologies education, large-scale enterprises capable of hiring such personnel make up no more than a sliver of the labor market, and furthermore, since these large enterprises often train their workforces on their own, they do not often require any pre-service education at schools[49]. Meanwhile, small and medium sized enterprises do not happen to enjoy education and training services even though the demand for skill development is high. With their fragile financial bases, it is difficult for these enterprises to invest in education and training for their workforce[50]. Also, in Africa, and especially in West Africa, traditional apprenticeship systems are still widely used to educate and train artisans[51], meaning that there is little market demand for workers who have acquired school-based TVET. When hiring at SME, social networking as fostered through the apprenticeship system is extremely important whereas technology gained through school-based

48 Psacharopoulos (1994) p.7.
49 Grierson (2002) pp.33, 60; Kaneko (2000) p.19; Okada (2005) p.164.
50 Debalen, et al. (2003) pp.1-2, 32.
51 Skill levels are classified according to JICA's *Assisting Middle-Income Countries in Industrial Human Resource Development*, that is, 'artisan' at the single-skilled worker level, 'trades' at the middle technical skills level; 'technician' at the technical expert level (incl. multi-skilled workers and supervisors), and 'professional' at the engineer level (JICA (2005a) p.5).

education and training is not seen as very essential[52]. Within African society, the social undervaluing of technical and vocational courses owing to strong expectations from academic schooling has also effected drops in graduates' chances at employment and wages[53].

In this way, human resource theories do not account for labor environments where market mechanisms do not fully work. When there has been a mismatch between labor supply and demand in the market and the rate of return from particular TVET operations is low, one should determine the causes of the said mismatch by looking at the TVET curricula, the education system, and links to the market separately. These examples of supply-demand mismatch relate to criticisms against human capital theory. Although this theory operates on the premise that personnel who have been cultivated through education and training will contribute to economic development, critics say that there is insufficient insight into the content of education and training programs, the process of technological accumulation, and exactly how such personnel are to be cultivated[54]. Therein lies a valid point asserting that, within human capital theory, the process of shaping human resources itself has been absent and untouched; as this relates to the specific content of TVET and is also one principal subject of this report, this process will be addressed separately in the next chapter.

2-2-2 From Political and Social Perspectives

In this way, TVET, as carried out through public educational institutions, has often failed to meet market needs and in many cases its economic advantages cannot be empirically corroborated; even so, the African government has been strongly inclined to invest in secondary and post-secondary levels of public TVET. As part of the international tide towards emphasizing basic education, most of Africa's less-developed countries allocate over half of their budget to the primary education sub-sector. At the same time, some African governments have been gradually increasing their budget allocations to TVET and tertiary education. For example, in Ethiopia where TVET had made up 0.7% of the education budget for 1996/7, it had grown to 5.1% by 2001/02[55]. In addition, over the same time, the tertiary education budget went from 11% to 29%. In Tanzania, the TVET and tertiary education budgets were combined and recorded as one for some fiscal years but the allocations provided to both grew from 15.5% in 2000/01 to 22% in 2003/04[56]. In particular, as has already been said before, many developing countries have assumed that an essential condition for national economic development is catching up with the technical levels of advanced industrial nations by implementing TVET in high-technology related areas at the secondary level and above. However, there are instances where the motives behind promoting TVET, especially at the secondary education level, seem to lie someplace other than

52 Fluitman (1992) p.5.
53 Verner, (1999).
54 Okada (2004) p.1267; Lall (1999) p.9.
55 World Bank (2001).
56 *Ibid.* (2004).

investment in economic development.

One prime example would be the measures taken in response to youth unemployment. One outgrowth from the expansion of basic education is the fact that increasing numbers of youth fail to move on to tertiary education and remain unemployed after completing basic education. For many aid-dependent countries in Africa, one prerequisite for gaining donor support for the education sector is to mark anywhere from half to over 60% of their education budget to primary education. At the same time, a majority of these same countries have a real desire to increase, even if only slightly, investment into TVET and tertiary education for the sake of industrial development. As a result of the pie being gradually divided based on such considerations, secondary education often does not receive much attention when budget amounts are decided. In a substantial number of African countries, the secondary education budget neither decreases nor increases; it stays stable at low levels. What this means is that while basic education has expanded, secondary education capable of taking in basic school graduates has not; thusly, the number of students enrolling in tertiary education does not change and increasing numbers of youth who have completed basic education, yet cannot continue schooling, are the result. In addition, education inspires in people hopes of advancing, not into agriculture or manual labor, but into white collar work, despite the fact that such employment hardly exists. Thus, there has been an increase in labor migration from the rural areas to the cities, as well as rises in the number of youth who remain unemployed while not taking on work that they are unwilling to do. Figure 2-6 shows the proportion of the unemployed population within the Namibian workforce as classified by age, region and sex. Notably, unemployment is high among urban youth from 15 to 24 years of age. 56.8% of urban residents aged 15 to 19 are unemployed. These high unemployment rates among youth also lead to a sense of social discontent and rising crime rates in the city, among other things. For this reason, technical and vocational education is often used less as a means to meet labor demand, and more as a way to absorb youths from the street into the classroom[57].

However, some have said that unemployed youth do not comprise the poorest strata and, therefore, providing TVET geared at youth would not necessarily fit with the aim of reducing poverty[58]. Table 2-7 is based on a 1997 survey of the Namibian workforce, and shows levels of education commonly attained, classified by category. From this table, one can see that the unemployed demonstrate a higher level of education compared to the distribution of education levels in the general workforce. In the urban informal sector particularly, it is said that there is a close relationship between one's education level and earnings, but the poorest must work to make a living and are not poor because there is no work[59]. Rather, in the eyes of the poorest workers, even if TVET was to be offered, their inability to pay the cost of participating would be a detriment, thus it would be desirable to guarantee equal opportunity by introducing a government-sponsored voucher system covering the cost of participation in necessary trainings in order to enhance the technical skills of this laboring class.

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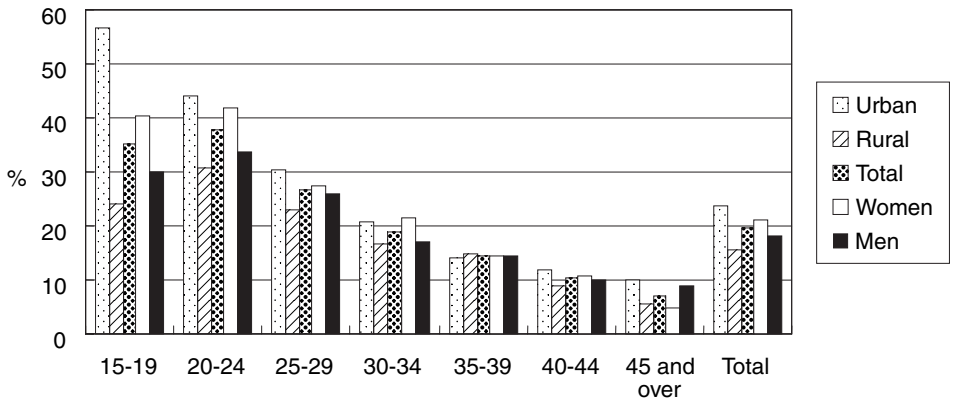
57 Bacchus (1998) p.35.
58 Bennell (1999) p.32; Fluitman (2001), p.10.
59 Fluitman (2001) pp.5-20.

Figure 2-6: Rate of unemployment among the Namibian workforce by age, sex, and region (Taken from a 1997 workforce survey)



Source: Drafted by the authors based on Fluitman (2001) p.26 Table 15

Table 2-7: Education levels in the Namibian workforce (in 1997) (%)

Education level	General workforce	Female workers	Unemployed	Urban workers
Received no education	15.6	13.5	10.5	7.0
Elementary education	37.2	35.2	38.4	17.9
Secondary school	25.4	28.9	33.8	32.0
High school	14.2	14.8	15.9	21.8
College	3.2	2.8	N/A	5.8
Numbers of Total persons	498,324	230,000	97,121	233,781

Source: Drafted by the authors based on Fluitman (2001) p.10. Table 5

As stated earlier, education tends to be seen as a means to entering white collar professions in Africa. As such, it is said that rather than make issue of what one studied in school, the level of education reached has greater influence on one's employment chances in the labor market. Foster came out with an influential study titled *The Vocational School Fallacy in Development Planning*[60], based on a survey of the newly-independent Ghana in the 1960s. According to Foster, the principal employer in the formal sector was the government, and what the government wanted was graduates of the general course, and not technical or vocational courses. Therefore, it was the general course schools that played the 'preparatory vocational' role, and the technical and vocational courses were not so relevant in preparing a workforce for employment. After structural adjustment, the ratio of government employment in the formal sector dropped sharply. Even so, in many African countries, general courses rather than technical and vocational courses, have better potential as 'vocational preparatory' curricula. However, even if public technical and vocational education is not useful as 'vocational preparation', it

60 Foster (1966).

has in a number of cases effectively derailed the enthusiasm of some students for entering tertiary education, thus toning down their aspirations[61]. Also, technical education rooted in local lifestyles often, when implemented, is expected to contribute to mitigating migration to the cities, or eliminating students' categorical rejection of manual labor so that they will rethink their ambitions.

In the 1980s, in view of the public's disdain for technical and vocational courses, as well as of the high cost of running them separately from general courses, a large number of African governments integrated technical and vocational subjects into the secondary schooling general curricula via establishing policy, i.e. the vocalization of general courses, to reduce boundaries between vocational and general tracks[62]. However, in recent years a swing back to the academization of secondary schooling has been taking place for the reasons that since a number of elective subjects had to be prepared for vocalization, the rate of return has been low or the vocational subjects taught at schools had been, after all, not sufficiently responsive to social needs.

Numerous other cases also show how, when planning and implementing technical and vocational education for non-economically motivated purposes, governments paid only secondary attention to whether the education provided thereby met trends and needs in the labor market. However, students and households start schooling at an education institution only after determining that it is worth investing both their time and money. Therefore, these institutions, by not grasping labor market conditions, reduce the social trust in their own programs and tempt failure when they continue to offer education that does not succeed in leading to employment. As such, one may say that an essential condition to offering technical and vocational education, regardless of whether the purpose behind it is political or social in nature, is that it meet changes in the labor market.

2-3 Means and Processes for Skills Formation

Fundamental levels of literacy and numeracy are a requisite foundation for industrial human resources. It has even been reported that illiterate persons have remarkably low trainability within technical trainings[63]. Therefore, a solid base for trainability rooted in good quality basic education is an essential condition for good vocational preparation. In less-developed countries, it is easy to fall into the vicious cycle of poor education-poor skills owing to trainability lowered by overall insufficient access to basic education, or graduates who have completed low-quality courses without being able to learn what was intended. On the other hand, basic education cannot provide market-competitive competency skills and so, though it is requisite, it alone is not sufficient[64]. In that case, for skills formation, what sort of training should be established on top of basic education? There is diversity in the demand for industrial personnel as well as in necessary technical levels and work environments and,

61 Sifuna (1990) p.6; Honig (1993) p.4.
62 Yamada (2001) pp.95-96.
63 Bennell (1999) p.20.
64 Broadman (2006) p.21; Lall (1999) p.33; Okada (2005) p.166.

Table 2-8: Characteristics of TVET by mode

Mode	Strengths	Weaknesses
Vocational education and training at government-owned institutions	· Often wide geographic coverage · Willingness to invest in capital-intensive skills · Often addresses strategic skills needs for national strategies	· Often insulated and unresponsive to market forces, repeating course offerings regardless of employment demand · Tends to become obsolete · Lack of cost-consciousness resulting in inefficiencies · Quality suffers when public budgets are cut
Vocational education and training by non-governmental providers	· Major source of skills training in many countries · Saves public expenditure that would have to be provided otherwise · Nonprofit providers often serve vulnerable and disadvantaged groups · High proportion of female enrollment · For-profit institutions usually cost-conscious and attentive to market developments and graduate placements	· Wide variation in quality · Tends to focus on skills with low investment requirements · Training often concentrated in urban areas · Fees tend to exclude marginalized groups
Traditional apprenticeship	· Pervasive source of skills for informal economy · Based on actual occupational tasks performed in employment · Serves poorer segments of the population · Self-financing and self-regulating · Generally cost effective	· Perpetuates existing technologies · Training delivery is often poor · Lack of standards and quality assurance · Skills obtained often incomplete
Enterprise-based training	· Self-financing and self-regulating · Based on actual occupational tasks performed in employment · Matched closely with existing production technology	· Training is selective – most notably in larger firms, for higher skilled occupations and better educated workers · Small enterprises are less likely to train

Source: Johanson and Adams (2004), Table 8.1.

as such, there is a diverse range of approaches to skills formation. These approaches include pre-service programs implemented primarily in educational and training institutions, in-service enterprise-based training, or for small and medium sized enterprises with neither the incentive nor the organizational scale to carry out systematic enterprise-based trainings, there are instances of in-service skills upgrade programs at educational and training institutions. Several methods to offering programs exist, such as a dual system where traditional apprenticeship systems are matched with practical exercises, and school-based education. In addition, even over the course of daily work, workers can learn skills by observing peers and masters, as well as by imitation and adaptation, without attending any formalized training. Due to such diversity of training modes, it is difficult to manage or fully understand the actual comprehensive state of TVET with any certainty, but a certain degree of categorization is possible. Herein, the authors would like to present a variety of skills formation methods arranged according to the levels of skills and modes of education and training.

Table 2-8 presents an organized summary of TVET by mode. It would seem that generally **vocational education and training at government-owned institutions** is the most broadly recognized

form of TVET. As was also recognizable in JICA's thematic guidelines, presented in Figure 1-6, there would be 3 roles that the government must fulfill in promoting TVET: 1) systems and organization building, 2) collaboration with the industrial sector, and 3) the provision of education and training. Vocational education and training at government-owned institutions would correspond to 3), yet, as has been noted thus far, the TVET programs implemented directly by the government have not necessarily received positive evaluations. Commonly heard among criticisms concerns the government's inability to match market needs through TVET. Owing to the fast pace of technological advances, school programs often become outdated after disproportionately large investments in expensive equipment. Also, within its implementation of education and training, the government tends to act in a top-down fashion driven by supplies while making little progress in collaboration or division of labor with the private sector. While the basis of public-private partnership rests on grasping the industrial sector's human resource needs and ensuring that education is carried out in line with those needs, recent mainstream theories articulate that in the actual provision of education and training as well, the private sector should be involved more proactively wherever it demonstrates higher comparative advantage or capacity within a certain field. It is widely believed that when encouraging private sector participation, the government should keep its own direct involvement to an absolute minimum[65]. The government should limit its direct involvement in training provision to areas which need focused intervention to assure equity, which cannot be achieved by free market mechanisms alone. Otherwise, it would be difficult to secure the governmental resources and commitment to TVET as given within the framework of the sector-wide approach prioritizing basic education. On the other hand, in middle-income countries like Singapore, public vocational education and training institutions have played important roles in developing human resources for industries which were not yet mature but had strategic importance within the existing domestic markets. As such, the role of public training and education institutions can be greater in cases where the government plans national skills formation based on the projection of future labor demands and operates in line with national strategy for industrial development.

Next are **vocational education and training by non-governmental providers**, which demonstrate wide disparity in quality. It is difficult to comprehensively assess the present state of private training and education institutions in African countries. Yet, according to a UNESCO survey conducted in Senegal, Zambia, Mali, and Ghana[66], though conditions differ by country, roughly 60-90% of students enrolled in TVET are at private training and educational institutions, meaning that when looking at pre-service TVET, one cannot wholly gather the facts by observing public institutions alone. One commonality observed in all sample countries was the fact that a majority of the students at private institutions had came from the poorer classes. A majority of private training and education institutions are profit-making organizations, which far outnumber institutions run by religious and non-government

65 Mitchell (1998).
66 UNESCO-IIEP (2003), (2002).

organizations. Depending on the country, the source of income will either come exclusively from students' course fees or be supplemented by the government's subsidies[67]; however, where institutions rely heavily on intake from course fees, the burden on family budgets is large enough that, on the whole, cases of students dropping out for financial reasons are visibly high. Though there may be variation in the pricing of course fees or the quality of education, in the case of Zambia – where students who were unable to enroll in public training and education institutions generally go to private ones instead – students at private institutions demonstrate lower average scores at the time of admission and graduation exam pass rates are also low[68]. Numerous private institutions also do not meet government registration standards, nor can they be readily assessed, such as those illegally run, newly-established, and recently shut down[69]. Private institutions tend to concentrate on services that require little investment, such as catering, computer skills and office-based services, whereas most training and education in the industrial technologies sector is carried out by public organs. As such, there may be a number of limitations on and problems with private sector-run training and education, but also one can see that, from among the masses of African citizens who have completed only basic education and earn relatively little, the need for vocational education and training is yet great, and many want it even at a cost. Several countries have established voucher systems in order to effectively utilize these institutions and provide equal training opportunities to the poor (see Case Study 1). Also, their governments have been considering the provision of favorable tax treatment and other incentives to private institutions. However, since uniform subsidizing of private institutions may heighten dependence on the government, invite rigidification of training and education curricula, and limit the subjective effort for improvement among these institutions altogether, it is best that governments offer support from the sidelines so that healthy competition in the market is generated and institutions that are capable of flexibly responding to the needs of students and employers will carry on.

Traditional apprenticeship is a skills training system grown from within a number of African societies and it is thought that a vast majority of workers in the informal sector begin work after having gone through such training. According to a survey conducted in Nigeria by Fluitman in 1992, over half of apprentices were youth between 18 and 25, while those over 29 years of age made up fewer than 10%. What is interesting is that the level of education attained by apprentices is not so low and, in fact, many have had more schooling than their masters. For example, in Ibadan, Nigeria, 82% of masters had completed primary school, but 92% of apprentices had done the same, with 33% and 36% of apprentices having gone so far as secondary and tertiary schooling, respectively. In Lome, Togo, 38% of apprentices completed secondary schooling and 6% tertiary[70]. According to Fluitman, in many cases masters give higher educational backgrounds as a condition for selecting apprentices, which discredits

67 In Mali, one-third of the per-student cost is covered by government subsidies, while in Senegal none is subsidized. In the case of Mali, UNESCO has reported that though the government's support to private institutions enhances the financial stability of these institutions, their ability to respond flexibly to labor demand drops because of the governmental control. UNESCO-IIEP (2002) p.12.

68 UNESCO-IIEP (2003) p.20, (2002) p.12.

69 Haan (2002) p.65; UNESCO-IIEP (2003) p.42.

70 Fluitman (1992) pp.3-4.

Case Study 1: Kenya's Voucher System for SME Training

With regard to SME skills training in Kenya, a training fund was set up along with a Project Coordination Office (PCO), a completely autonomous body established to steer and manage the funding as well as to improve training institutions. First of all, the PCO, announced the purposes for training funds through networks of business consultant companies, NGOs, labor unions and other partner organizations. At the same time, it made them nominate training and education institutions (both public and private) and apprenticeship masters that could implement small and micro-enterprise training. Then, the PCO reviewed the individuals and institutions nominated based on its own criteria and settled on a number of them for the operation of training in each technical field, whereupon capacity development trainings were introduced for trainers who needed to improve their skills.

Once the training providers were ready, the PCO solicited application of its vouchers through the networks of partner organizations. The voucher meant that once a recipient had selected and registered for a desired program from among those on a list offered by training institutions and apprenticeship masters, then a portion of the course fee would be waived while the training provider would also be given a subsidy. In Kenya, the 1st time one enrolls in a course, 90% of the fee is waived and for the 2nd time, 50%; the subsidies given to the training provider vary according to the technical level of the program.

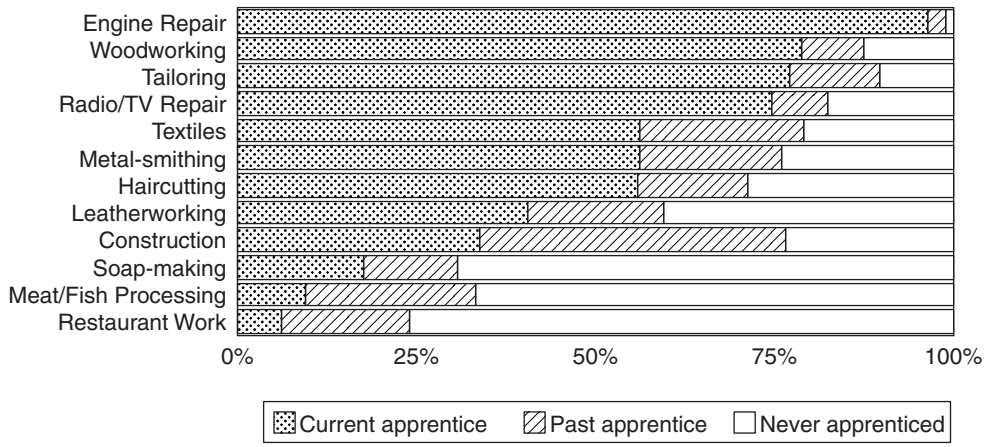
Johanson has given four reasons for the success of Kenya's voucher system, namely, 1) the presence of peer labor unions for SME, 2) involvement of these labor unions in planning for the training programs, 3) by making the PCO entirely independent of the government, problems caused by bureaucratic rigidity could be avoided and training provision was guided by market mechanisms and 4) by specializing the grant of vouchers for certain fields, skills formation was promoted in the needed areas of the informal sector. One disadvantage was the inefficiency of office work and the enormous amount of time required for transferring funds when subsidizing students or making payments on the course subsidies. However, the vouchers did motivate many to pursue skills learning to such a degree that, after undergoing training by virtue of the 1st voucher, many students moved on to attend other trainings even without waiting for the second voucher, delayed because of administrative reasons. Also, reports state that since the amount of income from course fees differed depending on the quality of the program, competition among training providers was enhanced and the quality of private institutions rose higher than ever before. Reports also note that another success was being able to bring in more old-fashioned and deeply-rooted apprenticeship leaders actively into the training system[71].

However, the above is an evaluation by the World Bank, the institution which led the voucher system. When seen from other perspectives, some commentary has criticized that, after all, the system did not act as a catalyst for broadening the training base[72].

the presumption that youth who cannot go to school take up apprenticeships. Since the apprenticeship system is anchored in family and community lines, the possibility of employment after completion is quite high. In fact, finding work after attending school is so difficult that students would conceivably pursue apprenticeships subsequent to schooling. Also, students not only learn technical skills through apprenticeships, but also how to negotiate with businesses and clients, set prices for products, train new

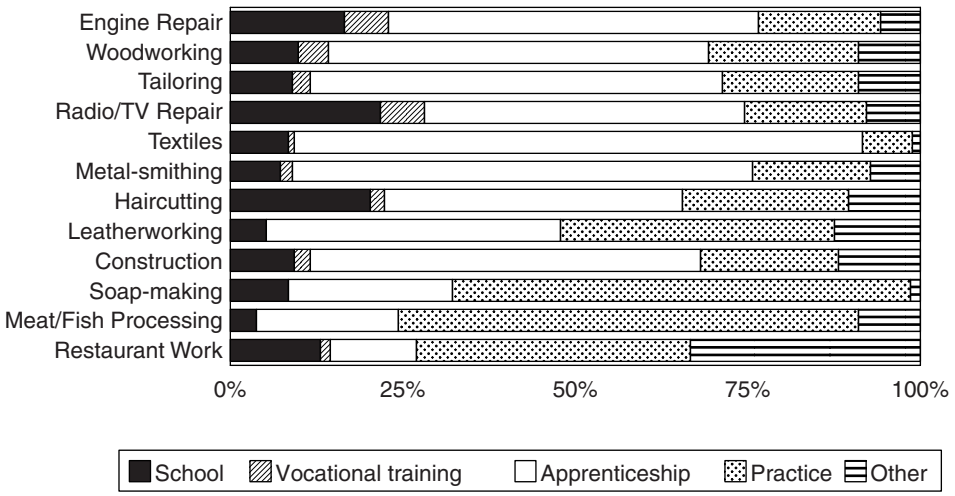
71 Johanson (2002) Part II pp.26-38.
72 Grierson (2002) p.3.

Figure 2-7: Experience with apprenticeships among persons running micro-businesses in Dakar, Ibadan, Lome, and Niamey (Sample of 1,751 persons)



Source: Fluitman (1992) p.1.

Figure 2-8: Most useful mode of skills formation according to persons running miocro-businesses in Dakar, Ibadan, Lome, and Niamey (Sample of 1751 persons)



Source: Fluitman (1992) p.7.

employees, and other skills that improve their aptitude for organizational operation and the management of business. Figures 2-7 and 2-8 show the proportions of workers that have undergone apprenticeships arranged by technical field. Excluding the three categories of soap-making, fish and meat processing, and restaurants, in all fields over half of employees have gone through the apprenticeship system (Figure 2-7). A majority of employees from the 3 fields listed above appear to have gone through On-the-Job Training (OJT), but those who had been apprentices overwhelmingly responded positively that their experiences as such had been of great use (Figure 2-8). In light of these facts, it would be inaccurate to state that the apprenticeship system is out-dated, and rather its social relevancy is often greater than that of formal trainings. However, in order to effectively apply the

apprenticeship system for industrial development and the improvement of earnings, it is necessary to commit to its strategic integration as part of national human resource development systems while, at the same time, establishing a qualification system standardizing the skill level of both those who have completed apprenticeships and those who have undergone institutional education or training so as to prevent a rift between the 2 sets.

Also, though not included in Table 2-8, from among programs offered for SME and the informal sector in particular, **entrepreneur trainings** have been gaining attention as of late. As mentioned earlier, demands for training in the informal sector are diverse and in order to reflect them, programs must be designed with a considerable degree of flexibility. As was pointed out in Table 2-6, training in the informal sector is effective when carried out in tandem with micro-financing and other assistance measures. The reason for this is that a large number of the poor cannot afford to directly put what they learn in training into practice. Moreover, many African countries are introducing entrepreneur trainings since, as mentioned earlier, because of the extremely high turnover rate of enterprises in the informal sector, it is believed that even in cases where a business can be started with relative ease, a lack of know-how to stably develop that business has often resulted in the dissolution of entrepreneur work. The World Bank has already been implementing vocational human resource development projects, with over 93% of them incorporating components of skills training in the informal sector – a majority of which include entrepreneur training[73]. Deutsche Gesellschaft für Technische Zusammenarbeit (GTZ) is also engaged in this kind of training. Entrepreneur trainings give instruction on how to: start and register a business, set up strategy, handle accounting, develop marketing technique and strategically hire and manage employees. In particular, these programs often provide success stories and examples of possible ventures, as hints for business plans, since a considerable number of people wishing to start a business are hunting for a field and specific kinds of work that they possess aptitude in. Persons who start a business in the informal sector, compared to those who do not, have relatively higher levels of education, and the likelihood of that business becoming established and attaining growth increases with the level of education attained by the individual[74]. It is said that one's chances at success are greater when starting a business after undergoing some form of vocational training, like entrepreneur training, rather than going into business directly after completing one's schooling.

Enterprise-based trainings, compared to the other forms of TVET discussed above, tend to respond to higher levels of skill demands. In many African countries, only a small portion of enterprises in the formal sector are of a scale where there is real incentive to carry out enterprise-based trainings. At the same time, while the levels of skills demanded of employees in these large enterprises are getting higher, the skills themselves are also more divers and specific. Therefore, it is important that an employee acquire particular kinds of knowledge necessary to operate in specific industries or by her or his company's unique ways of doing things. Tacit knowledge, as it is often called, is difficult to

73 Johanson (2002) p.23.
74 Haan (2002) pp.11-12, Fluitman (2001) p.18; Farstad (2002) p.7.

transmit in conventional forms of education and can be learned mostly on the job. According to a survey by Grierson conducted in Kenya and Zambia, large enterprises did not expect that their workforce had high levels of technical skill learned through formal education before employment, and thus enterprise-based training was implemented to upgrade the workers' skills after employment. On the other hand, at SME and in the informal sector, investment in employee training does not happen when left simply to market mechanisms, and since skills will not improve without trainings, government intervention is of crucial importance. However, large businesses, despite the fact that they are showing increased interest in skills trainings, expect little of the government and tend to distance themselves from trainings external to the company, or government-headed assistance and systems pertaining to human resource development. Their disinterest in and detachment from measures that the government has been undertaking is growing[75].

Generally, the areas of employee training in which the private enterprises have the greatest incentive to invest are knowledge and skills unique to them. To the contrary, for trainings pertaining to more general skills, individuals rather than companies are likely to have stronger incentives to cover the cost, because such trainings will raise employees' value in the labor market. Different from the company-specific skills, employees become more likely to move from job to job with higher general skills[76]. Theoretically, an individual's earnings should increase relative to the higher degree of skills attained. However, this only applies where the labor market itself is entirely free and open. Employees at large enterprises in Africa are supplied with wages far higher than those given to public sector workers of the same educational background. Thus, when considering the fact that in the industrial sector people with highest levels of education are employed at large enterprises, it becomes clear that for these employees the likelihood that motivation to change jobs will be enhanced by upgrading skills is not so high. To the contrary, one can consider that large businesses in Africa have a lot of incentive to hold trainings covering both skills unique to the company and general skills as well since there is a need to comprehensively enhance technical ability within the enterprise as a whole. However, where relations between labor and management are non-competitive, enterprises may make up for training costs by keeping down the markup range on salaries for employees who improve their technical skills[77]. This is because from an employee's perspective, continuing at one's current place of employment will eventually lead to higher wages than changing jobs, which gives businesses considerable power over setting the value of wages. Also, since there is no competition between large enterprises domestically, the investment in in-company trainings tends to be kept at the minimum for enterprises to operate.

In many less-developed African countries, enterprise-based trainings for building high-levels of complex skills and trades workers' trainings at SME are conducted separately, with little connection between the two. However, in essence, the cultivation of SME should be closely connected with strategies for the promotion of industries and introduction of foreign capital. A vast majority of the

75 Grierson (2002) pp.60-61.
76 Inoki (2003).
77 Dabalen (2003) pp.14-18.

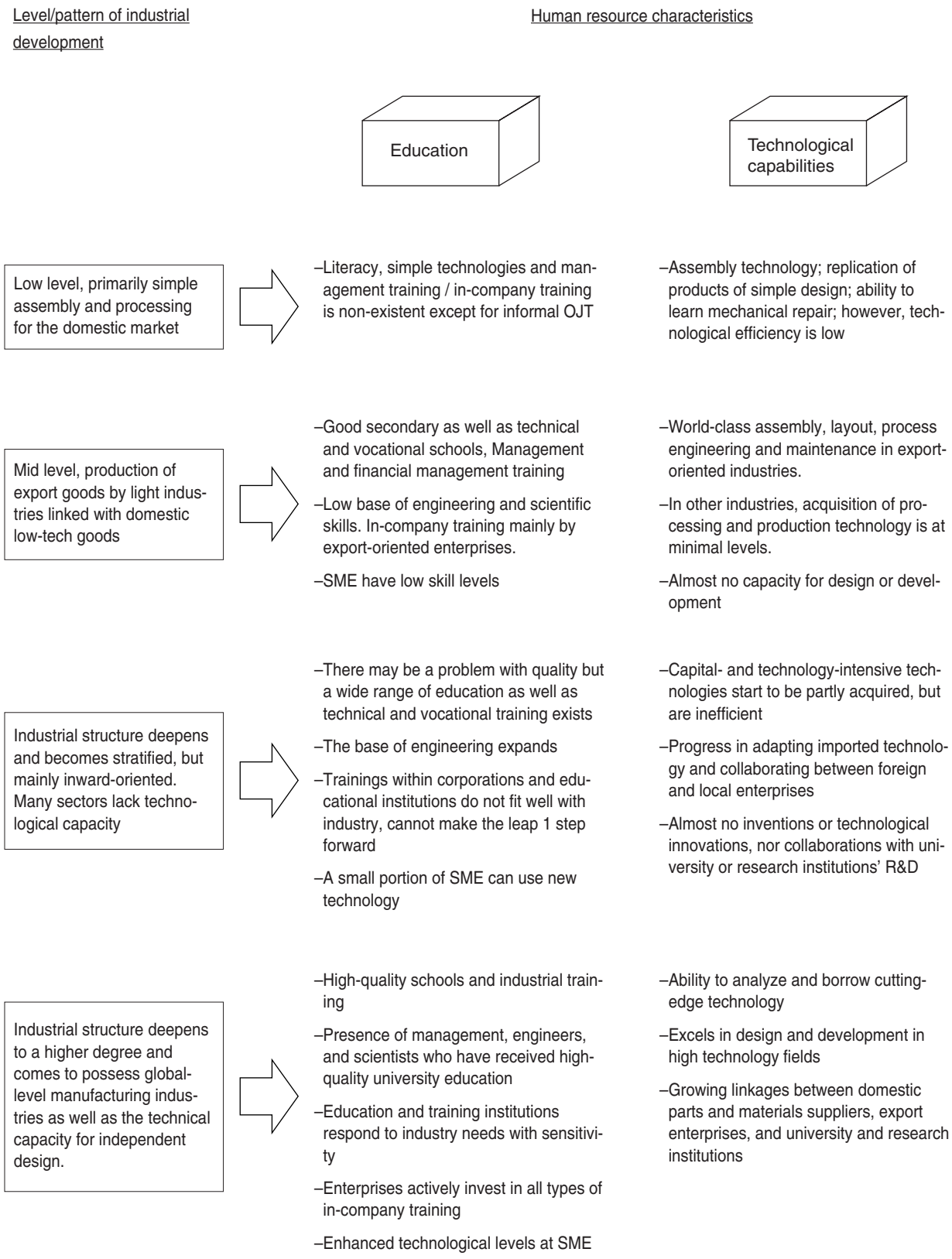
large enterprises operating in Africa's less-developed countries, including the South African capital invested within the Southern Africa region, are foreign to the countries in which they operate. These enterprises are controlled more by policy derived from group enterprises overseas than by policy formed by the government, and in terms of human resources training as well, the training modules employed are often developed by group enterprises while trainers are brought in from other countries[78]. Being a part of the global chain is extremely advantageous for improving corporate employees' technical levels. On the other hand, to date, large businesses operating in Africa have not extensively localized production processes and have only procured intermediary goods and parts domestically to a limited degree. Because of this, vertical groupings of African and foreign enterprises, in which foreign enterprises utilize supplies from local supporting industries and invest in enhancing the skills of the local workers, have not taken shape. Therefore, the presence of foreign enterprises has not brought about much of a diffusion of advanced technologies domestically. Many researchers have pointed out that mergers with foreign capital and supplying parts to assembly factories would lead to an increase in the technical level of domestic suppliers, which would then be shared in domestic horizontal networks (i.e. the spillover effect), thereby causing a rise in the overall level of technologies[79]. However, in Africa, since local supporting industries are not yet fully mature, foreign businesses have only been attracted to spheres such as the extraction of resources (and simple processing) and final assembly for products that will be sold in Africa's markets. This is the reason why it is said that in order to foster economic development through the introduction of foreign capital, supporting industries must be improved and, in particular, the cultivation of human resources for these industries is absolutely necessary[80].

2-4 Skills Formation for Industrial Development

Industrial growth and the development of technical skills are mutually related, and their evolution follows several stages. The first stage begins with the imitation of foreign products. In order to produce copies, one must first be able to understand how the original product is put together and what must be done to make an identical one. Therefore, a certain degree of education is necessary, but complex learned knowledge is not (see stage 1 in Figure 2-9). Before long, once the production of the imitation has met with success, increasing numbers of persons will be copying similar products and an industry will take shape. At this stage, a higher level of education and somewhat more complex technologies will become necessary. Also, products will no longer remain simple imitations, but will also be technically adapted to accommodate need (Stage 2). At stage 3, the industrial structure will deepen, tasks will be differentiated, and specialization takes form. Domestic supporting industries working in parts and other fields will grow on their own accord, and not just by the initiative of foreign capital. At

78 Grierson (2002) pp.56-60.
79 Otsuka and Sonobe (2006) pp.66-67; Okada (2004) p.1267; Amano (2006) p.56.
80 Ohno (2006a) pp.15-16; Ohno (2006b) pp.10-12.

Figure 2-9: The relationship between human resources and industrial development



Source: Drafted by the authors based on Lall (1999) p.20 Figure 4

the fourth stage, independent research and development into technologies can be conducted and subsequent technical innovations make exports of products into the global market possible. At this stage, while human resources with higher levels of research and analytic ability become necessary, domestic businesses face the needs of collaborative work with research institutions to develop new products. This theory of phased growth of technical skill and industry has been proposed by a considerable number of researchers[81]. Generally, it is said that even for countries which have made it as far as Stage 2's shaping of industries from Stage 1's imitation, the leap to Stage 3 is not an easy one. When looked at from the perspective of skills formation, the ability to conduct independent research and develop products, along with the strength to commercialize goods from there are not just acquired with the passage of time[82]. Here, some external stimulation or leadership with foresight becomes necessary. Even ASEAN countries that have accomplished more in terms of economic development than their African counterparts is said to have not been able to cross over barriers to Stage 3.

Technicians in Africa may be able to adapt technologies, but they cannot yet develop them. The possibility that industry may endogenously amass and develop cannot be denied[83]. Yet with the exception of one unusual case of a shoe industry in Ethiopia, it is extremely rare that spontaneously amassed industries go so far as sending exports[84]. A majority of African regions are landlocked, meaning that the cost of transportation is very high and, in addition, the supporting industries, as well as the technical savvy of personnel that work at them, are not fully matured. According to the classification in Figure 2-9, most African countries and regions are at Stage 1 and, at best, Stage 2. At these stages, it is important for countries to introduce and maintain foreign capital by improving the quality of trades workers and cultivating reliable supporting industries. This strategy to attract foreign capital should involve implementing, not just industrial human resource development, but a variety of policy measures collaboratively. For example, 1) tax and customs systems attractive to foreign enterprises, 2) a stable political environment and 3) the provision of information on and matching with domestic suppliers, should all be carried out along the same line with human resource development. The focus of policy will change depending on the field of industry to be promoted. For example, in priority industrial sectors, the government may consider extending preferable treatment to foreign enterprises, focused programs of human resource development, and careful assistance to small and medium sized enterprises. Technological spill-over and shared knowledge between foreign and local enterprises can be promoted by encouraging the exchange of personnel between foreign enterprises and domestic suppliers, in addition to the joint operation of training programs. No matter which case is selected, in order to realize these sorts of skills formation and industrial development, it is crucial that the government set realistic ambitions, and work to carry out potentially achievable industrial growth

81 Otsuka and Sonobe (2006), (2003); Ohno (2006a), (2006b), etc.
82 McGrath and King (2000) pp.3-6.
83 There are some places where a considerable level of industrial accumulation has taken place, such as Kumasi in Ghana and Nairobi's Gikomba in Kenya.
84 Tikly, et al. (2003) pp.8-10.

strategy through ministerial collaboration based on a strong leadership, above whatever internal conflict of interests may exist.

Case Study 2 presents Singapore's human resource development strategy applied within industrial policy. It should be illuminative of the strategy that a middle-income country strove to foster for the sake of industrial development, along with the steps that were taken therefor, which would be suggestive to policy-makers in African countries, too.

Case Study 2: Singapore's Human Resource Development Strategy for Technology-based Industrialization

The Singaporean government placed its efforts into human resource development so as to intensively generate improvement in certain industrial fields. In order to improve high technologies, in particular, university curricula were revised to match industrial policy and the government strictly supervised their quality and content while a great deal of effort was also made to improve on the industrial human resource development system outside of school education as well.

The government established its **Skill Development Fund** in 1979 and at the same time introduced a **Skill Development Fund Levy** collecting 1% of the gross wages given by employers to employees. Revenue from the skills development levy was accumulated as the fund, and partial refunds were given to enterprises that sent low-wage employees to government-approved training courses.

Singapore has 2 national universities and 4 polytechnics. In 1996, 41% of university graduates had obtained their degrees in some sort of technological field. The polytechnics cultivate mid-level technological and management skills, with a focus on engineering. This corresponds to the government's strategy aimed at industrial development based on technology accumulation and high value-added manufacturing industries. Education and training institutions collaborated closely with industry in developing curricula and executing training practices. Many institutions implemented skills improvement programs for blue collar workers that had completed high school, and in 1996, 6,000 people took part in full-time training, 17,000 people in part-time training, and 29,000 people in continued learning training.

The **Vocational & Industrial Training Board**, established in 1979, is an agency embracing all vocational education and training, and it has authorized the **skills certification** of 112,000 people (9% of the workforce) to date. This same board has planned, evaluated, and controlled every kind of training such as full-time, part-time, long-term, short-term, formal, non-formal, apprenticeship, and business trainings, among others. Also, it has established a training center in collaboration with foreign enterprises (from Japan, France, India, Germany, Holland), which has promoted the transfer of manufacturing technology. Furthermore, it has jointly implemented technical trainings with foreign governments (e.g. Japan, Germany, France) based on their support.

In 1995, reflecting the government's high level of commitment, trainings were diffused to the point that, in total, 1 training site was available for every 3 laborers. Also, assistance for training provided to low-wage laborers through the skills development levy succeeded in sharply raising the upper limits of the target group's earnings. Even the training programs, which at first only managed to make an impact on large enterprises, shortly became utilizable by SME as well. The **Development Consultancy Scheme** was established, wherein SME can obtain subsidies for receiving short-term consulting relating to administration, industrial technology, business development, and personnel.

The **Training Voucher Scheme** takes over for costs incurred by small businesses to train employees, and the **Training Leave Scheme** provides enterprises that allow employees to attend training with aid that covers a portion of the employee's hourly wage (up to 20 dollars) and the entire cost of the course fees.

The Vocational & Industrial Training Board customarily seeks the opinion of leading enterprises as to whether new technological needs exist and, when necessary, training programs are implemented to match the certain skills needed. For example, in 1998, new programs developed in this way included those covering computer integrated circuit manufacturing technology, precision engineering, high-definition digital media manufacturing, and computer networks. In addition, the same board started an **Overseas Human Resource Program** from 1991 which supports enterprises based in Singapore in inviting technical experts from overseas. The number of technical experts brought to Singapore in 1997 under this program totaled roughly 2,500, and the number of skilled laborers totaled 10,400.

In Singapore, the ratio of specialists and skilled laborers is steadily growing as per the government's strategy (from 15.7% in 1990 to 23.1% in 1995), but in estimates by the Department of Trade and Industry, should current economic growth continue, there is a possibility that industrial human resources may still be lacking.

Source: Lall (1999) pp.36-37.

2-5 The Government's Role in Effective Human Resources Development

As has been discussed, the greatest part played by the government in TVET should be in designing systems and regulations, all while collaborating with industry and the private training sector, in addition to keeping direct implementation of trainings to a minimum. Also, in reality, government-run education and training institutions are limited in what they can directly contribute to human resource development in consideration of current government budget allocations to TVET in most African countries, as well as the capacity of vocational education and training institutions. In order to preserve a balance with basic education, the government's role in relation to TVET must be made clear, and any overextensive policy would face disapproval from various parts of the government and donor community.

First, information on the workforce must be gathered for estimating labor needs and forming human resource development policy based on an understanding of current conditions. It is difficult to get a good grasp on the informal sector, as already mentioned, and many governments do not have much of a fair understanding of conditions inside it. Since collecting detailed information on the informal sector would take far too much work, and conditions change so often, it would not be realistic to try to gather numerical data to the same exhaustive degree as is done with the formal sector. At the present time, a majority of countries derive their estimates of labor demand based on data from the formal sector, which comprises only 10-30% of the workforce; as a result, industrial human resource policy attaches too much importance to the formal sector, is out of line with reality and, from the perspective of poverty reduction as well, has little relevance. Governments must collect data on the informal sector and SME, including qualitative information, so that the policy will be formulated in response to the reality.

Next, policy relating to the hiring and cultivation of personnel must be prepared, in relation to which exact technical skills standards and qualifications systems have to be determined. Employment and human resources policy, as was mentioned, cannot be geared to just the education sector, but must be prioritized within industrial policy. Such legal framework will oblige actors to collaborate across sectors and bridge the vertical divide between government ministries and agencies under the common purpose of human resource development. The important reasons for difficulty faced in TVET are, 1) the fact that it spans the domain of numerous ministries while the core ministry in charge is not made clear, preventing functional collaboration and 2) approaches to TVET differ with each concerned ministry and 3) while in some fields, several ministries and agencies operate overlapping programs other fields may be left unattended. A number of countries are working to avoid problems in operations by establishing independent bodies for the management of vocational human resource development, and designating high-ranking officials from each related ministry to act in that managing body's steering committee. However, bodies for managing and coordinating vocational human resource development cannot fulfill what is expected of them unless they maintain independent revenue sources and autonomy. Analysts attribute the success of Kenya's voucher system, as introduced in Case Study 1,

to the fact that the project coordination office acted as a private organization independent from all government agencies, and was also fully entrusted with the administration of training funds. In order for these independent coordination and management bodies to function, all related agencies[85] ought to come together with the vocational human resource development activities they implement and hammer out the most effective and efficient ways to divide the tasks. It is not enough to collaborate passively and proactive efforts should be made to divide tasks along the lines of shared principles all under the guidance of policy at the supra-ministerial level. For this purpose, the presence of a strong leadership along with vocational human resource development policy based on analyses broad in scope would generally be seen as critical.

In addition, it would be necessary to unify the technical skills certification and qualification standards. In Africa, each ministry has its own standards for technical skills that are, again, divided into so many categories that often neither employees nor employers can rightly comprehend what each skills qualification inherently means or what the value of possessing it would be. As such, since holding domestic qualification for certain skills poses little advantage in employment, it is not rare for persons to pursue technical skills qualifications from British and other international institutions[86]. In regard to this, by standardizing a skills qualification system that clearly designates what skills personnel possess, the matching of laborers to employers would be facilitated. At the same time the standard qualification system would enable the assessment of education and training institutions based on their performance, such as by how many students acquire which levels of qualification, rather than simply investing based on the number of courses provided[87]. In Africa, several countries have begun to establish independent organizations for the conferment of qualifications and establish a national qualification framework[88]. However, since settling the qualification and measurement criteria requires patience from both the education providers and industry itself, in many cases the whole process gets confused. Also, different agencies have each of their existing qualification systems, developed via their own unique process and consideration, which means that they tend to resist standardization with other bodies. Here, as well, it is imperative that agencies demonstrate a strong conscious will to act cooperatively for the sake of a common purpose beyond past circumstance and agency interests.

Also, the idea of Competency-Based Training (CBT) is being broadly introduced with close relation to the national qualification framework. This is an approach of training which was developed by reflecting on past mistakes in running supply-driven TVET programs and ignoring market needs; CBT attempts to implement trainings for the solid acquisition of skills demanded on the market and grant certification to those who have acquired such skills. Industry, along with education and training

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85 The Ministries of Education, Labor and Employment, Industry, Agriculture, Local Governance, and Women's Affairs, are among the government ministries that have jurisdiction over training and education institutions in each field and thus establish their own qualification standards with relation to vocational human resources cultivation respectively.

86 UNESCO-IIEP (2003) p.50.

87 Castro (1995).

88 In 3 countries visited for this study, Ghana, Uganda, and Malawi, policy courses for national qualification frameworks are currently in transition, although the degrees of change vary.

institutions, is involved in drafting training programs and trainees are assessed as they reach the skills level aimed for within each stage of the programs. Also, CBT is managed as a dual system, placing strong emphasis on practice, wherein theoretical learning at education and training institutions is combined with practical training within enterprises. However, the factors which compose 'competency' change according to situation, and also as technologies advance. Therefore, it is not easy to standardize 'competency' itself. Also, in order to effectively link instruction in the classroom with practice, the instructor must sufficiently understand the concept of CBT and possess enough flexibility to handle individual cases appropriately. Recognizing that success in education reform greatly depends on the responsive capabilities of teachers, which is more difficult than merely carrying out the designated curriculum, it is expected that support for teachers will be also provided. On the other hand, enterprises do not expect much from school-based pre-service training. In consideration of the fact that high trainability (skills of comprehension, analytic ability, fundamental academic base, basis to learn new knowledge and skills) is regarded as more important, it would not be effective to put too much time and energy into merely setting qualification standards for CBT. It is possible to move ahead without having the qualification standards fully settled; thus, it should be adequate to proceed with reforming the qualifications system while strengthening linkages to industry, and working to make trainings appropriate to actual demand.

Up to this point, the authors have iterated the crucial importance of collaboration with the private sector repeatedly. First, it is necessary to have an open dialogue with enterprises, i.e. employers, in order to understand the demand for labor and formulate a curriculum based thereon. Also, the government's collaboration and division of tasks with the private sector as a provider of education and training is crucial. As has already been shown, private institutions surpass public institutions by their sheer number of schools and enrollees in their formal education and training, which serve masses of the poor population. Also, large enterprises often train their employees in their own capacity. Further, the apprenticeship system and non-formal education also play important roles in technical and vocational education and training. In ways such as these, the portion of education and training programs that can be run by the government in this sector is small to begin with, and thus collaboration between industry and private education and training organizations is essential. For that reason, the role that the government plays in preparing the all-encompassing framework, i.e. qualifications systems and policy, is absolutely vital. Furthermore, strategic public financing have proven to be effective in utilizing private institutions, such as by providing aid for initial costs incurred when institutions with a financially weak base set up new programs, or by providing incentive for the implementation of trainings in priority fields. On the other hand, just as with enterprise-based trainings, market mechanisms function sufficiently even without government involvement where the private sector is motivated to carry out independent education and training programs, such as those for wealthy clients able to pay course fees. In those cases, to have the government directly implement trainings and educational programs would not only fail to be cost-effective, but it would also injure the functioning ability of the private market. It is advisable that the government pulls some weight at the stage of

setting up programs and tries not to cover all areas, thereby allowing business to take up the responsibility of training as it augments economic growth[89]. Moreover, since competencies in demand change from minute to minute, the relevancy of pre-service TVET for longer time periods is difficult to be maintained. Instead, it is believed that the need for focused short-term training provided for persons already working is on the rise, meaning that education and training institutions must also change their programs along with market needs.

Herein, the authors would like to introduce oft-utilized financial schemes for supporting the role of the private sector in human resource development. One such item is **training funds**. These are funds specially geared for the purpose of vocational human resource development and do not belong to any specific ministry or organization; in most cases in Africa, these include funds provided by aid agencies and those collected from enterprises placed together in 1 account. These funds act as a flexible resource that can be used for a variety of expenditures such as: a) for providing incentive to businesses and institutions that implement technical education and training, b) for implementation of trainings for the informal sector and other disadvantaged segments of society that past trainings were unable to reach, c) for vouchers for poor workers unable to raise money to pay the cost of participating in such courses on their own, and of course, d) for publicly sponsored education and trainings, among others. By establishing independent institutions to manage these funds, vocational human resources development, a problematic entity that presented vertically-divided government administrations with many a dilemma and often failed to function well, can be carried out with better mobility. Also, business contributions made to funds generate a consciousness and commitment among those in industry, and this can contribute to the enhancement of collaborations between institutions and industry. According to World Bank analysis, so far, countries which have already introduced the training funds have seen positive results[90]. However, according to several recent reports, it is best to let contributions from aid agencies and enterprises bypass the Ministry of Finance, because, in many cases, those which pass through are diverted as the agencies all vie for a piece of the pie[91].

Contributions made by enterprises that act as a source for training funds are in many cases collected as **training taxes**, from a certain portion of a business's sum payroll. Relative to this, it is also possible to establish a system of tax exemption or subsidy for enterprises that wish to train their employees. A tax exemption/subsidy system would reduce training taxes or refund a portion of training costs in the case that a business offers trainings for its employees, or has employees attend outside trainings, via training funds. Also, when the expense burden of employee training has grown too large for smaller-sized enterprises, there are also means to promote employee trainings by extending grants larger than the amount paid in training taxes by the company. However, in Africa the latter is not often applied as the paperwork required is quite troublesome. The **voucher system** was covered in detail in section 2-3, so it will not be discussed at length here, but it is worth recalling once more the fact that it

89 Mitchell (1998) pp.6, 12; Ziderman (2001) p.11; Johanson (2002) pp.21-22.
90 Johanson (2002) pp.12-15.
91 Ziderman (2001) p.19; Johanson (2002) pp.21-22.

is an effective means of assuring equity in vocational education and training.

Training funds and training taxes, when working well, lead to both the promotion of investment into employee training by business as well as the diversification of financial bases for vocational human resource development. At the same time, such common training funds will make the appropriation of resources possible in fields which do not have strong financial bases and where market mechanisms alone do not generate training. The kind of activities that the government can implement for this sake would include: allocation of vouchers to certain groups of people, or implementation of trainings in the informal sector. However, as mentioned before, there is the chance that the government may divert funds. Also, should the system fail to pick up on market demand and reach out small businesses and places that cannot otherwise be reached, it may result in a loss of public support for the whole system of human resource development[92].

Table 2-9 illustrates roles that the government plays in TVET as well as the means to fulfilling those roles and the strengths and weaknesses posed by them. These means are being tried in many countries in Africa, and clearly there is a need to look into which are most appropriate in each country's context, while also taking the experiences of other countries into consideration.

Table 2-9: Comparison of policy objectives and means to achieve them, based on cases in Africa

Policy objective	Means	Strengths(S) and Weaknesses(W)	Sub-saharan African country examples
Raising additional or alternative funding for vocational education and training	Earmarking training taxes (usually based on company payroll)	- Possible to attain a steady supply of funding for training of the nation's human resources (S) - The employer may shift the onus of special-purpose taxes to laborers by lowering wages (W) - Over-concentration of funds in central administrative agencies may generate residual funds and inefficiencies (W) - Should national finances become strained, the government may put special-purpose taxes for resource development together with general tax revenues (W) - Special-purpose tax revenues may be diverted to purposes other than trainings (W)	Tanzania
	Co-financing (matching funds)	- Administers education and training institutes with pressure to acquire revenue (S)	
	Cost-sharing (particularly, trainee fees)	- Participants, as direct beneficiaries of the training, justifiably share the cost of human resource development (S) - The poor may not be able to procure the opportunity for training if target-specific subsidies and scholarships are not offered (W) - Should national finances become strained, the government may put special-purpose taxes for resource development together with general tax revenues (W)	Kenya

92 Ziderman (2001) pp.13-18.

Policy objective	Means	Strengths(S) and Weaknesses(W)	Sub-saharan African country examples
	Deferred training fees (government secured or subsidized loans)	- If persons who face difficulty paying are protected by student loans, then course fees may be raised or other means to cost-sharing may similarly be promoted (S) - Records management was lax in many of the Sub-Saharan countries where student loans were introduced, thus preventing fair performance of the system (W)	
	Revenue generation by training providers	- Facilities may be used to their maximum potential via loans, etc. (S)	Tanzania Botswana
	Production-for-profit/training-with-production	- End results of the training may become even more reflective of market needs (S) - The objective of the training may be taken lightly, causing a drop in its quality and/or quantity (W) - More resources may be steered towards making goods rather than the training as a whole (W) - Earnings from sales may not be utilized for the training objective (W)	Botswana
	Promotion of education and training by private education and training institutions	- The national human resource development system may be expanded without increasing public expenditures (S) - Private education and training institutions tend to overly concentrate on technological fields where demand is high and investment can be kept low, thus it is possible that public institutions get trapped in providing training for only the fields that require high investment, and the mutual accommodation of technical costs becomes impossible (W)	
	Donor aid (grants, loans)	- Funds may result in specializing in a training field not suited to the conditions of that particular country (W)	Madagascar
Promoting enterprise-based training (formal sector)	Financial incentive; business income tax concessions	- A refined corporate tax system covering the wide range of enterprises is necessary (W) - Expenses are required for maintaining the system, causing a loss in public earnings (W) - Businesses of the scope subject to the advantage of tax exemption alone are few in number, meaning few businesses will take part (W) - If efforts are not made to cultivate human resources, businesses may fail to increase the number of in-company trainings, even while receiving exemption (W)	Mauritius
	Subsidies/grants from government or national training funds	- The burden on public finance increases (W) - If efforts are not made to cultivate human resources, businesses may fail to increase the number of in-company trainings, even while receiving exemption (W)	Madagascar

Policy objective	Means	Strengths(S) and Weaknesses(W)	Sub-saharan African country examples
	Levy-grant systems; training cost reimbursement, training levy exemption, training cost redistribution	- In-company trainings may come to be held more systematically and schematically (S) - Depending on the training needs, there is a possibility that enterprises (especially small enterprises) may not benefit from this system, resulting in discontent (W) - If efforts are not made to cultivate human resources, businesses may fail to increase the number of in-company trainings, even while receiving exemption (W)	Cote d'Ivoire Mauritius Nigeria
	Establishment of industrial training boards	- Trainings are promoted and advisory services can be offered (S) - Unless it has genuine authority, autonomy, and the participation of related parties, the body becomes a mere shell of what it should be (W)	Kenya Nigeria
	Training quota system (obligates a certain portion of employees to be trained)	- When great differences exist in the demand for trainings according to enterprise or sector , the system may have the opposite effect (W) - Enterprises may elect to pay the penalty fee and not abide by the system rather than fulfill allocations (W)	
	Modernizing reform of the apprenticeship system		South Africa
	Legislation: Protection of investments into employee training		
Improving the effectiveness and efficiency of public education and training institutions	Output-based funding of training institutions	- Standards for the impartial and objective allocation of funds are introduced (S) - Demand-driven trainings are promoted (S)	
	Competitive bidding for funding by education and training institutions	- Public expenditures on human resources training are reduced by competition (S)	South Africa Cote d'Ivoire Senegal
	Decentralization/institutional autonomy	- Training needs can be uncovered and handled through local initiative (S) - Authority for budgetary allocation is decentralized allowing for trainings to be properly arranged as driven by demand (S) - If decentralization progresses too far, coordination centered on the training system becomes impossible (W) - If appropriate capacity building is not carried out, regional education and training institutions may have weak management (W)	Madagascar Mauritius Tanzania
	Contracts with education and training institutions in response to training needs	- It is possible to respond to certain groups' demands for skills improvement (S)	

Policy objective	Means	Strengths(S) and Weaknesses(W)	Sub-saharan African country examples
Effective allocation of national training resources	Establishing national training authorities	- Success will not be attained unless sufficient resources and the necessary technical support is obtained (W) - Unless it has genuine authority, autonomy, and the participation of related parties, the body becomes a mere shell of what it should be (W)	
	Partnerships: participation of stakeholders	- Principal groups with vested interests will independently be involved in the management and administration of national funds for training through their substantial involvement in the management committee (S)	
Moving towards flexible, market-responsive training provision	Promotion of education and training by the private sector	- Private education and training institutions tend to overly concentrate on technological fields where demand is high and investment can be kept low, thus it is possible that public institutions get trapped in providing training for only the fields that require high investment, and the mutual accommodation of technical costs becomes impossible (W)	
	Outcomes-based funding for education and training institutions	- Serves as a strong economic incentive to avoid supply-driven trainings (S)	
	Contracts with education and training institutions in response to training needs	- It is possible to respond to demand voiced by certain groups for skills improvement (S)	South Africa
	Decentralization/institutional autonomy	- Training needs can be uncovered and handled through local initiative (S) - Authority for budgetary allocation is decentralized allowing for proper trainings arranged by demand (S) - If decentralization progresses too far, coordination centered on the training system becomes impossible (W) - If appropriate capacity building is not carried out, regional education and training institutions may have weak management (W)	Kenya
	Voucher system	- Promotes choice among consumers/beneficiaries (S) - Creates conscious will (effective demand) on the part of beneficiaries to invest in trainings (S)	Kenya
Equity: training for minorities and special/disadvantaged groups	Economic assistance to disadvantaged groups		
	Scholarships in line with certain standards		
	Vouchers in line with certain standards	- Promotes choice among consumers/beneficiaries (S) - Creates conscious will (effective demand) on the part of beneficiaries to invest in trainings (S)	

Policy objective	Means	Strengths(S) and Weaknesses(W)	Sub-saharan African country examples
	Special allocations from training funds, particularly when financed by payroll levies	- Training taxes collected from employers in the formal sector can be given for training minorities and certain groups (S) - Going against the principle that advantages exist for those who pay special taxes, formal sector enterprises may object (W)	South Africa
Equity: To train and re-train the unemployed	Contracts with education and training institutions in response to training needs	- It is possible to respond to certain groups' demands for skills improvement (S)	
Equity: To respond to the needs of disadvantaged regions	Allocation of training funds to disadvantaged regions	- Should the allocation of training funds to certain regions influence political pressures out of local interests, objectives may become self-serving (W)	Tanzania
	Establish regional training boards	- It is difficult to maintain balance in regional autonomy and central coordination (W)	Tanzania Madagascar
Improving trainings for the informal sector and self-employment	Establishment of training funds	- Training taxes collected from employers in the formal sector can be given for training minorities and certain groups (S)	South Africa
	Voucher system	- Promotes choice among consumers/beneficiaries (S) - Creates conscious will (effective demand) on the part of beneficiaries to invest in trainings (S)	Kenya
Attracting foreign physical investment	Subsidized training for foreign companies which establish new, local production facilities		

Source: Ziderman (2001) pp.111-113.

3. TVET as Viewed From the Education Sector

3-1 Trends in Educational Development

In this section, the authors will present results from the 3 field surveys conducted in Ghana and Uganda, where JICA has TVET projects, and Malawi, where the demand for TVET assistance is growing. The TVET systems of these three countries are presented as a part of the education sector. Based on descriptions of thereby-related situations, the chapter will introduce some issues to be considered in extending Japan's assistance to TVET in Africa.

As will be seen in the examples of Uganda and Malawi, TVET administration in Africa is now increasingly being moved from the jurisdiction of the Ministries of Labor or Manpower Development to the Ministry of Education. And because of advancing aid harmonization in the Ministry of Education, TVET has also come to be squarely cast within education sector development plans. In other words, though by its very nature the entirety of TVET may not fit within the frame of the education sector, in view of the powerful trends at work placing it administratively within the jurisdiction of the Education Ministry, the authors would like to touch upon the following 6 policy concerns which set the condition of educational development as a whole.

(1) The Expansion of Primary Education and Its Graduates

From the late 1980s, a move towards recognizing anew the importance of basic education as a fundamental human right gained momentum and, in 1990, a consensus was reached at the World Conference on Education For All held in Jomtien, Thailand, as led by UNESCO. This consensus stated that the international community, along with developing nations, would work together cooperatively to provide 'Education for All'. Subsequently, access to primary education in numerous countries and regions dramatically expanded. In recent years, improvements to the quality of primary education, along with the expansion of post-primary education are being given as the next logical steps to follow primary education's quantitative expansion.

(2) Aid Harmonization

As was mentioned in Chapter 1, one current trend in the international aid community is to promote aid harmonization, which includes increasing developing nations' ownership over policy and administrative procedures while strengthening partnerships between governments, aid agencies, and other stakeholders. In particular, the Paris Declaration on Aid Effectiveness was enacted in March 2005 at the High-Level Forum on Aid Effectiveness, which galvanized the move towards aid harmonization and alignment, and since then Sector Wide Approach (SWAp) has been introduced predominantly into

sectors such as education, health, and agriculture where the donors' commitments are stronger than in other sectors. A growing number of countries in Africa have been working out comprehensive Sector Development Plans in the education sector as an essential component of their SWAp. Table 3-1 shows the countries that have had, or are expected to have, their education sector plans endorsed by the Fast Track Initiative (FTI), an international cooperative framework for supporting universal primary education.

Incidentally Japan's efforts in aid harmonization have basically not gone much further than the level of policy coordination, and as far as financial (e.g. sector pool funds, sectoral financial support, general financial support, and on-budget support) or procedural coordination (e.g. procurement and financial report harmonization) are concerned, it has been extremely limited[93].

Table 3-1: Countries endorsed and expected to be endorsed by FTI

Countries with education sector plans already endorsed by the FTI			Countries that are expected to have their alreadyform ulated education sector plans endorsed by the FTI		
			2006	2007	2008
28			3	15	14
2002	Burkina Faso Guinea Guyana Honduras	Mauritania Nicaragua Niger	Benin Bhutan Sierra Leone	Angola Bangladesh Burundi Chad Republic of Congo Georgia Guinea-Bissau Haiti Kiribati Liberia Papua New Guinea Sao Tome/Principe Solomon Islands Vanuatu Zambia	Libya Central African Rep. Dem. Rep. of Congo Eritrea India Indonesia Laos Malawi Nigeria Pakistan Sri Lanka Tanzania Togo Uganda
2003	Gambia Mozambique	Vietnam Yemen			
2004	Ghana	Ethiopia			
2005	Kenya Lesotho Madagascar	Moldova Tajikistan East Timor			
2006	Albania Candia Cameroon Djibouti Kyrgyz	Mali Mongolia Rwanda Senegal			

Source: EFA-FTI Secretariat (2006) p.1.

(3) Secondary Education as Vocational Preparation

The African government has historically paid great attention to the expansion of TVET at upper secondary and post-secondary levels. Underlying this was the belief held by developing nations that economic development was industrialization per se, and the definitive cause of the gap between themselves and advanced nations was a lack of human resources with technical and professional knowledge. Also, as has particularly been evident in recent years, the tremendous shift in ICT-centered

93 The Ministry of Foreign Affairs Japan (2006).

service industries employment from the United States and Europe to countries such as China and India, where the cultivation of human resources with high technical skills has become quite advanced, African nations have shown growing interest in TVET as a means to ride the wave of globalization.

Also, it has been demonstrated that the expansion of TVET at the secondary level (including post-secondary vocational institutions) also meets the political demand for making secondary education terminal; that is, allowing graduates to move on into the world of work without proceeding on into tertiary education. In other words, due to intense competitiveness to get limited white collar employment opportunities in the formal sector at foreign enterprises or government, college graduates are most often sought and, thus, the demand for continuing schooling is high. Also, as the primary education continues to expand and the pressure for access to secondary and tertiary education intensifies accordingly, the government will have to respond to the people's expectations for continuing education. However, on the other hand, tertiary education institutions tend to become strongholds for anti-government movements and an increase in the number of college graduates may not directly link itself to an expansion of employment opportunities in modern-day sectors and, conversely, may just invite a rise in employment instability. Thus, the government is faced with the dilemma that although there are high demands for more education, expansion of tertiary education has side effects which are politically undesirable. Furthermore, in addition to the fact that an expansion of tertiary education could increase financial burdens owing to its high unit costs, the problem of brain drains has also grown more severe; visualizing secondary education as terminal is a matter of deep significance in the eyes of the government and the expansion of TVET in the post-primary field can be seen as one measure towards realizing this option.

(4) Reaffirming the Role of Tertiary Education

In Africa in the 1960s, polytechnic schools and the TVET sector were placed in the spotlight for their ability to cultivate technicians able to support economic growth, but this focus was tamed with the introduction of structural adjustment plans and the emphasis on basic education. However, since the late 1990s, major donors including the World Bank began to affirmatively reevaluate the role of tertiary education. In 1998, the importance of tertiary education in resolving multitudinous issues faced upon entry into the 21st century was discussed at the World Conference on Higher Education, convened by UNESCO in Paris. Also, the World Bank released a report[94] in 1990 that referenced the gravity of mathematics, science, and engineering fields in view of the need to catch up with the global knowledge economy while the UNESCO Task Force put out a paper[95] in 2000 stating that tertiary education is indispensable for the economic growth of developing countries. Moreover, in its 2005 Africa Action Plan, the World Bank declared that it would expand support for secondary, technical, and tertiary

94 World Bank (1999).
95 Task Force on Higher Education and Society (2000).

education in Africa's less-developed countries[96]. These developments together share footholds in the need to enhance research development capabilities in the science and technology fields in light of the rapid globalization of society and the communications revolution, as well as to enhance teacher training universities in light of the need to improve the quality of primary and secondary education.

JICA has raised 4 principal development strategies, i.e. improvements in educational services, improvements in research, furthering social contributions, and management, to guide renewed assistance strategy in the field of tertiary education[97]. Furthermore, for countries where the expansion of basic education is delayed (standards set the Net Enrollment Rate at 70% for primary education), JICA suggests that, first and foremost, the focus of development should be placed on basic education and, therefore, in order not to increase the tertiary education budgets borne by the host government, large scale aid projects involving major financial burdens should be avoided .When it develops a new project in tertiary education, JICA would limit the purpose and scale of the projects to areas such as teacher education and distance learning[98].

(5) Cultivating Artisan Level Skills through Non-Formal Training

The Dakar Framework for Action states as one of its goals that the learning needs of all young people and adults must be met through equitable access to learning and life skills programs. Also, upon deciding to respond to the skills development needs of youth and adults unable to receive school education, UNESCO, one agency leading EFA, classified the skills required for one's survival as 'life skills' and the part therein that lead to improving one's income as 'skills development' – both of which were seen as belonging to the non-formal sector[99]. Furthermore, the World Bank in its *2007 World Development Report* focused on youth between the ages of 12-24 as crucial age-group for the prosperity of the country and provided that the expansion of opportunity, the provision of second chances, and the improvement of technical skills, among other things, had to be part of policy designed to contribute to economic development through the self-motivated efforts of the younger generations; what is notable in recent discussion about skills development through training in non-formal education is the trend of seeing non-formal education as not only an alternative means to provide the chance for an education to children and youth unable to attend school, but also as part of providing youth and adults alike with lifelong education. In a series of discussion papers released by the Working Group for International Cooperation in Skills Development, an informal gathering established in 1996 by agencies engaged in the field of TVET, it is becoming popular to include non-formal education as a component within assistance projects, especially in those for comprehensive rural development. In such non-formal education, the acquisition of literacy and numeracy – core elements within basic education

96 World Bank (2005) p.ix.
97 JICA (2003a) p.18.
98 *ibid.* pp.35-56.
99 Yoshida (2005) p.10.

– as well as practical skills for making a living are centrally positioned.

(6) The Introduction of the CBT System

As was discussed in Chapter 2, after reflecting on past practices of supply-driven TVET, a multitude of countries, including the 3 visited for the field survey herein, have been applying the new method of CBT[100]. At the same time, it is necessary to recognize that CBT has as its objective the acquisition of competency in specified fields of work, and does not neatly correspond to any existing school curricula or education levels.

100 In Ghana it is referred to as CBT; in Uganda and Malawi, it is referred to as Competence-Based Education and Training (CBET).

Column: What is the difference between conventional TVET and CBT?

● **Determining the pace of learning**

Within conventional school-based TVET, since school terms are set within a specific time frame, the pacing for a variety of subjects is determined by finely subdividing material into class-length units, which instructors must then work in line with. In other words, despite the fact that the working and learning speeds of students are not uniform, classes were carried out by the instructor's speed based in instructor guidelines (i.e. time-based training). On the other hand, with CBT, the progress of the class or training is determined not by instructor's guidelines, or instructors themselves, but rather on the point of whether each student is acquiring the knowledge or skill being demanded of her or him within the module (i.e. competency-based training).

● **Principal elements within CBT**

- That the skill to be acquired in each module is carefully decided and made known to students and industries beforehand.
- That the standards for and terms by which each module will be assessed are made known beforehand in a clear and easy-to-understand format.
- That an instructor training is implemented for each skill area.
- That when assessing students' competency, while also considering their knowledge and attitude, the highest priority is placed on the student's ability to actually perform the required task.
- That students will continue training in each skill at their own pace.

● **An approach towards employment**

It has become evident that conventional TVET often created mismatches between skills taught and those desired by industry, since curricula were internally drafted by TVET institutions. However, with CBT, training curricula (in modules) and assessment standards are fixed based on the development of occupational profiles and subsequent compilation of competencies required at the workplace as determined in company with employers from every industry.

● **The certification of skills acquired before the introduction of CBT**

Since in CBT the competency skill itself is tied to certification and not the number of hours in training, this system includes a process by which students may also gain official certification for competency skills and knowledge they had acquired prior to training (i.e. recognition of prior learning).

Source: Drafted by the authors based on Sullivian (1995).

3-2 Case Studies of TVET within Education Sector Plans

3-2-1 Ghana

The Ghana Ministry of Education, Science, and Sports (hereinafter referred to as the Education Ministry) placed the achievement of Education for All as the highest priority concern within its comprehensive sector development plan, i.e. the Education Strategic Plan (ESP) 2003-2015. Also, priority areas included increasing access, improving quality, making management more efficient, and promoting TVET in science and technology. The Education Ministry named giving non-enrolled and drop-out youth increased opportunity to enter TVET as an objective to be accomplished by increasing the number of TVET schools and polytechnics, in addition to diversifying TVET curricula so that they meet actual needs within society.

Prior to the drafting of the ESP, the Free Compulsory Universal Basic Education (FCUBE) program (started in 1996 and integrated into ESP later) existed as a development plan with a specialized focus on expanding basic education, but as the ESP was being orchestrated around it, an additional objective for 'the promotion of TVET in science and technology' was added. Also, the national development plan set forth in 1995, Vision 2020, put forth that increasing opportunity for TVET and strengthening collaboration between TVET and industry would stand among its goals to be achieved. This commitment of the government to TVET was reflected in the Ghana Poverty Reduction Strategy 2003-2005 (GPRS I), formulated in 2003, as well as in today's ESP. Meanwhile, JICA has been a leading donor in the promotion of TVET in science and industry for its continued assistance in policy design and implementation support.

Among TVET institutions in Ghana, there are polytechnics at the tertiary level (e.g. Higher National Diploma, partial baccalaureate) and technical institutes at the senior-secondary level under the jurisdiction of the Education Ministry, but other TVET institutions such as the ones under the Ministry of Manpower, Youth, and Employment do not provide students with a path to higher education due to their concentration in vocational training instead of academic knowledge[101]. Also, as far as teacher training for TVET is concerned, other than the Manpong Teacher Training College, which develops instructors at the junior secondary level in technical subjects (e.g. metal-smithing and carpentry), instructors may receive a Higher National Diploma from polytechnics in order to qualify for non-professional work as instructors at technical institutions, or receive a master's degree at universities in order to qualify for work as professional instructors at a polytechnics; since the salary given to technical instructors and teachers is generally low across the board, the tendency among graduates to avoid taking up positions at TVET institutions is strong. Because of difficulty in securing the necessary number of qualified teachers and instructors, qualification prerequisites are not strictly adhered to by the government, meaning that the career path for TVET instructors/teachers is in fact not firmly

101 Ministry of Education, Science, and Sports and the Ministry of Manpower, Youth, and Employment Ghana (2005) II 7.

established[102].

Moreover, in fall 2007 a new education reform will be enacted based on the 2004 White Paper on Education and the Education Ministry is currently drafting a revision to the education sector plan. This document stipulates that two-year nursery schools will be made free and compulsory within the FCUBE program, senior secondary schools will be extended for 1 year so as to put them on a four-year system, workplace training will be incorporated into the curriculum, a one-year extended course will be implemented at polytechnics making the acquisition of full baccalaureates possible, and a four-year practical training course geared towards junior secondary school graduates will be made part of the system[103].

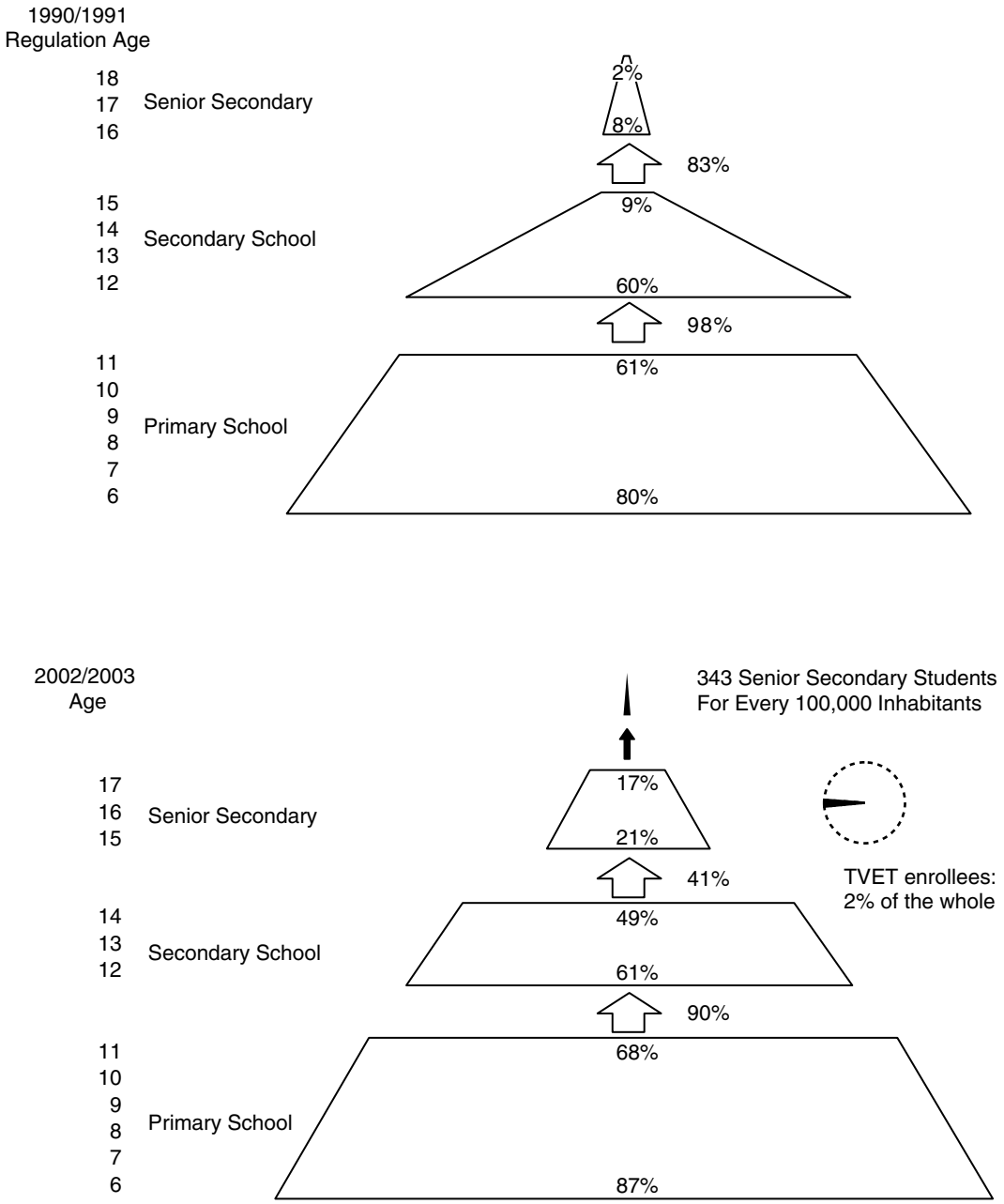
(1) TVET for Students Who Have Completed Basic Education

To date, basic education in Ghana has been defined as 6 years of primary school and 3 years of junior secondary school and the FCUBE program has targeted the whole nine-year course thereof. The expansion of access to primary education has been dramatic and the enrolment rate which was 86.3% in 2003 increased to 87.5% in 2004, and up to 92.1% in 2005[104]. In tandem with this, enrollment rates at junior secondary schools have also grown from 70.2 % in 2003, to 72.8% in 2004 and 74.7% in 2005[105]. Also, since 2005 a special capitation grant system for abolishing school fees has been installed within basic education institutions and reports have declared that the number of children entering school has dramatically risen because of that[106].

Figure 3-1 shows changes in the composition of the enrolled population in Ghana between 1990/91 and 2002/03 as drafted from UNESCO's statistics. The statistical values are not all necessarily consistent with those in the Education Ministry's reports due to the fact that within Ghana the necessary statistics on enrollment populations are not often accurate and/or not compiled at the national level in statistic reports[107].

102 Matsuda (2004) p.1.
103 Ministry of Education, Science and Sports, Ghana (2004).
104 Ministry of Education, Science and Sports, Ghana (2006) p.23.
105 *ibid.* p.36.
106 *ibid.* p.28.
107 Matsuda (2005) pp.7-8.

Figure 3-1: Ghana's education pyramid



Source: UNESCO Regional Office for Education in Africa (2005) p.218.

It has been estimated that the number of people who have completed basic education will continue to increase, and therefore placement of graduates in either schools or the workplace has become a substantial political concern. One can consider that the fact that a plan to introduce a new in-service training system was announced within the 2004 White Paper also stems from this concern.

Currently the Education Ministry has been drafting its revisions to the education sector plan so as to incorporate the terms of the White Paper, and has therein included plans for a projected 40% gross enrollment rates at general senior secondary programs by 2015, a projected 15% at TVET (technical, vocational and agricultural) senior secondary schools and, upon incorporating into the system in 2008 a four-year practical training geared for graduates of junior secondary school, a projected 20% gross enrollment rate at these TVET schools by 2015[108].

(2) Secondary Education as Vocational Preparation

Ghana's government undertook a far-reaching educational reform in 1987 at the same time as a structural adjustment policy for rebuilding the economy, which lasted throughout the 1980s. By this reform, past emphasis on academic instruction was diverted in favor of heightening the practical application of education, and the education system itself was radically reassessed. The structure of the education system was reworked so that the 17 years of schooling formerly required for entry into university was reduced to 12 years, and therein, in view of the importance of technical and vocational education, vocational subjects were included as electives within junior secondary school curriculum and, in senior secondary education as well, special Senior Secondary Technical Schools with vocational subjects were established alongside already-present general course Senior Secondary Schools. Furthermore, in the new educational reform plan to be implemented from fall 2007, senior secondary schools will undergo a one-year extension, thereby putting them on a four-year system, and workplace trainings will be incorporated into the school curricula.

(3) Higher Education for Survival in a Knowledge-Based Economy

The promotion of science and technology occupies a position of priority within the 2006-2009 Growth and Poverty Reduction Strategy (GPRS II), and for this purpose the Education Ministry has declared that, in order to develop the appropriate human resources, it wishes to increase the proportion of students enrolled in science and technology university courses, so that ultimately the ratio would stand at 60:40, respectively representing humanities courses and science and technology courses. At the point of 2004, the ratio was 65:35, within which the proportion of humanity enrollment is still higher than had been aimed for[109].

(4) Non-Formal Education

As defined in the education sector plan, non-formal education targeting youth and adults not

108 Ministry of Education and Sports, Ghana (2005) p.7.
109 Ministry of Education, Science and Sports, Ghana (2006) p.88.

attending school is managed under the jurisdiction of the Education Ministry's Non-Formal Education Division. Among activities implemented under this category includes the Ghana Functional Skills and Literacy Project.

(5) CBT System

It has been pointed out that the fact that several ministries, local authorities, private sector institutions and NGOs each implement TVET independently has acted as a sizable impediment to TVET's effective implementation, while mutual connectivity between these actors, and the recognized schematic placement of TVET programs in national plans, have been very weak. In the early-1990s the National Coordinating Committee for TVET (NACVET) was formed as a subordinate agency to the Education Ministry, and from 1997, owing to World Bank support for the Vocational Skills and Informal Sector Support Project (1996-2001), they started drafting a TVET policy framework; however, the process of orchestrating matters transpiring between numerous ministries and industry representatives proved to be a most difficult voyage, while, in a turn of events, the World Bank changed its policy for assistance and decided not to continue support to the TVET sub-sector after the project reached its end – thereby stalling work drafting a new national TVET policy. During this process, in 2002, JICA took up work on its Study for Development of a Master Plan to Strengthen Technical Education in the Republic of Ghana as it contributed to a series of processes via advice on how to introduce CBT modules into polytechnics.

After discussion at the May 2004 National Consultative Forum on Policy for TVET, held under the name of President Kufor with JICA support, in August 2006, a TVET bill which gave legal basis for a national CBT system was passed in the Diet. From here on, full-scale preparations were underway for the formation of the national CBT system's Council for Technical and Vocational Education and Training (COTVET), under the order of the Education Ministry, and as part of those efforts, approved CBT certification levels will be evaluated. Moreover, these approved certification levels were designed to include not only polytechnic and technical institutes under the Education Ministry, but also the National Vocational Training Institute (NVTI) under the Ministry of Manpower, Youth, and Employment. Also, despite the fact that the establishment of TVET funds was recommended repeatedly upon opportunities such as the Master Plan to Strengthen Technical Education and the National Consultative Forum on Policy for TVET, this failed to take shape within the Ghanaian government; the procurement of resources became an issue that called for budget allocations disbursed with priority to TVET from GETFund – an education trust fund – and other sources.

Within its current Education Sector Project 2004-2009 the World Bank, in order to support both the improvement of quality in instruction and the extension of intellectual support to communities as a major function of tertiary education institutions, has developed a component, i.e. a tertiary education reform fund, and provided that "CBT programs, embodying the terms of JICA's Master Plan, at

Table 3-2: The implementation of CBT in Ghana

Legal Framework for National CBT System	Established
CBT Management Body	Preparing its formation under the Education Ministry's jurisdiction (COTVET)
TVET Funds	None
Implementation Stage	Preparing the new formation of COTVET
Primary Donors	JICA

Source: Drafted by the authors based on field survey results.

polytechnics"[110] have been made subject to this aid.

(6) Donors' Assistance for TVET, with Focus on Pre-Service Education and Training

Since non-school-based TVET has mostly been out of the jurisdiction of the Education Ministry until very recently, pre-service school-based education and training are often recognized as foreign assistance for TVET.

• Japan/JICA

Japan and JICA worked out a Master Plan to Strengthen Technical Education through a development survey in 2002 and devised recommendations thereafter for the introduction of a national CBT system and the installation of CBT modules into polytechnics, in addition to supporting the National Consultative Forum on Policy for TVET in 2004 where TVET policy framework was discussed. In September 2006, TVET law was put into effect and currently Japan and JICA are preparing to set up the Technical and Vocational Education and Training Support Project so as to establish a CBT implementation structure through trial runs of CBT-style technical education and training programs in Accra, and simultaneous enhancement of the technical and organizational capacities of CBT system implementation agencies. In addition, JICA has dispatched senior volunteers and JOCV (Japan Overseas Cooperation Volunteers) to provide technical assistance in the area of TVET.

• Other Donors

In addition to the Netherlands' technical assistance in skills to operate polytechnic agricultural machinery, the Netherlands and England are together supporting private TVET institutions in Tema. Also, Deutsche Gesellschaft für Technische Zusammenarbeit (GTZ) has been supporting NVTI under the Ministry of Manpower, Youth, and Employment in the Upper West state.

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110 World Bank Ghana (2004) p.55.

(7) Labor Market Analysis

Labor market analyses have not been conducted within Ghana to date and the need for them has been pointed out repeatedly within the Education Ministry's annual report[111]. A move from within the Ministry of Manpower, Youth, and Employment towards starting a labor market analysis with the cooperation of DANIDA was announced at an education sector yearly review meeting in June 2006. It is desirable that this initiative be carried out collaboratively with the newly established COTVET, the CBT management body.

(8) Aid Harmonization

With regard to aid harmonization, in Ghana, the health sector experienced its most radical shifts in aid modalities, during which there was actually a period where some donors including JICA were prevented from participating in official meetings for not being members to pooled funds. Aid harmonization began in earnest in the education sector following the drafting of the 2003-2015 Education Strategic Plan in 2003, but up to now, pooled funds had not been established at the education sector level and discussions of aid harmonization had not gone farther than the alignment of aid from different donors, regardless of its modality, with the policy direction of Education Ministry[112].

3-2-2 Uganda

In 1997, the Ugandan government hoisted its Universal Primary Education (UPE) Initiative and, in response, the Ministry of Education and Sports (hereinafter referred to as Education Ministry) threw itself into meeting its new objective of UPE in its 1st education sector development plan, the Education Strategy Investment Plan 1998-2003. As a result, the net enrolment rate at primary schools for 2003 exceeded 90%, which stimulated increasing demand for preparation of a post-primary route for graduates to follow. It was by this process that post-primary education training, inclusive of TVET, became a focal policy concern in the second education sector development plan, i.e. the Education Sector Strategic Plan (ESSP) 2004-2015.

Meanwhile, from 1999 Germany was developing assistance in the TVET field on a massive scale by what was known as the Programme of Employment-Oriented Vocational Training 1999-2013 (PEVOT) (for further details, see Case Study 3 in Chapter 4). This program is comprised of: 1) assistance in policy-making so as to enable the introduction of a national CBT framework, and 2) assistance in the operation of community-based polytechnics; the former acts as a follow up to proposals given subsequent to several EU-assisted survey researches in the TVET field, while the latter

111 Ministry of Education, Science and Sports, Ghana (2006).
112 Matsuda (2006) p.7.

was to assist President Museveni's initiative of a community polytechnics program for improving skills among the 'forgotten majority'.

TVET institutions in Uganda fall into the following categories: 1) the Uganda Technical (Two-Year) College providing diplomas at the tertiary-education level, 2) technical institutes and vocational training institutes at the upper secondary level and 3) technical schools, farm schools, vocational training centers (schools), and community polytechnics, among others, at the lower secondary level. However, traditionally, at the secondary education level there had been craftsman certificate exams at the technical institutes under the Education Ministry, and trade certificate exams offered at vocational training institutes and vocational training centers under the Ministry of Labor and Social Welfare. Yet when the latter was brought under the Education Ministry in 1998, while CBT was additionally introduced as a new certification system for certain other courses, several systems formerly run independently of and/or incompatible to each other became intermixed; currently the Education Ministry has set its aim to achieve uniformity by the year 2011 by way of a CBT system called the Uganda Vocational Qualification Framework (UVQF).

Among TVET teacher training institutions, there are Community Polytechnics Instructors College and Kyambogo University; those who obtain diplomas from these institutions are then able to teach TVET schools at the lower secondary level, while those who obtain Kyambogo University's Higher Diplomas are able to become professional instructors in TVET at the upper secondary level. However, the teacher qualification system is neither firmly established nor applied seriously at the school level[113]; interviews that the authors conducted with government officials reveal that there are many voices demanding improvements in both the quantity and quality of TVET instructors.

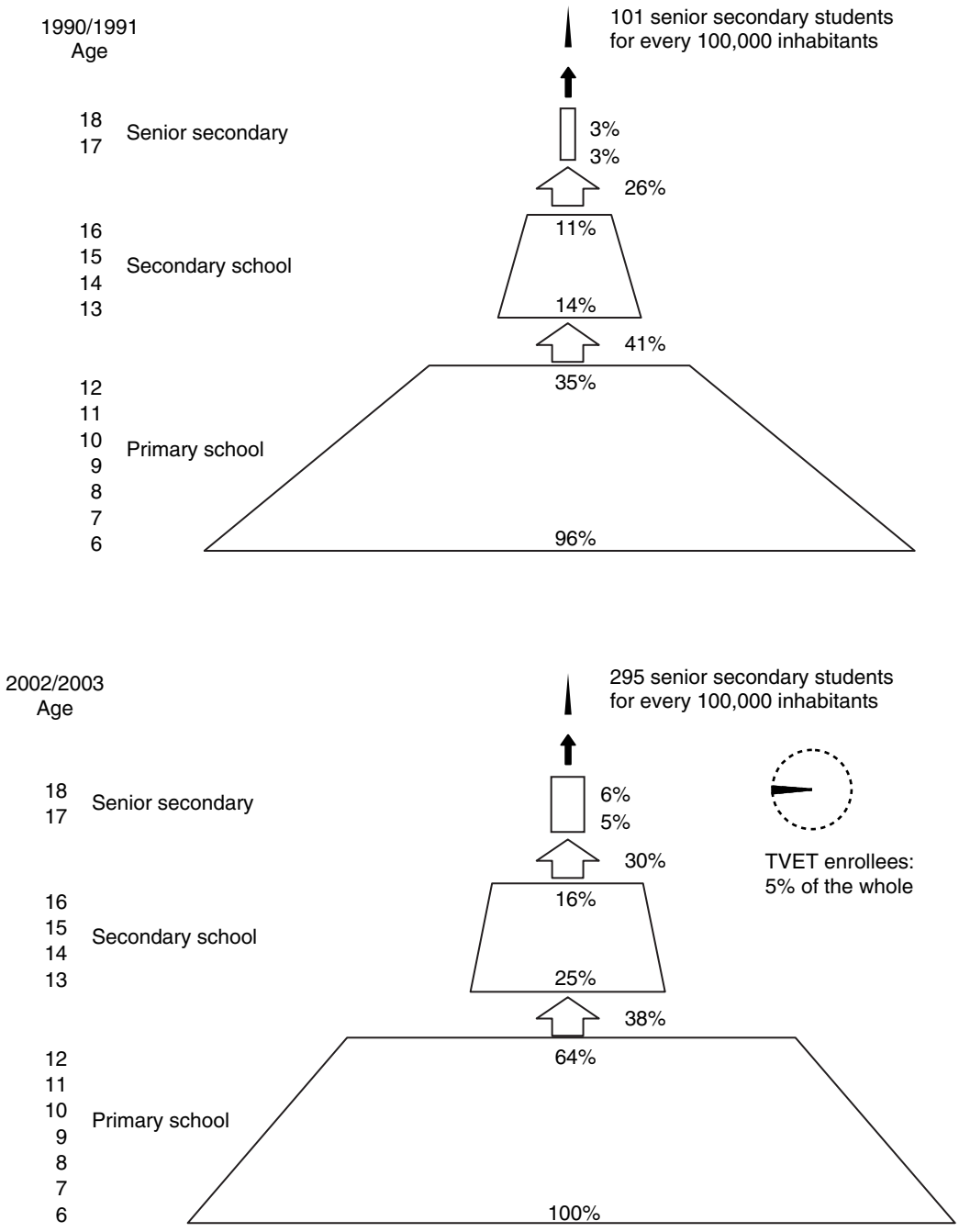
(1) TVET for Students Who Have Completed Basic Education

As a result of the Ugandan government's 1997 Universal Primary Education Initiative and the Education Ministry's subsequent commitment to achieve UPE expressed in the Education Strategy Investment Plan 1998-2003, the number of children in primary school grew from 3,000,000 in 1996 to 5,300,000 in 1997 and as high as 7,600,000 by 2004[114]. In terms of gross enrollment rates, growth went from 127% in 2003 to 112% in 2006[115]. In response to this rise in primary enrollment, the Ugandan government expressed a new aim, to universalize secondary education by 2015, and within its second education sector plan, the ESSP, post-primary education training, inclusive of the TVET field, was cast as a focal policy concern.

In regard to the direction taken by students after completion of primary school, the data for 2004 show that of the 430,000 students that had taken the primary leaving exam, 51% (220,000 students) went on to secondary school, 1% (5,000 students) went on to government-affiliated TVET schools, and

113 Yoshikawa (2005) p.36.
114 *ibid.* p.20.
115 Ministry of Education and Sports, Uganda (2006).

Figure 3-2: Uganda's education pyramid



Source: UNESCO Regional Office for Education in Africa (2005) p.254.

4.6% (30,000 students) went on to private TVET schools. As far as after completion of secondary school is concerned, of the 150,000 students that were in their final (4th) year at secondary school, 33% (50,000 students) went on to senior secondary school, 8.6% (130,000 students) went on to school for primary school teachers, 4.6% (7,000 students) went on to government-affiliated TVET schools, and 6.6% (10,000 students) went on to private TVET schools[116].

UNESCO's figures on the shift in enrollment in Uganda are given in Figure 3-2. The sharp increase in the number of students completing primary school stands out visibly.

(2) Secondary Education as Vocational Preparation

Uganda's educational development is unique in that it was only after achieving UPE through concentrated effort that earnest work began in expanding secondary education. The Ugandan government has expressed its aim to completely expand lower secondary education as well by 2015, and as such has begun gradually reducing secondary school fees.

Moreover, according to its Poverty Eradication Action Plan 2004-2007 (PEAP III), the Ugandan government plans to increase the transition rate – that is, the percentage of students moving on to secondary school after completing primary school – to 80%. For the graduates of lower secondary schools, the government wishes to direct the course so that 40% move on to upper secondary, 50% move on to TVET schools, and 10% would enter the labor market. In light of the PEAP III, the Education Ministry plans to increase the transition rate between primary and lower secondary to 90%, from the current 50%, and allow for the remaining 10% to be absorbed by the TVET sector – however, increasing the TVET sector's capacity for taking in students will prove to be a challenge given the current situation.

(3) Higher Education for Survival in a Knowledge-Based Economy

The Ugandan government has been pressing for a transformation of Ugandan society, turning it from one where information is passively received to a knowledge-based society, and within this vision not only reading and writing, but also computer competency skills are seen as fundamental technical skills meant to be acquired through schooling. Also, the government recognizes the urgent need to develop legislation for copyright protection, among other things, in order to effectively put ICT to use for education[117].

The PEAP III discusses strengthening the agricultural sector (e.g. improving productivity, conferring added-value onto agricultural products, diversification of export products, etc.), which accounts for 40% of the GDP and 80% of all exported products, as well as placing greater weight on

116 Yoshikawa (2005) p.38.
117 Ministry of Education and Sports, Uganda (2006).

science and technology in the tertiary education as a way to develop human resources capable of supporting growth. Based on Uganda's wish to take part in the modern economic sector by conferring high-added value onto the nation's products, the Education Ministry has expressed its belief in the crucial need for promoting science and technology, as well as developing human resources with strong capabilities in abstract thought, analysis and communication; in order to meet these challenges, the Education Ministry has stated its intent to implement a labor market survey, first targeting college graduates, so as to draft curricula heavy in science and technology, while additionally assigning 75% of the national tertiary education scholarships to students in the sciences[118].

(4) Non-Formal Education

In Uganda, the opportunity for basic education is seen under the premise that general education courses offered at primary schools are the standard – yet non-formal education is offered as an alternative to those who have reached their 3rd year of primary school or above but, under certain circumstances, are no longer able to attend school. In addition, non-formal education is also seen as a form of temporary education to absorb students of schooling age until general education can be extended to the whole applicable population. Department for International Development (DFID), United States Agency for International Development (USAID), GTZ and other bilateral donors, in addition to international agencies such as UNICEF and international NGOs such as Save the Children and Action Aid carry out aid in this field, and the number of non-formal education centers has reached 648 schools hosting over 70,000 students[119].

(5) CBT System

The UVQF office, which was set within the Education Ministry in 2004, developed vocational profiles, tests and training modules with German technical assistance. CBT modules have already been executed in pilot projects at certain private TVET schools and community polytechnics and,

Table 3-3: The implementation of CBT in Uganda

Legal framework for national CBT system	None
CBT management body	UVQF office established in the Education Ministry
TVET funds	None
Implementation stage	Pilot Implementation/Assessment
Primary donors	Germany (KFW, GTZ, ded, etc.), JICA

Source: Drafted by the authors based on field survey results.

118 Ministry of Education and Sports, Uganda (2006).
119 Yoshikawa (2005) p.23.

furthermore, at the time of the authors' field survey in June 2006, the Education Ministry was assessing a CBT module for the training of nurses. They are planning to begin the full-fledged installment of CBT in all TVET programs shortly[120].

Meanwhile, Uganda's national CBT framework has no legal basis and moreover, funds for the promotion of TVET have not been established. A substantial number of stakeholders are calling for UVQF to be put into law. But in order to do so Uganda must 1st revise elements of the past law inconsistent with the current status of TVET, which was unified under the jurisdiction of the Education Ministry in 1998, but was divided under the authority of several ministries until then.

(6) Donors' Assistance for TVET, with Focus on Pre-Service Education and Training

• Japan/JICA

To date, Japan and JICA have assisted activities based in the Nakawa Vocational Training Institute (an upper secondary vocational training institute currently under the Education Ministry, but under the jurisdiction of the Ministry of Labor and Social Welfare until 1998). In addition, JICA is about to start the Project for Instructors and Managers Training for Vocational Education and Training as well as plan to dispatch JOCV into the vocational training field, for which a survey on demand is underway. All of them are situated as components of PEVOT, a sub-sectoral program for comprehensively developing the TVET field. The Nakawa Vocational Training Institute has also been successful in sharing its experience and giving advice as a Centre of Excellence to teachers and government officials involved in TVET, which is one form of South-South cooperation. Other than this, preparations are being made for the dispatch of short-term volunteers to the German-assisted NGO, the Uganda Association of Private Vocational Institutes, which oversees and technically supports a network of private TVET schools.

• Other Donors

Germany is providing comprehensive assistance to establish policy and structure for the promotion of the TVET sector in Uganda. This German-initiated program called PEVOT provides the basic framework for governmental and donor intervention in this field. In addition, the African Development Bank and the Islamic Development Bank, among others, are currently providing aid to individual TVET schools.

(7) Labor Market Analysis

Now that a plan for reassessing the university curriculum stands with the aim of expanding the science and technology field, first of all, the government feels that there is a need to implement a labor

120 Ministry of Education and Sports, Uganda (2006).

market analysis at the university graduate level[121].

(8) Aid Harmonization

Uganda was the first country to have a sector-wide approach introduced, and as such it tends to gain attention as a showcase for this method of policy and aid management. Aid harmonization in the education sector began in earnest upon the occasion of the first education sector plan in 1998, inspiring discussion on aligning aid to the policy direction of the Ugandan government, standardizing procedures of different donor organizations, promoting the modality of budget support, and including all aided funds (both budget and project supports) in the estimation of national revenue and financial plan called Medium Term Expenditure Framework (MTEF). As a modality for support, budget support has come to be seen as more desirable, and though on-going assistance in the form of projects are not to be done away with, it is becoming difficult to set up new projects[122].

Also, 2 unique features of Uganda's MTEF are the ceiling set on expenditures in each sector and the fact that it lays out terms for refusing supplementary foreign aid not listed in MTEF, the three-year rolling plan of public finance. As regards the FTI, the global partnership for achieving universal primary education, despite the fact that the formal application for FTI Catalytic Funds submitted by the Ugandan Education Ministry and regionally active donors was approved by FTI Secretariat, Uganda's Ministry of Finance refused to concede to their terms since, even though the FTI Catalytic Funds are grants free from any repayment obligation, they were neither included in the MTEF nor within the budgetary ceiling allocated to education sector[123]. Although it is said to be less strict in operation than stated, this atmosphere of tight aid harmonization and policy alignment must be taken into consideration when any donor organization plans to launch new assistance projects or programs.

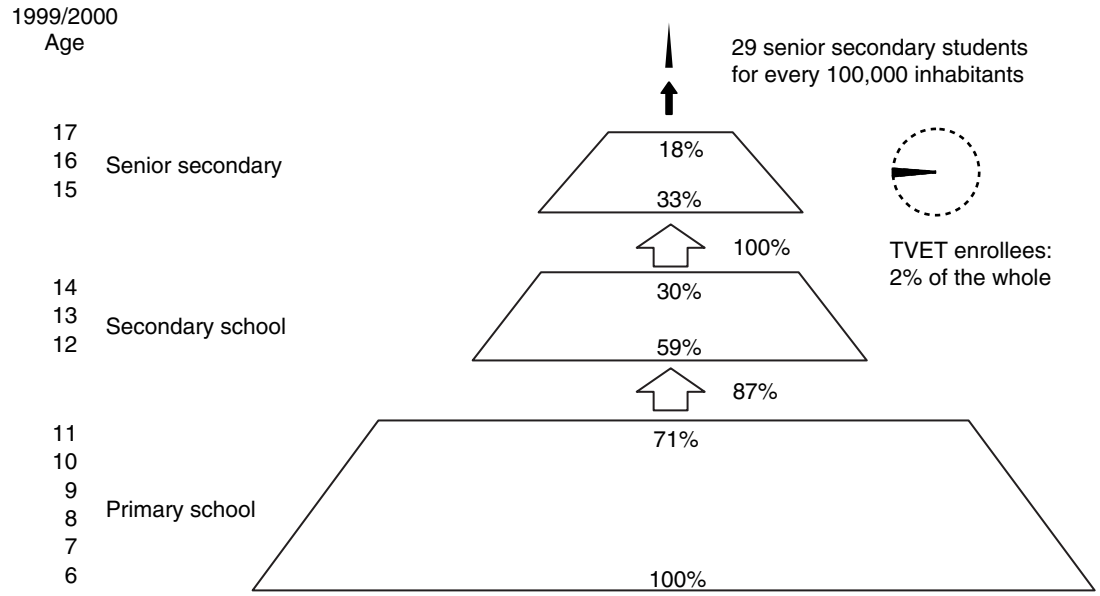
TVET assistance given by Japan and Germany in Uganda has often been criticized by donors active in education field for not being consistent with the government's priorities, i.e. making expansion of primary education as outlined in the first Education Sector Development Plan 1998-2003 a principal concern. However, JICA and Germany have accumulated good results in assisting TVET, linking them with the President's initiative of community development. Meanwhile, the issue of post-primary education was brought to the fore as a result of UPE. Because of that, in the second Education Sector Development Plan 2004-2015, TVET has also come to be seen as a central policy concern.

3-2-3 Malawi

Former president Bakili Muluzi immediately took up the expansion of primary education after being elected in Malawi's first democratic elections following the country's independence. After the

121 Ministry of Education and Sports, Uganda (2006).
122 Yoshikawa (2006) p.3.
123 National Graduate Institute for Policy Studies (2006) pp.5-6.

Figure 3-3: Malawi's education pyramid



Source: UNESCO Regional Office for Education in Africa (2005) p.236.

abolition of school fees for primary education in 1994, primary enrollment increased dramatically from 1,900,000 students in 1994 to 2,790,000 students in 1998, and again to 3,160,000 students in 2004. However, even as late as 2004, when comparing enrollment in the 1st year of primary school to that in the 8th and final year of schooling – 870,000 and no more than 150,000 students respectively[124] – it would seem that both the drop-out and repetition rates were posing problems just as serious as before. Though sufficient data has not been available, the education pyramid for 1999/2000 based on rough estimates is given in Figure 3-3.

The Ministry of Education reviewed issues concerning education and formulated the Education Sector Policy and Investment Framework (PIF) to set the objective of educational development by 2012, which subsequently gained approval in the National Diet in 2002. In 2004, in response to growing demand for strategic action so as to implement PIF development objectives, the Ministry of Education began drafting an education sector plan. Also, whereas the initial education sector plan had covered primary and secondary education exclusively, thus not making any mention of tertiary education other than in the context of its relation to developing primary and secondary school teachers, from 2006 there was a rising awareness of the need to include the entirety of tertiary education within the sector plan. Also, during a sudden restructuring of the ministries in June, it was announced that the vocational training division and the labor division would be transferred from the Ministry of Labour and Vocational Training to, respectively, the Ministry of Education and the Ministry of Labour and Social Development. In light of this change the necessity for including TVET, in addition to tertiary

124 Nakayama (2005) p.11.

education, was brought to the fore in view of comprehensive education sector planning.

Meanwhile, it is estimated that 300 TVET schools (both public and private) are operating in Malawi, but this would include schools which exist on paper but are not operating. This fact implies that the overall true state of the TVET field is yet unknown[125]. Also, due to the compound effect of problems such as power struggles between political parties, the laxness of the bureaucracy, insufficient budgets, and the spread of AIDS, the lack of both teachers and staff at the Ministry of Education is a grave problem and in the authors' field survey, without exception, there were pronounced vacancies in teachers and instructors' posts in TVET schools.

(1) CBT System

The Technical, Entrepreneurial and Vocational Education and Training (TEVET) Act was enacted in 1999, wherein the TEVET Authority, the controlling administration for the national CBT, was established under the direct control of the president and a fund was provided for by subjecting private industry to a TEVET levy. One characteristic of Malawi's CBT system is how it has been developed to maintain mutual compatibility with the skill standards of the Southern African Development Community (SADC). Meanwhile, the TEVET levy is a tax imposed on private enterprises equal to 1% of their previous year's profits, and in 2003 total revenue from TEVET Levy were estimated at MK 217,766,655 (roughly two hundred million yen or $1,700,000 USD)[126].

Also, at the time that the TEVET Authority was established, both Danish International Development Agency (DANIDA) and GTZ were providing technical assistance for technical and vocational education and training; yet in 2002 DANIDA withdrew from Malawi altogether and GTZ as well ended its involvement in this field in August 2005 so as to focus aid more to the 3 fields of basic education, agriculture, and governance.

Table 3-4: The implementation of CBT in Malawi

Legal framework for national CBT system	Established
CBT Management body	The TEVET authority established as an independent organ under direct control of the president (Operational expenses are covered by the TEVET levy)
TVET funds	Established
Implementation stage	In 2002 the TEVET Authority ran pilots programs at private TVET institutions and a portion of government-run TVET schools after developing its CBT modules and assessment tools for several vocational fields; from 2006 full-scale enforcement of the programs began.
Primary donors	None

Source: Drafted by the authors based on field survey results.

125 Nakahara (2005) p.5.
126 TEVETA (2005) p.9.

(2) Donors' Assistance for TVET, with Focus on Pre-Service Education and Training

• Japan/JICA

JICA is sending JOCV, as well as senior volunteers.

• Other Donors

Taiwan has been providing equipment and sending experts and volunteers to some TVET schools, while CIDA has been providing assistance to prepare teachers for the introduction of CBT through in-service teacher training.

3-3 Summary: Points to Consider for Future TVET Assistance

This chapter has given a general outline of TVET as viewed from the education sector. Below, the authors have summarized issues of consideration for future TVET assistance, based on especially the cases of Ghana and Uganda where TVET has already been cast within education sector plans. Reference to Malawi will have to be limited, since to date there has not yet been a comprehensive development plan relating to TVET and the broadly-encompassing development plans for the education sector are only now under development.

(1) Technical Skill Levels for Pre-Employment Training

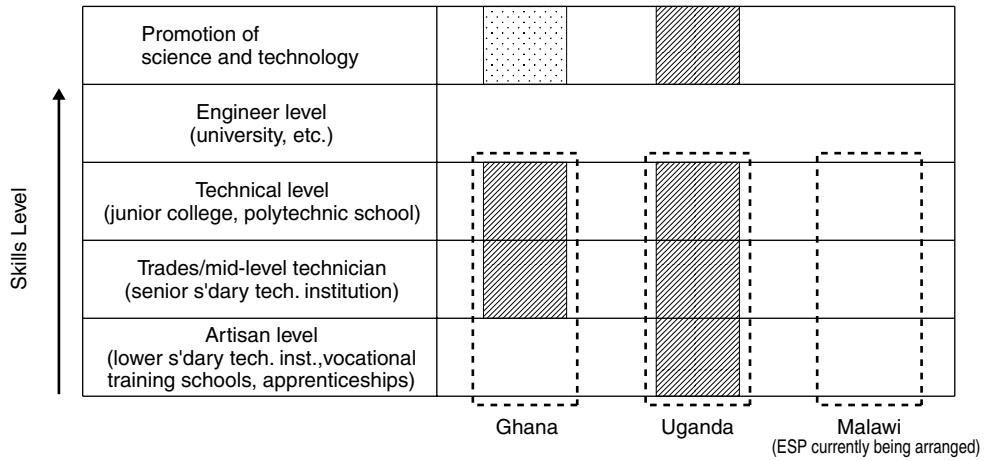
Skill levels covered by the education sector plans and CBT systems found in Ghana, Malawi, and Uganda are provided in Figure 3-4. Skill levels relating to pre-employment training are given by JICA in *Assisting Middle-Income Countries in Industrial Human Resource Development* divided into four stages – that is, 'artisan' at the single-skilled worker level, 'trades' at the middle technical skills level, 'technician' at the technical expert (incl. multi-skilled worker and supervisory) level, and 'professional' at the engineer level[127]. For the purpose of this study, the authors have applied the same classifications and, in response to recent trends that have drawn attention to transitioning to knowledge-based societies, the authors have also included the promotion of science and technology within tertiary education as part of skills development through formal schooling.

1) Artisan

Within Ghana, artisan-level TVET is implemented through vocational training schools under the Ministry of Manpower, Youth and Employment as well as through traditional apprenticeship training. Though these artisan trainings are not given concretely within education sector plans, efforts will surely be made to incorporate them into the process of developing a CBT qualification system, given that the

127 JICA (2005a) p.5.

Figure 3-4: Levels covered by the education sector plans and CBT systems of Ghana, Malawi and Uganda



Source: Drafted by the authors.

new education reform of 2007 will lead to a one-year extension of senior secondary schools with curricula inclusive of workplace training, and that there will be a four-year practical training course geared towards middle school graduates.

In Uganda, where all TVET institutions were transferred to the Education Ministry in 1998, artisan-level vocational training schools have come to be cast within education sector plans. A pilot project rooted in CBT for the improvement of livelihoods is being executed in agriculture and woodworking in the form of non-formal education and traditional apprenticeship, with technical assistance from GTZ. At the time of the authors' field survey in June 2006, GTZ held a report conference on this project, wherein it revealed that of the 400 persons involved and divided into 20 groups, roughly one-third of them developed the ability to take part in the value chain (i.e. a sequence of activities that produce value-added outputs)[128] and future developments would be worth monitoring.

2) Trades Level

According to the category presented in Figure 2-9, which explored 'the relationship between human resources and industrial development', the three countries covered in this case study are all understood to be at the 1st level of development. There are many countries which had achieved economic development at this stage by improving the quality of trades workers and cultivating trustworthy supporting industries, acting as a foundation for attracting and retaining foreign direct investment.

128 GTZ (2006) p.18.

In the cases of Ghana and Uganda, the education sector plans as well as the CBT systems direct the government's commitment to developing trades workers. Also, a great deal of the TVET assistance that Japan has delivered to Africa to date has been at this level, as was seen in the examples of Uganda's and Senegal's vocational training institutes. In the interviews with staff at these training institutions, the authors were told that the employment rates for graduates is 80-90% for both institutes in Uganda and Senegal, and that the quality of trainings at the vocational training institutes supported by Japan, including equipment and facilities, are much higher than other domestic training schools. Thus, these institutes receive high regard in the society.

Uganda's Nakawa Vocational Training Institute has gained particular attention for the fact that it accepts orders for products from the outside and then actively uses this as an opportunity for the students to gain OJT. As a result of Japan's assistance in the maintenance of machinery and technical skills improvements for instructors for all 7 courses at the Institute, increasing numbers of orders have reached each course and the system now allows for all students above 2nd year to be involved in the production of merchandise. One problem often given as characteristic of those faced by vocational training schools in Africa is the lack of instruction materials for exercises due to insufficient funding, but through the income-generating activities at the Nakawa Vocational Training Institute, students have the opportunity to apply their knowledge technically based on the needs and materials before them, while the surplus of income generated above what is needed to run the school can be used for employing good instructors. Moreover, the high-quality products delivered by the Institute stand on their own as testimony to the students' technical ability and thus lead to securing employment. Also, through third country trainings targeting such countries as Zambia, Tanzania, and Eritrea, among others, the Institute's technical ability has come to be known widely both within and beyond Uganda; for example, the Sasakawa Foundation orders threshing machines, enterprises from Denmark have asked to give technical expert trainings, and the JICA office in Uganda also submits orders for the manufacturing tests and actual manufacture of well fixtures as a means to follow up its grant aid.

However, on the other hand, in order for employees to be promoted to management positions at foreign enterprises in Africa, oft-times a bachelor's degree is required, meaning that no matter how extensive a worker's technical skills are, once employed many face the harsh reality of a plateau in career advancement due to the barrier created by academic background and may thus suffer from morale lost and leave work. On the one hand, it is desirable that domestic industrial accumulation will be enhanced by having trades workers, who have links with large enterprises, engage in entrepreneurships of their own; On the other hand, many people have also voiced concern that the hard-earned and valuable skills of these trades workers would waste away when, as entrepreneurs, they could not procure the heavy machinery necessary to produce materials of the quality demanded by large enterprises, and this would not facilitate the formation of supporting industries.

3) Technician & Engineer Levels

In Ghana and Uganda, the education sector plan and the CBT system only cover as far as the

technician level, and no plan has been set to expand on the engineer level. With this as background, as was also mentioned in Chapter 1, there is a high dependency in Africa on in-service enterprise-based trainings for the development of higher level industrial human resources. A majority of graduates who have completed the technician level are likely to move on to large enterprises such as foreign corporations. Therefore in Ghana, the government announced a strategy that practical trainings for technical students are to be organized at facilities owned by corporations wherever possible[129]. While certain practical problems have been indicated, including whether a sufficient number of enterprises can be involved to secure training facilities and how the quality of trainings can be controlled, academic-industrial collaboration in training has the potential to increase the responsiveness of training to labor demands while minimizing waste caused by aging or outdated machinery set up at educational institutions like polytechnics.

4) The Promotion of Science and Technology

In Ghana, the Teaching and Learning Innovation Fund, a proposal-based funding system for tertiary education institutions, was established based on World Bank support and, while reforms at universities and polytechnics are being advanced on the one hand, concrete project proposals at the tertiary education level have not yet been issued despite repeated referrals to the importance of the promotion of science and technology in GRPSII and ESP documents.

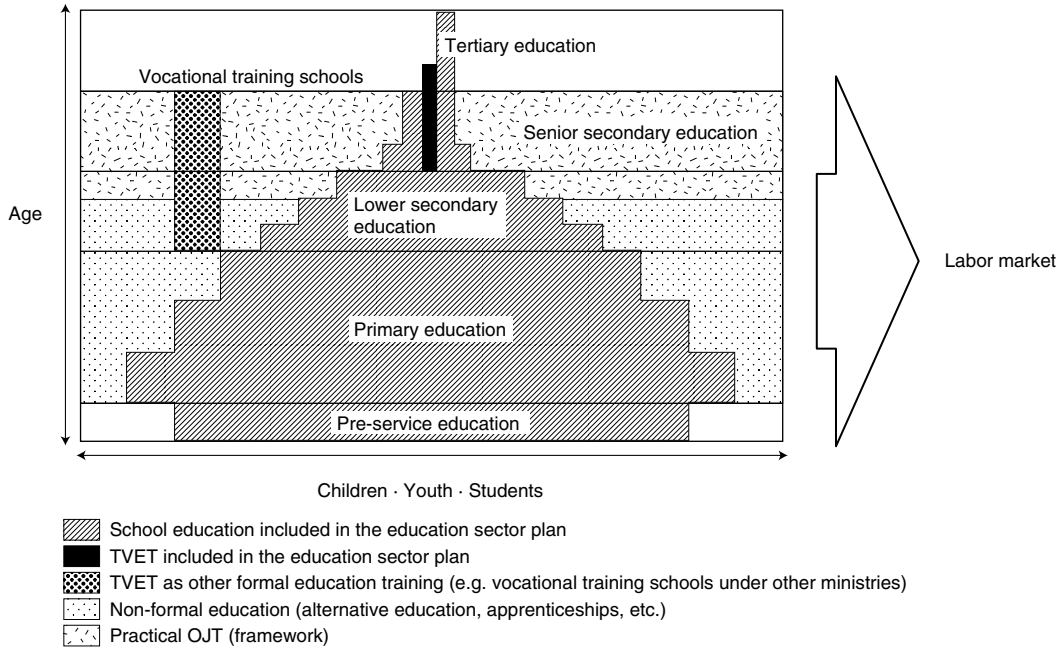
In Uganda, the PEAP III discusses strengthening the agricultural sector, which accounts for 40% of the GDP and 80% of all exported products, as well as placing greater weight on science and technology in the tertiary education curriculum as a way to develop human resources capable of supporting growth in the agricultural sector. In order to take part in the modern economic sector by conferring high-added value onto the nation's products, the Education Ministry has expressed its intent to implement a labor market survey, first targeting college graduates, so as to draft curricula heavy in science and technology, while additionally assigning 75% of the national tertiary education scholarships to students in the sciences based on its belief in the crucial need for promoting science and technology[130].

(2) Limitations of TVET Covered by Education Sector Plans

The education pyramids (Figures 3-1, 2, 3) drawn for each of Ghana, Malawi, and Uganda show that the proportion of students attending TVET schools make up no more than 2-5% of all enrollees. Also, it is necessary to recognize that TVET covered by education sectors plans is extremely limited in reflection of the fact that students and youth who cannot attend school, or are forced to discontinue their education, are quite numerous. A conceptual diagram of areas covered by TVET in the education

129 Ministry of Education and Sports and Ministry of Manpower, Youth and Employment, Ghana (2005) IV pp.35-36.
130 Ministry of Education and Sports, Uganda (2006).

Figure 3-5: TVET fields covered in the education sector, from among TVET offered (The case of Ghana)



Source: Drafted by the authors.

sector in the case of Ghana is shown below.

Non-formal education, as provided for in Ghana's education sector plan, consists mainly of alternative education for youth who have left school and adult literacy programs. For example, Ghana has not yet advanced to include non-formal training programs for income generation, such as the pilot project GTZ implements in Uganda, or traditional apprenticeship, in the education sector plan. In other words, in spite of the fact that a great number of youth are being left behind by missed opportunities of schooling and employment, the current framework for public education has not sufficiently provided means to cope with the problems these youth face.

4. Issues in and Recommendations for TVET Assistance in Africa

4-1 TVET Assistance Needed in Africa

As this paper has discussed up to now, poverty reduction and vocational human resource development are closely related in Africa. The expansion of basic education is necessary for enhancing future workers' trainability, but that alone will not lead to employment seeing as more than half of all workers in the informal and SME level have entered the workforce after completing apprenticeships or TVET programs at public or private institutions following schooling. However, these jobs are not stable in nature. In any given year 20-30% of enterprises are newly established and a majority will fold from business sometime within their first 3 years – as circumstances are now, only 1% will ever grow to the size of businesses with 10 or more employees. Nurturing the growth of currently unstable SME, while securing human resources at supporting industries capable of attracting foreign capital would be an important measure in providing the multitude of persons unable to escape from poverty with the means to a stable livelihood and thereby additionally extend economic growth. However, the governments of African nations tend to be caught in thinking that TVET is a way to catch up to developed nations by increasing resources allocation to cutting-edge science and engineering programs at tertiary institutions and polytechnic schools. Considering the structure of African workforces and industry and their macro-economic performance, one should say that such policy lacks realism and the course of its progress has not been strategically ascertained with any clarity. First of all, each country should analyze data on which industries are to be enhanced so as to open the way to economic growth, and then base all decisions specifically on unique domestic characteristics; subsequently, by seeing that human resource strategy is developed to achieve this enhancement of industry, it would be possible to absorb insufficiently-utilized workforces of youth who have completed basic education into the industrial sector in addition to strengthening small and medium enterprises.

On the other hand, Sector-Wide Approach (SWAp), which acts as a framework for strategies in poverty reduction and education sector planning, cannot be ignored, particularly in regard to assisting Highly Indebted Poor Countries that are aid-dependent in today's Sub-Sahara Africa. The primary issue of priority in the education sectors of countries that apply SWAp is the achievement of 2 goals for educational development as included in the MDGs: those are, full expansion of primary education by 2015, and eliminating gender disparities in primary and secondary education. In particular, the influence of the first goal has been quite pervasive and at least half of the education budgets in Sub-Saharan countries are apportioned to primary schools. Also, as aid coordination is being called for, more and more parties are wishing to see that aid be carried out in the form of programs aligned to the national policies of their respective governments based on policy dialogues and mutual linkages established between donor organizations. In such an environment, though the demand for TVET may be high, implementing what an individual government has long requested soon as an independent

project would potentially invite the offense of other parties within the assistance community. TVET is not an issue for the education sector alone; it is a field in which success can only be achieved through the prerequisite use of close collaboration between the industrial and labor sectors. Accordingly, TVET implementation essentially requires that parties related to the policy framework cooperate and actively discuss matters with each other, and involvement in policy-making and systems design has become a prerequisite when looking to support concrete education and training activities, particularly within the current assistance environment. The World Bank and other donors are beginning to make reference to the great need for TVET as a measure for reducing poverty since basic education alone, without linking graduates to the world of work, does not lead to achieving this aim. Therefore, terms for realizing truly effective TVET assistance, in short, include being able to offer convincing recommendations that press not only related parties in Japan but also other donors to understand the significance of TVET, and also coming up with an allocation of resources that governments and donors supporting the field of basic education in particular can deem appropriate and agree to, while considering balanced development of the whole of the education sector. As such, before anything else, the government must clarify its own role in TVET, based on fundamental information regarding the degree to which trainings are held through various modes such as public and private TVET institutions, enterprise-based trainings, and apprenticeship systems, the kinds and levels of skills demanded in the labor market, and the degree to which human resources could be absorbed therein. TVET, unlike basic education, involves numerous links to the private sector to begin with and is not a field that any government could tackle entirely on its own. In addition, even if resources that could be allocated from the education budget to TVET were to increase, surely the amount would not be much greater. In order to effectively carry out vocational human resource development while recognizing the above fact, the role of the government should be kept limited and the private sector should be encouraged to actively take part in training and education. For that to happen, it will become necessary to provide general incentives to private sectors as well as support for improving trainer quality, among other things. Within the global economy, changes in demands for individual skills have become increasingly fast-paced. At the same time, public education and training institutions tend to operate in a rigid, top-down fashion, meaning that despite the fact that a lot of funding is placed in infrastructural investment, they are often unable to meet the changing demands of the labor market. In addition to this, the current aid environment is narrowing the degree to which project assistance may be implemented without involving policy discussion and system design, which requires careful consideration before any serious commitment to assisting independent TVET projects is made. However, there are ways to continue both existing and new technical cooperation projects in coordination with comprehensive support for policy formation, TVET system design, and the formation of certification systems and private sector cooperation. Naturally, no matter how pressing the construction of a system framework may be, the significance of putting projects modeled on that framework into practice does not change. However, whereas TVET's image in the past was of a high technologies education geared for formal sector employment, this report has asserted the point that, to the contrary, the demand for developing trades workers as well as SME is high in Africa. The authors

would like to point out that it is a direction appropriate not only for African governments but also in light of Japan's aid philosophy. In other words, in view of Japan's aid philosophy and its own experience of development, placing the focus on assistance for people visible at the nexus of development and poverty reduction (Figure 2-5) , i.e. "economic agents making independent efforts for self-reliance"[131] and the development of trades workers fits within this framework. Also, the approach of training trades workers for the formation of supporting industries aligns well with JICA's assistance strategy for small and medium sized enterprises, namely, "giving active support to small and medium sized enterprises and groups that have potential for growth, for the sake of enhancing productivity of the economy as a whole and developing industries with international competitiveness"[132].

Secondly, we would also like to point out the importance of organic collaborations among various actors. If Japan can involve other donors and play a leading role in donor harmonization, then JICA's technical cooperation projects applying its experiences in supporting TVET may be effectively situated in sub-sectoral development plans over the course of policy consultations. Furthermore, mutual linkages among Japanese aid agencies – JICA, Japan Bank for International Cooperation (JBIC) and Japanese embassies – should be strengthened so that TVET assistance can be carried out from an 'All-Japan' base. TVET assistance would include activities such as budget support for training funds, expert technical cooperation in policy-making and systems design, model project implementation, and the broad replication of successful model project activities – as well as the provision of facilities and equipment therein, which would all require sizable amount of investment. Consequently, this is a field where efficacy is expected to be extended on the whole by matching and blending different assistance schemes – grant aid, loans, technical cooperation and the dispatch of experts and volunteers. Also, while the merging of JICA and JBIC in 2008 will expand the possibility for utilizing different assistance schemes within the same organization, it is also desirable to consider the complementality of Japanese aid via bilateral and multilateral channels. Japanese trust funds established in various multilateral organizations (eg. the UN and development banks) would potentially contribute to improvements in the effectiveness of Japanese assistance as a whole. Furthermore, as has been mentioned in this paper, industrial human resource development is cross-sectoral in nature. Among Japan's cooperative projects in Africa, those which are classified as TVET are ones implemented exclusively at formal educational institutions, while those conducted with communities and industry, even though they also aimed at skills development, were categorized in areas of community development, rural development, agricultural development, or local industrial development. And even when operating in the same country, they were planned, operated and evaluated independently of each other. However, in order to provide effective support, the current range of issues ought to be re-visualized while bringing schemes together, so as to embody one comprehensive approach to TVET that spans the social services sector, economic infrastructure sector and direct manufacturing sector.

131 JICA (2005b) p.64.
132 JICA (2002) pp.134-135.

It is hoped that the formulation of local taskforces to coordinate Japanese aid agencies on the ground and the JICA-JBIC merger both prove to be effective for this type of collaboration. One representative model of a single country with multiple aid agencies supporting TVET through the linkage of its parts is Germany. Thus, in Case Study 3 we will introduce Germany's vocational human resource development program (PEVOT) in Uganda (see also, 3-2-2).

Case Study 3: German Aid Agencies' Collaborative Assistance for Vocational Human Resource Development in Uganda

PEVOT (Programme for Employment Oriented Vocational and Technical Training) is the congregate body of activities run with a common aim based on the mutual consent between German aid-related agencies and the Ugandan government. **GTZ** assists the Ministry of Education in capacity building by advising on policy and strategy formation, system reform, ensuring funding stability, and coordination of human resource policy with policies pertaining to economic development and employment. **KfW** provided private education and training institutions with equipment, while also executing technology upgrades and personnel management training for educators. Other than this, KfW also offers general budget support to exchequer. **Human Resources Cooperation** trained Education Ministry staff and managers at the local level. It also provided trainings at private education and training institutions through the Uganda Association of Private Vocational Institutions. PEVOT has also cooperated with the GTZ-assisted projects Promotion of Children and Youth (PCY) and Basic Education in Urban Poverty Areas (BEUPA), and has begun testing synergies between vocational training and youth promotion schemes.

PEVOT has been trying three levels of assistance — macro, meso, and micro; while the macro level serves an advisory role for program reform, the meso level contributes to capacity building at the Uganda Vocational Qualifications Framework (UVQF) office and the Uganda Association of Private Vocational Institutions. Furthermore, at the micro-level, they have been fortifying private education and training institutions through material provisions and staff training, as well as developing training programs for a broad-range of living skills in rural areas.

In this way, German assistance in the TVET sector has combined technical cooperation, budget support, and human resources assistance while bringing in both private and public education and training institutions in order to fulfill a pioneering role towards achieving sector development shared by the African Development Bank, Japan, EU, United Nations World Food Programme (WFP), United Nations High Commissioner for Refugees (UNHCR), other donors, and the government — all through the Advisory Board for Business, Technical, and Vocational Education and Training (BTVET).

Sourcce: Castañer and Grunwald (2006).

4-2 Japan's Role in TVET Assistance in Africa

4-2-1 From the Perspective of Industrial Human Resource Development

There is no doubt that the demand for industrial human resource development in Africa is high, but from the perspective of trade relations, even if Japanese enterprises are importing resources from Sub-Sahara Africa, with the exception of only South Africa and a few countries, there is hardly any extensive industrial involvement wherein masses of local technical workers could be employed, which is one point notably different from Japan's involvement in human resource development in Asia. When looking at Asian examples, Japan's assistance to industrial human resource development through ODA has often acted as a bridge to the private sector, and while Japan clearly aims to contribute to human resource development strategy in each country, its activities such as dispatching Japanese experts, accepting overseas trainees into Japan, providing materials to education and training institutes and supplying technical assistance, have also matched the human resource demands posed by the local bases of Japanese private enterprises. The governments of ASEAN and other Asian countries also saw attracting Japanese enterprises as one goal in building an industrial base. However, a commonality of interest held by both Japanese business and African governments is not so readily visible. In Africa, where the demand for human resources by Japanese enterprises is low, a prudent analysis of demand is necessary, even if just to provide machinery and technical assistance to pre-employment education and training institutions. The reason for this is because machinery used and technical skills desired by Japanese enterprises can be quite different from those sought by African employers, and as a result there is a possibility that training prior to employment utilizing Japanese techniques and machinery may not serve as useful thereafter.

In the theory advanced by Takahiro Fujimoto, The Architecture of Manufacturing (2006), every manufacturing product requires different ways of labor division and skills according to the fundamental ideas underlying its design. For example, Japanese enterprises possess a strong aptitude for 'Integral Architecture'; that is, they have the organizational characteristic of working effectively in teams integrating a variety of elements, adjusting details with each other within product designs and then refining the products as a whole. On the other hand, American enterprises excel in strategic planning oriented toward cost reduction, and belong to 'Modular Architecture', wherein the design of parts are standardized so that the assembly of products can be done by gathering pre-designed parts without any complicated process of adjustment. According to Fujimoto, compatibility between country and industry exists, for example, while American enterprises find it easier to forge into China with its masses of low-cost single-skill workers, Japanese enterprises are more likely to enter into ASEAN countries where fine technical integration can be fostered based on close and long-term relations with local multi-skilled workers. It is common to have enterprises from a multitude of countries advancing into a single country, and even though this Architecture Theory may be stating matters too simply, it is necessary to know the kind of skills that employers desire when considering human resource

development in relation to foreign direct investment. For example, if in a certain African country it seems possible to attract capital from Europe, South Africa, China, and India, then the skills required thereby would depend on the particular needs of those enterprises. To overly focus on the special needs of enterprises would be problematic for pre-employment TVET programs, but, a careful preliminary survey is more necessary than was the case in Asia, which proceeded with the advancement of Japanese enterprises as a precondition. However, some aspects of Japanese manufacturing, such as know-how in quality control, are outstanding and worth passing on in technical cooperation regardless of the architecture of manufacturing.

Also, it is undeniable that Japan has had many years of experience contributing to the economic development of various countries by means of industrial human resource development and it should be able to apply its numerous experiences in Africa. Below, the authors would like to suggest unique ways in which Japan may apply its strengths. Many parties involved in executing program activities voiced a wish for a more concrete proposal covering the forms of projects that would be effective and the combinations of schemes that would allow for better progress, among other details. The need for such a proposal is also recognized by the authors, but in this paper the main focus has been on organizing issues and needs relating to TVET in Africa and, as such, the authors shall let a general proposal suffice. Individual and concrete recommendations concerning JICA activities will be handled as a matter for the future.

(1) South-South Cooperation to Learn from the Experiences of Successful Industrial Human Resource Development Strategy in Non-African Regions

Japan could stimulate awareness among African policymakers by producing educational resources that compile the experiences of countries, ASEAN countries in particular, that gained results by skillfully utilizing Japanese and other international aid while strategically implementing human resource development as a part of industrial policy. This could be made into simple booklets (one volume per country compiled in sets) or into visual training materials to be conveyed through JICA Net, the TV conference system. Also, since ASEAN's experiences between the 1970s and 1990s cannot fit the conditions of modern-day Africa, it may be advantageous to also include concrete proposals for practical applications – such as what needs to be considered, what parts of the Asian experience are at the core of their success, and what project elements could be postponed when faced with budget limitations. The reason for the necessity of this proposal is because when the experiences of other countries are applied, policy-makers tend to focus on only high technology and the most shining examples, and such selectivity invites the repetition of past failures by government TVET to meet labor demand. Also, when speaking of South-South cooperation, the exchange of people, in addition to knowledge, is a highly important element. Currently JICA is carrying out South-South cooperation in the form of sending former Malaysian administrative officials to Zambia to give advice to the Zambian government. There is a possibility for this kind of cooperation to be specialized for human resource

development and carried out more systematically.

(2) Technical Assistance for the Collection and Analysis of Industrial Data in the African Region as well as for Strategizing Industrial Human Resource Development

In many Sub-Saharan countries, the collection and analysis of data on industry and employment is managed separately from data on education. Technical assistance for cross-sectoral analysis has been neglected since assistance given by aid agencies is actually divided along sectoral lines, and, at the same time, owing to the recent trends towards focusing on basic education, necessary fundamental analysis for enhancing TVET in the education sector has been weak. While governments still wish to enhance TVET with insufficient data analysis, aid agencies have often dismissed these wishes by reason of their 'lack of realism', thus creating a chicken-and-the-egg relationship; seen another way, the expertise and resources for collection and analysis of such data fail to materialize because aid agencies have not paid much attention. Regardless, should Japan assist in TVET, the provision of technical assistance for collecting and analyzing underlying data and strategizing based on that information is crucial as a basis for getting the host country and other donors further involved. One way of doing it would be to dispatch experts in labor economy analysis and policy to the target country who would improve the capacity of the counterpart agencies through participation in policy-making. These experts, as they work on technical assistance, are also expected to act as bridges, or harmonizers, between the government and aid organizations in discussions while promoting smooth policy formation. In parallel to this, it would also be possible to offer trainings on data analysis and policy formation as a region-wide initiative geared towards policymakers in various African countries. If training modules and materials relating to African TVET policy are developed, they could not only be utilized for various forms of training but also serve as an opportunity for countries to learn from each other as they work on enhancing their own industrial human resource development.

(3) Implementation of Model Projects for Trades Worker Cultivation

As this paper has stated, the cultivation of trades workers is one of the more important fields in consideration of industrial development and the reduction of poverty in African countries. To date most of Japanese assistance in industrial human resource development has been at relatively high levels, such as polytechnics, yet it would be worthwhile to look into the possibility of contributing to trades worker cultivation through assisting public and private education and training institutions. In order to carry out trades worker cultivation, flexible curricula and time-schedules capable of meeting specific needs would be required, and it would be highly effective to provide technical assistance and advice on high-level policy formation and systems design by way of (1) and (2) on the one hand, while executing solid education and training projects that embody these policies. Also, in the case that a model project turned successful, it may be possible to utilize the loan scheme to practically apply this project to other

regions.

(4) Understanding Situations of Asian Enterprises That Have Advanced into Africa and Exploring the Possibility of Collaboration with Them for Industrial Human Resource Development

The number of Asian enterprises moving into Africa is growing, with China and India at the core. Consequently, there exists the possibility of supporting industrial human resource development from the angle of linking Asian business, not limited to Japan, to Africa's labor market. In addition, there may even be fields available for directly transferring Japanese technology when looking at the course of Africa's industrial development with exports to Asia in mind. Including these possibilities, future developments in Africa and Asia's economic relationship is largely unknown; as such, one idea would be to explore the possibilities of collaborating with Asian enterprises in human resource development, based on the surveys into the circumstances and needs of Asian enterprises that possess trade relations with Africa.

4-2-2 TVET from the Perspective of Human Security: Skills Development for Survival

To date, Japan has viewed TVET as divided into 'pre-service training' and 'in-service training'. However, as was made clear in Chapter 3, a large part of the population in Africa cannot be reached by the trainings of these categories alone. There are school-aged youth unable to enter schools and ultimately unable to find employment, or people moving from job to job with no stable occupation or income. President Museveni of Uganda calls these people the 'forgotten majority'. Also, as was referred to in Chapter 2, the World Bank, UNESCO, GTZ and other organizations have already taken up 'school-to-work transition' for these people as a sizable policy concern against the expansion of poverty in Africa. Whereas, JICA now raises 'encouragement of micro-enterprises and the informal sector' as one of its focus areas of assistance to Africa, which demands that more concrete activities be undertaken[133].

Also, the approach taken towards this 'forgotten majority' shares a common base with the people-centered concept of ensuring human security – a base designed in order to protect all people from varying forms of threats against human survival, livelihood, and dignity so that they may pursue their abundant latent potential. In addition to its commitment to ensuring human security, JICA is implementing TVET assistance to facilitate the reintegration of demobilized soldiers into society in post-conflict countries such as Rwanda and Eritrea, which is a potentially significant intervention from the perspective of ensuring human security as well. The body of this paper has been written mostly from the perspectives of industrial human resource development and education, but there would also be

133 JICA (2003b) pp.45-48.

the necessity of further research on skills development for human security, since the authors' observations on such must remain limited in this paper.

Furthermore, even though this was not necessarily categorized as assistance to TVET, Japan has implemented African Institute for Capacity Development project (AICAD) in East Africa. This project is centered in Kenya's Jomo Kenyatta University of Agriculture and Technology – run with over 20 years of Japan's cooperation. By researching and actively disseminating information, the project aims to broadly expand the public's regional access to technology that is both versatile and capable of contributing to social and economic growth, and as such it serves as a means to enhance the function of tertiary institutions to contribute to society. As economic growth and poverty reduction through the strengthening of the agricultural sector have been set forth in many African countries, AICAD is also expected to play a role in realizing such national strategies. Therefore, in other areas of assistance including skills development geared towards the poor, it would be necessary to look for collaboration with projects, such as AICAD, that support tertiary institutions to enhance their function as social contributors.

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