

Chapter 10: Challenges in Educational Development in Africa and JICA's Approach

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Introduction

This chapter looks at the challenges that Africa¹ faces in education, and discusses JICA's policies toward its development. Section 1 discusses the current and overall situation of education in Africa (Sections 1.1 and 1.2). The chapter will then discuss specific challenges for countries at different educational developmental stages because, obviously, countries at different developmental stages must have different developmental strategies depending on their respective prioritized goals (Section 1.3). As a precursor to later discussions, Section 1.4 will have a brief look at future challenges toward 2015 and beyond.

Section 2 discusses JICA's approach toward educational development in Africa. In its efforts to contribute to education in Africa, JICA has conceived a few development models based on its policy focus and its comparative advantage built on Japan's experience in education and human resources. Such development models will be intensively discussed in this paper while JICA can provide various and wide-range support for educational development in Africa

Finally, combining the discussions in previous sections, Section 3 will attempt to suggest some policy options for consideration by African leaders and their partners participating at TICAD V.

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1. Since sub-Saharan Africa (SSA) is faced with very serious challenges, much of the discussion in this chapter will largely be on SSA. The challenges of North African countries, however, will be dealt with as appropriate.

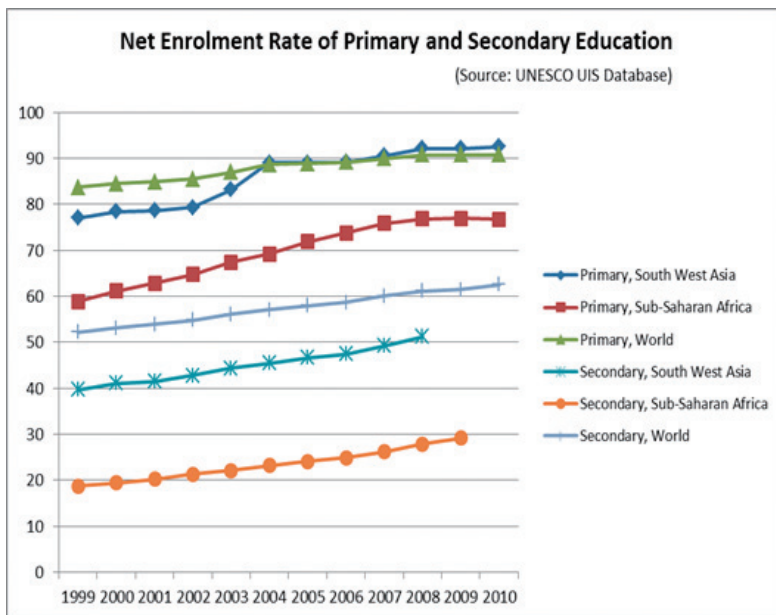
1. Current State of Education Development in Africa and Challenges Faced

This section has an overview of education development in Africa: basic education and post-basic education.

1.1 Current state of basic education in Africa and remaining challenges

Overall, there has been a substantial advancement in access to primary education in Africa. Since the World Conference on EFA (Education for All), in Jomtien, Thailand, in 1990, which called for universal access to primary education as a fundamental human right, many African countries have introduced various policies to achieve universal primary education with support from international aid agencies and NGOs. As a result, the net enrollment rate in primary education, one of indicators measuring achievement of the second MDG, improved from 58% (1999) to 77% (2010) and, consequently, the net enrollment rate in secondary education also increased from 19% (1999) to 29% (2009) (Refer to Figure 1).

Figure 1. Changes in the enrollment rate in primary education and secondary education



Source: UNESCO USI Data 2010

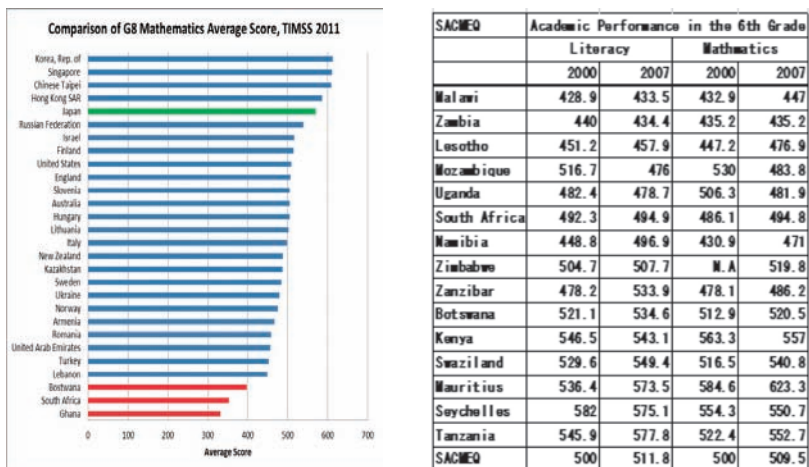
Also, there has been an advancement with regard to elimination of gender disparities in primary and secondary education, i.e., Goal 3 of the MDGs; the male-female ratio of the gross enrollment ratio at the primary level improved from 100:85 (1999) to 100:93 (2010) in Sub-Saharan Africa. This seems to have been achieved thanks to efforts to improve educational access for the females through the construction of schools in remote areas and the provision of scholarships, as emphasized in MDGs and EFA (UN, 2012). Thus, there has been a massive improvement in enrollment in basic education.

However, even with such improvements in basic education enrollment, the fact remains that many African countries lag far behind the world average (NET primary: 91%, NET Secondary:82%) and that of South West Asia (NET Primary: 93%, NET Secondary: 75%); in addition, large disparities persist between urban and rural areas and among different income groups within countries. (GPE report 2012) More attention needs to be paid to these remaining challenges.

In contrast to rapid quantitative expansion, the quality of education, as represented by the learning achievement of children, remains low. An illustration of this can be found in the performance of some African countries in TIMSS,² which measures the achievement in science and mathematics of fourth and eighth grade children. In the 2011 test, participants from Africa, namely Botswana, Ghana and South Africa, are placed lowest among participating countries, as shown in the figure on the below.

2. Trends in International Mathematics and Science Study

Figure 2. Poor quality of basic education in Africa



(Left: TIMSS; Right: SACMEQ)

As one can see by looking at the SAQMEC data,³ in which two of the three countries listed in the TIMSS score (Botswana and South Africa) are on a par with other countries, one has to assume that the learning achievement of children in most African countries remains low by international standard. And in particular, among various aspects of learning achievements, the low level of basic literacy and numeracy in early grades at the primary education level is a major concern. In Kenya, for example, a survey (UWEZO, 2011) found that the level of basic literacy and numeracy of about 50% of fourth graders is only equivalent to what the Kenyan curriculum requires of the second graders. It has also been reported that the learning achievement of sixth graders in Africa, on average, is only equivalent to that of second graders in OECD countries (GPE, 2012). Such general insufficiency in basic literacy and numeracy at lower grades is reported to hinder children’s learning over subsequent years, resulting in the deteriorating general cost-effectiveness of educational investment in Africa (Brookings Institution 2011). Why, in Africa, does the quality of education remain low, or why, in some countries, is it decreasing, despite various inputs made by governments and their development partners for the quantitative expansion of education? To understand this, one has to look back at the policies introduced toward the achievement of EFA, along with their policy intentions and consequences. After the introduction of the MDGs

3. Southern and Eastern Africa Consortium for Monitoring Educational Quality

and the World Conference on EFA, Dakar, Senegal, both in 2000, universal primary education aiming at 100% enrollment and completion became the top priority for education policy in many countries; the governments were subsequently requested to work out their educational sector plans to clarify specific courses of action for the realization of these goals.

However, mostly African countries could not provide the quality learning environment (schools, teachers, teaching and learning materials etc.) to cope with the rapid expansion of access in basic education. This may have led to the deterioration of the quality of education during that era. This was observed even in those countries that participated in the EFA/Fast Track Initiative (FTI).⁴ The FTI was established in 2002 as a multi-donor fund for the purpose of providing financial and technical support for the planning process of these sector plans and to fill in the financing gap between the education sector resource requirement and the domestically available education budget. "The indicative framework" which FTI presented was referred to in the process of sector plan formulation by respective countries. They were benchmark figures such as the following: "Education share of budget defined as public recurrent spending on education as % of total public recurrent discretionary spending is approximately 20%," "Primary education share of education budget is approximately 50%," "Recurrent spending on items other than teacher remuneration as % of total recurrent spending on primary education is 33%," "Average annual salary of primary school teachers divided by GDP per capita is 3.5",⁵ "Pupil-teacher ratio in publicly-financed primary schools is 40 to 1," and an "Percentage of repeaters among primary school pupils is less than 10%."

However, many of the sector plans thus formulated did not necessarily turn out to be realistic in the context of each country; they tended to be over-ambitious given the insufficient capacities of understaffed education administration both at central and local levels, and the low capabilities of and insufficient incentives for teachers/staff on the ground. Thus, many problems arose such as delays in executing education budgets and in the supply of educational materials to schools.

4. Of the 45 countries involved in the FTI's support for educational sector planning and application for necessary funds, 28 of these countries are in Africa. Therefore, more than half of the countries within Africa are participating in the FTI. EFA/FTI has turned to be the Global Partnership for Education since 2011.

5. In Bruns et al. (2003), sample data for this indicator ranges from 0.6 to 9.6.

Apart from these constraints, the shortage of additional financing made available was also among obstacles that prevented the expected progress. As a result, adequate facilities and materials were not made available to schools and students, both of whose number increased rapidly as a result of the free primary education policies. All this resulted in a deterioration of the learning environment (Cambridge Education, et al. 2009).

This hasty application of the indicative framework of FTI to the education sector plans without deliberate consideration of the country context could have been one factor that inadvertently brought the deterioration of the quality of teachers. This happened because many countries quickly increased the number of teachers to live up to the indicative pupil-teacher ratio and other indicators of the FTI: teacher salaries were lowered, more teachers were employed on a term-contract basis on lower salaries, teachers' training periods were shortened, and enrollment requirements for teacher training programs were lowered in order to rapidly increase the number of licensed teachers (Aidan 2010, TISSA 2007). It is not only in the FTI participating countries but other non-FTI participating African countries as well that the deterioration of the quality of teachers occurred. Thus, it is worthwhile to further examine what education policies has been introduced and what were their consequences in such non-FTI participating countries.

It is also reported that the sudden increase of teachers with lesser qualifications has resulted in the deterioration of the social status and reputation that teachers used to enjoy among community residents and parents (Felix 2005). It appears that teachers' dissatisfaction with their salaries and benefits have actually lowered their motivation, thus resulting in poor service delivery typically indicated by a high absentee rate and limited teaching time. These problems were actually predicted; as early as 2003 in the World Bank report (Bruns et al. 2003), which served as a theoretical background paper for the FTI's indicative framework.

These developments, resulting in the deterioration in the learning environment (lack of school facilities, textbooks, and teaching materials), the poor quality of teachers and their services, are behind the poor learning performance of children, even with increased access.

In addition to these policies, many countries have attempted to promote

the decentralization of their educational management aiming to improve the efficiency of administration and finance in education; it was also expected that decentralization would enhance the accountability of education to parents and community residents, thereby improving the quality of service delivery. As part of the policy, governments established what are called "school management committees" mainly comprising headteachers/teachers, parents, local community members and local government officers (local government or local branch of Ministry of Education), with the expectation of increased local participation in education and hence increased efficiency in school management.

Oftentimes, however, the school management committees have not been functioning as expected due to the government's inability to provide sufficient budget allocation, clear delineation of the functions and mandates of the committees, and the insufficient ability of the school committee members. As such, and for other reasons as well, many schools supported by the school management committees ended up with inadequate facilities and teaching staff, failing to provide the education needed by children and their parents, who eventually lost interest in supporting such poorly performing schools. Thus, not receiving appropriate support from either the government or from the community, the quality of education at such schools eroded.

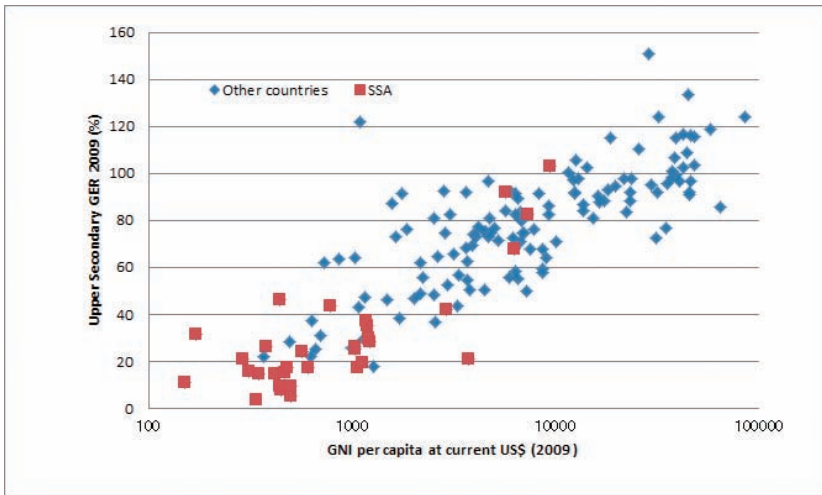
It is as a result of these inadequate policy developments that Africa's current level of educational quality remains sub-optimal. Many indicators point to the need for further efforts: a high dropout rate (30%), high repetition rate (15%), and low completion rate in primary education (67%) (compared to the world average of 2.5% (2010), 9.1% (2009) and 91% (2010), respectively). Continuous efforts to solve these problems are needed.

1.2 Current state of post-basic education in Africa and remaining changes

We now turn to post-basic education (upper secondary and higher education).

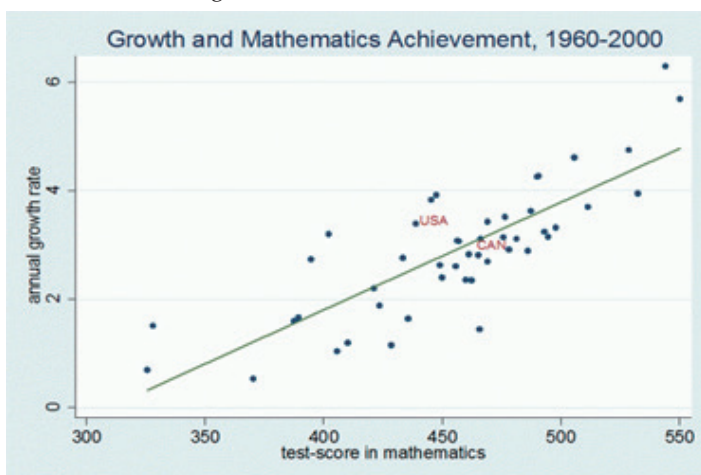
In recent years, African countries have experienced rapid economic growth; however, this has not solved how to make best use of the youth in Africa for its industrial development. The youth in Africa still has higher share of the unemployment than the adults. In addition, the large majority of the youth are underemployed and occupied in low productivity household enterprises (AfDB 2011).

Figure 3. Enrollment rate in upper secondary education and its relevance to economic development



Source: Yoshida (2012)

Figure 4. Relationship between quality of upper secondary education and economic growth



Source: Hanushek 2007

Under these circumstances, the challenges in post-basic education in Africa lie in improving the current net secondary education enrollment rate of 29% (2009), enhancing the quality of education, and making secondary education (or post-basic education) including skills development more relevant and responsive to the needs of the society so as to produce more qualified human resources to support much-needed industrialization. Such efforts for the improvement in the supply of skilled labor must proceed in tandem with efforts in industrial development and labor policies. Africa also needs to cultivate top-level human resources who will move on to higher education and go on to play leading roles in industry. Thus, in a number of ways, post-basic education must be enhanced both in terms of quality and quantity to build up human capital to meet the changing and increasing needs of Africa.

Figure 3 represents the relationship between the enrollment rate in upper secondary education and economic growth (GNI per capita). This infers a correlation whereby countries with higher GNI per capita have a higher enrollment rate in upper secondary education. In addition, the quality of education, namely, the extent to which students absorb the content of the education they receive, is largely related to the economic development of each country. Hanushek asserts that there is a

correlation between the learning achievement in math (level of 15 year olds) and economic growth (annual growth rate of GDP) as indicated in Figure 4; and that in addition to the quantity of education (number of schooling years), the quality of education (attained learning achievement) is also an important element in economic development (Hanushek and Wößmann, 2007).

Let us now turn to higher education. In terms of the higher education enrollment rate, Africa, with an average rate of only 6%, lags far behind other regions, let alone North America and Western Europe with a 70%. With the recent progress of the globalization of higher education, the cross-border movement of students has become easier. In Africa, it has been reported that approximately 5.9% of the students receiving higher education study abroad (Table1). Compared to other regions, the African continent has a relatively higher percentage of students who study abroad.

Table 1. Number of students who study abroad in other regions (2010)

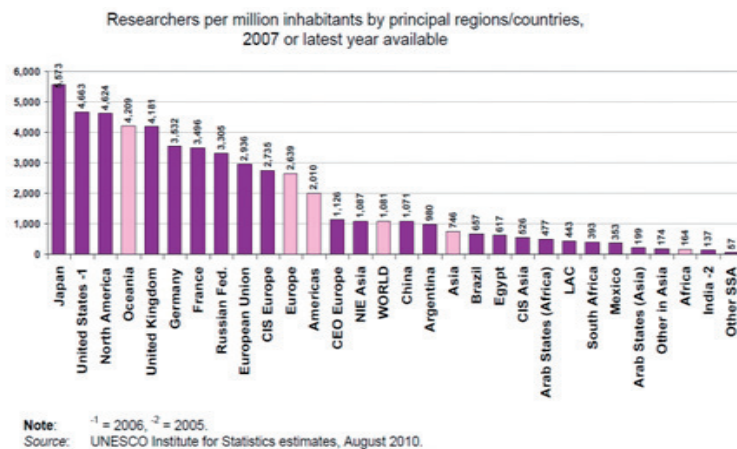
Region	2010			
	Inbound		Outbound	
	The number of students who are from foreign countries	The % of student within all university students	The number of students who study abroad	The % of of students who study abroad within all university students
Africa	59,801	1.81	193,871	5.87
Arab	61,983	0.95	177,372	2.72
Central and Eastern Europe	168,015	0.91	298,093	1.56
Central Asia	33,958	1.8	72,570	3.85
East Asia	379,919	0.98	700,999	1.8
Latin America, Caribe	36,536	0.25	145,639	1
North America, Western Europe	1,704,735	5.19	486,601	1.48
South Asia, West Asia	10,303	0.07	194,231	1.48
Total	2,455,250	1.86	2,455,250	1.86

Source: UNESCO UIS data (2011)

These low enrollment rates, as well as the relatively high mobility of students, can at least in part be accounted for by the insufficiency in higher educational institutions within the African continent, in terms of

both quality and quantity; they are not sufficient to meet the region's needs, thereby causing a brain drain of scarce and competent human resources as they seek opportunities of higher education in other regions and not coming back after their study. As a result, there is a severe shortage in the number of researchers in Africa, which in turn undermines the ability to produce new knowledge and promote innovation, particularly in science and technology (Figure 5).

Figure 5. Number of researchers per 1 million people (2007)



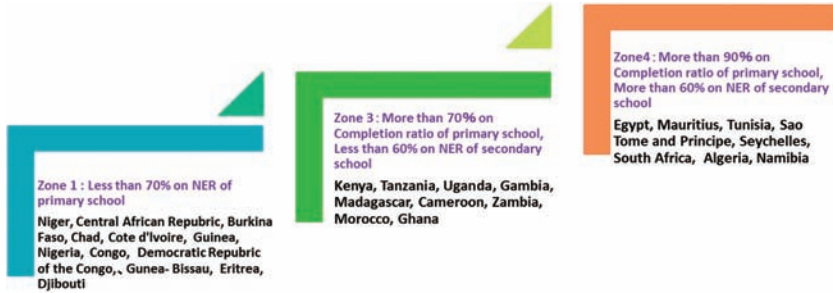
Source: UNESCO 2010

1.3 Diverse stages of educational development in African countries

So far, we have looked at the 54 countries in Africa collectively, but obviously, the stages of educational development vary across countries. To put this diversity in perspective, I would like to propose a categorization of the countries into four groups, by the levels of achievement on three scales: the net enrollment rate in primary education, the primary education completion rate, and the net enrollment rate in secondary education. However, please note that this categorization is intended to have a quick overview of African countries from the criteria of three leading indicators related to the access (the net enrollment in primary and secondary education) and the quality of the education system (primary completion rate). This may not be an ultimate way of classification of African countries at different educational development stages nor excludes the importance of secondary and higher education as well as that of the quality enhancement of teaching and learning in each Zone. Each country could

select its prioritized areas depending on the country context, and the education sector plan which discussed and agreed between the government and the local education group of development partners.

Figure 6. African countries as categorized by major outcome indicators



Source: Created by the author based on UNESCO 2007

Zone 1 consists of countries in which the primary education net enrollment rate is less than 70%. These are countries in which **quantitative expansion of primary education enrollment could be still a high priority**. This category includes many countries with a low GDP per capita.⁶

Zone 2 consists of countries in which the primary education net enrollment rate is 70% or higher and, at the same time, the primary education completion rate is less than 70%. For these countries, **improving the completion rate by improving the quality of education could be the main challenge**. This zone includes countries in southeast Africa, such as Malawi, Ethiopia, and Mozambique.

Policy measures to be adopted for countries in Zones 1 and 2 must take into account the vast difference in income levels among them. Also, the efficiency of the countries' educational administration and finance must

6. French-speaking countries, such as Niger, Burkina Faso and Chad, happen to fall into this category; some argue that this is in part due to the educational systems in these countries where instruction at schools is done only in French starting in the first grade; it is argued that this system seems to be creating a language barrier for children resulting in low enrollment and completion rates in these countries (K. Robert 2009).

be looked at; countries at similar income levels and all with a fairly reasonable level of public expenditure in education can sometimes display considerably different achievement results in the primary enrollment rate.

Zones 1 and 2 also include post-conflict countries such as the Democratic Republic of the Congo and South Sudan; policy measures in these countries must be designed and implemented with careful attention being paid to the history and other social, cultural and economic backgrounds.

Zone 3 includes countries with a primary education completion rate of 70% or higher, but in which the net enrollment rate in secondary education is less than 60%. This zone represents countries in which **improving the enrollment rate in secondary education could be made a priority**, and includes countries that are more socially and economically stable than those in Zones 1 and 2, such as Kenya, Tanzania, Uganda and Ghana.

Zone 4 includes countries in which most people have completed secondary education, and in which enrollment in **higher education has been achieved to a certain extent**; this zone includes the Maghreb countries in northern Africa, South Africa and Namibia. In these countries, industries are diversified and economic structures have been developed to some extent; the enrollment rates in primary and secondary education have been improved to some extent, and the focus has shifted to enhancing higher education.

In summary, countries in different categories have different development challenges, and even among the countries that are categorized as being at similar developmental levels, specific challenges differ from country to country. African governments and their development partners must be flexible in devising development/support measures taking into consideration the stages of educational development and their local context in each country.

1.4 Future global agenda for educational development in Africa

One of the main issues in debates on educational development toward the MDG target year of 2015 and beyond is how to achieve "Learning for All," a concept that calls for the assurance of the quality of learning not

limited to the primary education level, but at all levels from pre-primary up to post basic education. This would be a concept that goes beyond the much used interpretation of “Education for All” concept, which is mainly aimed at universal primary education. More specifically, there are three main arguments about “Learning for All” : (1) providing education for children in rural areas, female students, disabled children, and ethnic minorities without disparity, encouraging out-of-school children to attend school and enhancing the quality of learning; (2) making early child development (ECD) interventions as well as early grade learning at lower primary school grades (including ensuring the learning achievement of children in early-grade literacy and numeracy); and (3) improving education linked to the employment and the cultivation of human resources (human resources and researchers who are engaged in science and technology).

Africa needs to pursue these agendas while continuing its steady efforts to address the challenges that we saw earlier. Specifically, efforts must continue for the improvement in the completion rate in primary education and the resultant increase in the enrollment into secondary education, which, in itself, needs to be expanded with the construction of schools and enhancement both in the quantity and quality of teachers. For the mainstreaming of Learning for All in Africa, various development partners have been already actively working.

In their support toward achieving Learning for All, many development partners seem to place strong emphasis on policy making by mobilizing budget support, including lending, with policy recommendations. One example is an initiative by the World Bank. As part of its new strategy (Education Strategy 2020), the World Bank is starting an initiative including the construction of a policy benchmarking database called SABER (the Systems Approach for Better Education Results). The idea behind the initiative is the emphasis on the importance of systematic support in informed policy making that is supported by the analysis and understanding of what policies are needed to produce the expected policy outcomes (such as improvement in enrollment rate, completion rate, and learning achievement) using inputs (such as schools, training of teachers, etc.). Another example of a policy support instrument is what is called results-based financing that development partners like the World Bank and DfID of the UK are promoting. This funding mechanism requires the achievement of pre-determined policy goals by the recipient

developing countries as a prerequisite for the disbursement of funds.

2. JICA-supported Projects and their Comparative Advantage

Over the years, Japan has been undertaking extensive international cooperation in education. The following sections will introduce three of JICA's approaches, which are currently being actively pursued with encouraging outcomes, especially in the African context. The first two are specific models of educational development: the first one having to do with school-based management (Section 2.1) and the second one with the improvement of the quality of education through teacher training (Section 2.2). Following that, Section 2.3 will introduce JICA's attempt to link the experiences on the ground and policy making at the central level.

2.1 Improvement of school management for a better educational environment

At the center of measures for improving access to education has been the construction of more schools. However, recently, in addition to the physical aspect of access, the significance of educational management has been highlighted as a key area of intervention. Educational management includes, at the central level, formulating a policy framework, securing appropriate budget allocation, improving administrative and fiscal capacities (budget preparation and execution), and information systems development such as EMIS (Education Management Information Systems). At the local level, interventions include transfer of authority over personnel and budgetary issues to local educational administrative bodies as part of decentralization policies, improving administrative and fiscal capacities (budget preparation and execution), and improvement of school management.

Among these, one approach that is receiving increasing attention in recent years is school-based management (SBM); SBM basically aims at enhancing the efficiency and quality of school management by holding individual schools more accountable through facilitating parents/community members' participation in school management. As a vehicle to encourage participatory school management, the school management committee is set up, comprising of pupils' parents, community members as well as school principals, teachers and local education administrators. Originating in World Bank projects in Latin America – projects with encouraging outcomes – this SBM has come to be widely practiced in

many parts of the world, including Africa.⁷

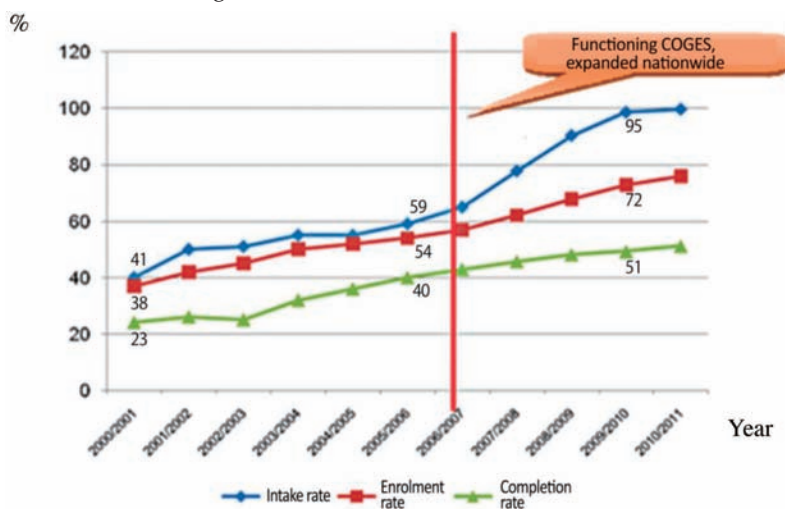
In fact, school management committees have been established in many countries in Africa. Oftentimes, however, such committees are not properly functioning for various reasons: sometimes the committee members could not fully understand their mandates and responsibilities due to the lack of the government's efforts to provide necessary guidance and support in the management of the committees; or the local educational administration did not get involved as they should; and at other times, school management committees did not have the capability to fulfill their expected functions owing to lack of proper training opportunities.

In order to help correct such situations, JICA has been trying to introduce the SBM in Africa with special emphasis on making the school management committees functional. The "School for All" projects implemented in four French-speaking countries in west Africa (Niger, Mali, Burkina Faso and Senegal) are based on the idea that if school management committees are organized and operated in such a way that they appropriately accommodate the pressing needs of pupils' parents and community members, they can serve to positively change the mindset of the people toward education and contribute to the improvement of the educational environment, including the resultant improvement in enrollment rates. (For a more detailed description of the projects, refer to Box 1).

In Niger, the number of school management committees (COGES in French acronym) based on the model generated by the support from JICA has been expanded, and is currently increasing across the nation. As the extensive development of functioning COGES, the primary education enrollment rate and completion rate have been improved (Figure 7).

7. So far, only a few attempts have been made to evaluate the impact of school-based management (SBM) in Africa (e.g., an Extra Teacher Program (a program in which schools are authorized to employ contract teachers directly) in Kenya) (Patrinos et al. 2011). More work needs to be done to collect evidence as to what kind of approach leads to what kind of impact in SBM, as SBM can take a variety of forms depending on the levels and width of mandates given to school management committees and /or school principals.

Figure 7. Acceleration of access to schools after the extensive establishment of functioning COGES



Source: Created by JICA based on educational statistics of the government of Niger

Box 1. "School for All" Project in Niger

In its support for the government of Niger, JICA started the "School for All" project in 2004 to promote effective SBM and to improve the educational environment. Prior to the Project, the government of Niger enacted legislation in 2003 that the school management committees be established at each school. However, the school management committees had not been functioning and not responding to potential demand from parent and community members. The project started with an analysis of the reasons behind the sub-optimal functions of the school management committees existing at that time. The project team spent several months conducting school surveys on 140 schools in target districts as well as awareness surveys of pupils' parents and community members as well as local administrators involved in education. They also tried to learn from the experiences from the preceding projects by other donors. These surveys revealed that the fundamental reason of the then dysfunctional school management committees was weak support and sense of participation from parents and community members; they were not led to foster a sense of ownership toward the school management committees, whose leading members as well as the scope of activities were decided in a top-down, opaque manner.

Thus, based on the discussions between the Nigerien and Japanese project members, it was agreed to incorporate into the project the following activities to make school management committees more functional:

- (1) Introduction of the system of democratic ballot-type election of leaders to make the selection process more transparent and democratic; this was deemed necessary to make sure that competent leaders with full support from the community are elected;
- (2) Implementation of awareness- and motivation-enhancing activities; this was done, for example, by organizing seminars on the necessity of participating in decision making through attending community assembly meetings; and by encouraging parents and community members to work out school action plans and making contributions to their implementation (either through monetary contributions or otherwise), stressing that all the project activities are just to supplement their own initiatives;
- (3) Nigerien-led project management and implementation; this was stressed as critically important not only in view of the strengthening of Nigeriens' capacity, but also, and more importantly, to allow the Nigerien side to nurture the sense of true ownership of the whole activity as an endeavor they have to shoulder. Practically, the project made sure that major project activities, such as the organization of seminars and monitoring, were led and/or conducted by the Nigerien project members and administrators without depending on expatriate experts;
- (4) Transparent information sharing; documents and information such as school action plans prepared by different school management committees were made open for transparent information sharing and mutual learning.

This cooperation expanded in scale and advanced in status over time; it started, in 2004, with approximately 130 targeted primary schools in a pilot province and then expanded the coverage to 2,800 schools in two provinces in 2007. In that year, the model for the school management committees developed by this project was officially approved as a government policy and was subsequently expanded on a national scale using World Bank funds. As of August 2012, school management committees have been established in all of the approximately 14,000 primary schools in eight provinces throughout the country, and of these committees, nearly 90% have formulated school action plans and mobilized funds of 155,000 F CFA per committee (2 billion F CFA nationwide) (source: JICA-supported School for All project in Niger). They are contributing to the improvement of school environments by mobilizing funds and local labor, which are used for school facility improvement, and the purchase of textbooks and teaching materials.

Trials to improve the quality of education or the conducive conditions that are necessary for quality improvement have also taken place. Over 60% of the committees are also involved in the organization of extra and nighttime classes to allow pupils to have additional learning time, resulting in an increase of 200 hours of learning time on average. This achievement can be significant in view of the fact in Niger where, while regulations demand 960 hours of instruction per year, many schools had ended up satisfying only 50 to 60% of that requirement.

2.2 Strengthening teacher education for improving quality of students' learning

The second approach that JICA has been promoting in Africa is the improvement of the quality of education, attempted through enhancement of in-service teacher training (INSET).

As has been repeatedly pointed out throughout this chapter, improving the quality of education in Africa is as important as its quantitative expansion, as the poor quality of education (or learning by children) is one of the major factors causing high dropout and repetition rates in primary and secondary education in Africa.

The quality of an education system can be affected by many factors: the curriculum (objectives, content, sequence, etc.), quality and availability of textbooks and teaching materials, and the amount of learning time. And equally, or perhaps even more important, is the quality of teachers, which is considered as having a major impact on the quality of teaching and students' learning outcome. The quality of teachers depends on a number of factors: first, for securing the basic quality of teachers, there must be a clear definition and standardization of what is required of teachers in the first place, according to which qualified candidates must be recruited and trained before they start working. Second, in school and classrooms, teachers must be guided appropriately by the leadership from the school's principals, monitored for their performance and, when necessary, assisted and mentored. They must be appropriately motivated and incentivized in terms of salaries and benefits, and also must be given opportunities to improve their teaching skills.

JICA's approach has to do with the last approach listed above, i.e., the support for teachers in maintaining and upgrading their knowledge and teaching skills through the development of in-service teacher training

systems. JICA's flagship project in improving the teachers' quality is the SMASE project, which is short for the "Strengthening of Mathematics and Science Education." The project is premised on two conceptual thrusts.

The first is the idea that science and math education in Africa must be upgraded by introducing a student-centered approach to the lessons in the classrooms. In science and math classrooms in Africa, typically, teachers rarely undertake experiments or use teaching materials; instead, they write on blackboards and talk "at" their students, while the students simply listen and take notes. This way of conducting classes, often called "Chalk & Talk," is common. Taught this way, students tend to develop a passive attitude in class without any willingness to engage with other students or think on their own. This passive learning attitude of students has often led to low achievements in knowledge acquisition in or understanding of the subjects taught. Based on this observation JICA has recognized the need to transform the teaching style of teachers in such a way that students are encouraged to participate in group activities, create hypotheses, do experiments, and to think on their own; here the teacher's role is to support the students to learn.

The second premise of the project is the idea that INSET could be an effective opportunity through which teachers can be motivated to brush up their knowledge and skills. One advantage of INSET programs is that training participants – teachers – can apply what they learn in training to their classes, easily, and immediately (For more details, see Box 2). The need for the strengthening of math and science education was judged as of particular importance because they are generally believed to be difficult subjects to learn, and in fact students perform poorly in these subjects, as demonstrated by the low pass rate in national exams.

Finally, collaboration with other development partners are taking place under the education sector plans in each country. For instance, in Ethiopia, JICA-supported in-service teacher training for science and mathematics teachers project is in well-coordinated partnership with the GEQIP program, which is a comprehensive quality improvement program of the Ethiopian government using pool-fund financed by the World Bank and other development partners. While JICA provides technical expertise for the INSET implementation and monitoring system as well as the training content in pilot areas, the GEQIP program

covers other non-pilot areas supporting the expenses of the INSET implementation and its monitoring.

Box 2. Approaches toward the improvement of the quality of education in science and math education (SMASE)⁸

JICA's development model for the improvement of the quality of science and math education (SMASE) focuses on the development of INSET programs and systems.

The exercise is premised on three key components. The first is the education principle commonly called "ASEI-PDSI."⁹ Developed originally in Kenya, ASEI-PDSI is an educational paradigm that has guided the project's activities to transform the traditional teacher-centered teaching method into a more student-centered, activity-oriented teaching/learning method. The second component was in-service teacher training known as the cascade method; this is a method whereby knowledge and teaching skills can be conveyed, through multiple-layer training programs, from the master trainers at the center to individual teachers on the ground in a relatively short period of time. And thirdly, the project placed strong emphasis on ownership by the recipient governments; the project made sure that its activities were implemented within the existing institutional framework and budget of the government, without excessively relying on funding from external sources.

Guided by these concepts and management principle, the activities that originated in Kenya have been expanded to other African countries, while flexibly adapting its project contents to the circumstances in each country (as of November 2012, SMASE projects are implemented in 13 countries).

Whenever a SMASE project gets started in a country, the project activities would start with a thorough check and analysis of the actual situation, needs of teachers and issues in schools through visits to schools/classrooms and baseline surveys on children's learning achievements. Based on these analyses, the project team would then proceed to plan and implement teachers' training programs with a number of trials and errors. The ultimate goal is to create sustainable in-service teacher-training programs that would be planned, operated, and monitored by local professionals.

8. For details of the project, see, Ogwel et al (2008), and Ishihara (2012).

9. ASEI-PDSI is explained as a guiding principle of the SMASE projects that "involves providing meaningful teaching Activities focused on Student learning mainly Experimental/practical work and Improvising resources when necessary. The PDSI approach embraces orderly steps of executing learning activity by first Planning for the activity, then Doing it while Seeing, observing with intent to evaluate and then finally Improvising on the process." (Ogwel et al. 2008)

Over the years, the SMASE projects have increased the variety of the kinds of training programs to meet various and/or changing needs of different schools and teachers and countries. One was a system of post-training follow-up school visits, introduced not only to verify the usefulness of the contents of the training programs but also to help the ex-training participants to best apply their newly learned knowledge and skills in their class. Also introduced were school-based teacher training programs (lesson study) and regional training programs to complement the main cascade training. JICA has supported the establishment of cascade teacher training programs in Kenya, Malawi, Nigeria, and many other countries. Content-wise, the projects have been supporting the introduction of various materials such as reference books for teachers and workbooks for students in addition to ASEI-PSDI training programs.

Thus, SMASE projects have been instrumental in supporting African governments in developing a wide range of alternatives for the upgrading of science and math teachers. Overall, these activities can be said to have contributed, at the macro level, to the establishment of a country's system of continuous professional development and, at the micro level, to the development of capabilities of a countless number of teachers who have been enabled to guide their pupils with their newly acquired teaching methods and skills.

Looking back at what JICA has been doing, it appears that one of JICA's comparative advantages in international cooperation in education may reside in its ample body of experiences and practical knowhow that it can offer for use and consideration by governments and the international community for policy formulation.¹⁰ The importance of science and math education is widely shared among the governments and their partners.¹¹ Capitalizing on its experience in this field, JICA is prepared to further strengthen its cooperation for the development of science and math education in Africa. It is prepared to strengthen its contribution both in practice on the ground and for national-level policy formulation, fully utilizing the already established network for

10. In a report on mathematics and science education in the East African Community (EAC) countries (World Bank, 2011), JICA is referred to as an agency that enhances teachers' pedagogical capabilities.

11. The World Bank and African Development Bank regard mathematics and science education as being essential to sustainable economic growth that utilizes science and technology.

mathematics and science education in Africa (SMASE-Africa¹²), now covering 34 countries.

2.3 JICA's approaches that link policy and practice

Different actors in international cooperation have different comparative advantages and business domains. Some primarily work on the ground implementing specific projects and programs, and others concentrate on advocacy and policy making. While not many seem to be involved in both, JICA is one of such development partners trying to cover both domains of support for policy making and practice on the ground. Over the years, JICA has developed its cooperation strategy comprising three components: (1) model and content building, (2) capacity development of stakeholders, and, (3) support for informed policy making.

The first component, model and content building, refers to the activities through which models of educational development and educational contents are developed, tested on the ground and proven for their effectiveness. The typical examples of the first component are the functional school management committee, the in-service teacher training, and the teaching methods for student-centered lessons; these have been proven to yield maximum benefits on the ground in different local contexts. The second component, capacity development of stakeholders, refers to the activities geared to the capacity development of educational administrative officers, national and local trainers, principals, teachers, and school management committees, and many others, who are both developers as well as users of the above-mentioned models and contents. And the third component, support for informed policy making, refers to the activities leading to policy making and systems development on a larger scale needed to scale up and institutionalize the good practices on the ground.

Obviously, education policies are introduced, for example, to determine a certain course of action to achieve a certain pre-determined outcome, such as improving the quality of learning and the primary education completion rate. Oftentimes in Africa, however, policies such as sector development plans tend to be disconnected with the reality on the ground, in terms of the goals, objectives, and available resources without

12. SMASE-Africa is working as a network of 34 countries in Africa to share knowledge and experience and conduct south-south cooperation for science and mathematics education among the member countries.

taking into account stakeholders' capacity. As a result, many policies end up facing problematic outcomes.

To narrow this gap between policy and practice, it is imperative to understand the reality on the ground and rigorously analyze the causes and contexts of the issues. Then it is critical to identify the potential gaps between what the policymakers' understand/believe/envision and what is actually happening or will likely happen on the ground after the adoption of the policy. For this gap-filling, careful surveys and research must be conducted, and to supplement them, additional information obtained through the implementation of actual projects could be enormously useful. As a development partner with hands-on experience of project implementation, JICA could be in the position to transform an ample body of tacit and non-tacit knowledge of the reality on the ground to best practices and knowledge which could help the policymakers to make informed decisions. This is the notion which JICA should pay more serious attention to in terms of the global policy dialogues among international community as well as local education groups in each country.

There are already several cases where national level policies have been formulated, supported or substantiated by knowledge accumulated on the ground: in Niger and Mali, for example, the JICA-supported model of school management committees was tested on the ground and came to be proven effective and applicable in the context of the two countries; the models were subsequently adopted as a national policy and have been expanded nationwide.

Concurrently, efforts are underway to distill these experiences further into the formulation of policy frameworks. As part of such effort, JICA is collaborating with the World Bank's SABER furnishing the latter with the information on the ground related to SBM, indicating the gap between policies and practices, and presenting evidence on a workable model at the school level. These exercises could lead to the development of various policy tools, such as a set of indicators with which to measure the real impacts or interim outcomes of various actions, including systems reform by the government; if developed, these indicators could be used as disbursement indicators in result-based financing.

3. Towards TICAD V and beyond

The preparatory process for the TICAD V is in progress. While the challenges are enormous and varied across countries and regions, the conference must come up with clear, prioritized policy messages focused on a set of agendas according to which African governments and their partners can make concerted efforts toward their achievement. In the author's view, the outcome document of the conference, Yokohama Action Plan, must highlight the following as the two pillars of the policy message: (1) scaling up of quality basic education, and (2) strengthening education that contributes to sustainable growth.

The first pillar, **scaling up of quality basic education**, demands full enrollment in basic education as well as the improvement in the completion rate in basic education, particularly primary education; this goal is to be achieved through the improvement of the quality of basic education, the increase in secondary education enrollment with expanded school facilities, and the provision of quality secondary education so that students can acquire advanced knowledge and practical skills for higher education or employment. The policy message should also pay due consideration to equity in terms of urban-rural, gender, and income disparities.

The second pillar, **strengthening education that contributes to sustainable growth**, demands that quality secondary education, and particularly that in mathematics and science, be expanded on the top of solid basic education. Added to this, higher education must also be expanded to foster, particularly, human resources in science and engineering. Technical and vocational education must also be strengthened to provide opportunities to learn skills leading to higher employability of the working-age population.

JICA is prepared to contribute to the concerted efforts of the African governments and the international community, and take measures as shown below, which are combinations of the business models shown above and other models and/or modes of cooperation that JICA has at its disposal.

For the first pillar: **scaling up of quality basic education**

◆ **Enhancing support for “School for All” Project**

JICA will continue to expand the model developed in the “School for All” project. Here, with the project model, functional school management committees accompanied by strong parent/community participation, transparent election of its representatives, and mutual learning among school management committees, and continuous monitoring by local education administrators, JICA could proceed its expansion in the following manner: (1) scaling up from the pilot activities to a nationwide operation, and (2) further improving the quality of learning (i.e., securing extra learning time, introducing supplementary teaching materials to ensure basic numeracy) in countries where the project is already implemented. And, of course, the expansion of the model can entail (3) starting projects in new partner countries. JICA is of the view that the models developed in the School for All projects have been proven effective in bringing benefits for those who are in rural and disadvantaged areas, thus can contribute to the policy message to be agreed on in TICAD V.

◆ **Construction of school facilities and teacher training institutions**

JICA will continue its support of the construction of schools, while fully taking into account the demand/supply of qualified teachers, and the need for reducing urban-rural, income, and gender disparities. For example, providing girls’ toilets in schools is very important to reduce gender disparity in education. In addition, JICA will continue its support for constructing teacher training institutions to help produce more qualified teachers. JICA is also prepared to contribute more to the policy making processes through various dialogue channels to offer recommendations on the allocation plan of qualified teachers and continuous capacity development of teachers.

For the second pillar: **strengthening education that contributes to sustainable growth**

◆ **Strengthening teacher training (particularly in science and mathematics)**

JICA will further reinforce its support for teacher training based on the achievements thus far. In so doing, JICA will continue targeting, in particular, mathematics and science subjects, as these are

important subjects for developing human resources for realizing sustainable growth, and yet are difficult for students to master. Toward the same goal, JICA will, in particular, make further use of its already-established network for strengthening mathematics and science education in Africa, namely SMASE-Africa, currently covering 34 countries. Using its various models and menus, JICA will support the capacity building of teachers in its partner countries. A big advantage of SMASE-Africa is that it is a network that enables South-South knowledge exchange and co-creation among participating countries, with the help of which JICA could partner with those partner countries that otherwise are not within easy reach.

◆ **TICAD human development framework**

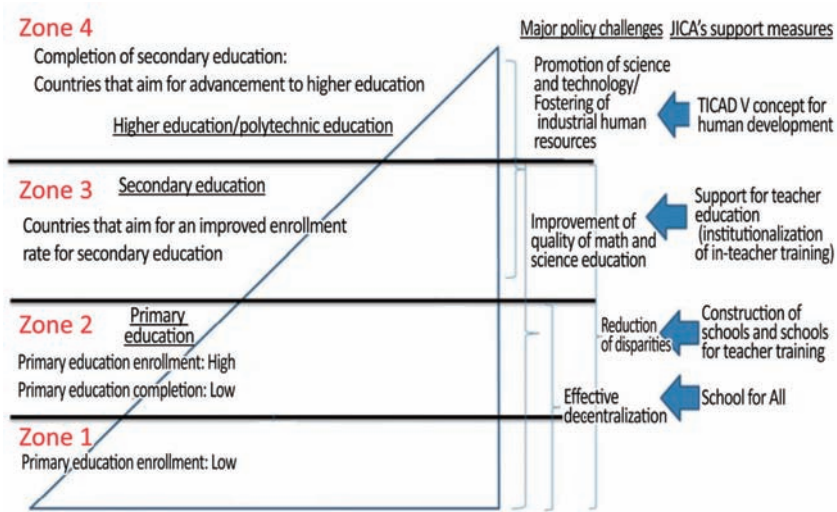
JICA will support sustainable growth in Africa by reinforcing cooperation in science and technology. Typical examples of support for the promotion of higher education include those for the Jomo Kenyatta University of Agriculture and Technology (JKUAT) and the Egypt-Japan University of Science and Technology (E-JUST). Backed by a consortium of Japanese universities, the projects would support the upgrading of higher education in these institutions to benefit not only the students of the two countries but also many aspiring students in the whole of the African continent. In addition, JICA will continue to maintain the provision of scholarships.

For enhancing vocational training, JICA will continue its support for related institutions, such as the ones that JICA has supported in Senegal and Uganda, which are establishing regional centers of excellence (COEs). Such COEs would play active roles in promoting intra-region study programs by receiving students from other African countries.

Differentiated approaches are needed for countries facing different challenges. As illustrated in Figure 6 in Section 1.3, African countries could be grouped into four groups. Subsequently, earlier in this section, the two important policy messages that TICAD V is likely to come up with, has been identified:(1) quality of basic, especially primary, education, and (2) the need to intensify human resources development for sustainable growth. Finally, four major approaches/ interventions for educational development in Africa that JICA could intensify in the coming years have been highlighted. Needless to say,

all these approaches and interventions should be put into practice in harmony with the sector development framework of the country and in consistent with the budgetary (government) and financing (overall) framework. For instance, producing more teachers without an effective deployment plan or a resource back-up will not improve the situations. Figure 8 shows how JICA’s approaches/ interventions could correspond to major policy challenges in each Zone. This does not mean to limit area and types of JICA’s support for each Zone. Specific areas and types of support could be discussed and agreed upon through policy dialogues at each country.

Figure 8. JICA’s support corresponding to stages in education development in Africa



Source: Created by author

For partner countries belonging to zones 1 and 2, the first two of JICA’s approaches are to be vigorously pursued. For these countries, the major challenges are to improve the primary education enrollment rate and improve the primary education completion rate. Thus, the **construction of primary schools and teacher training institutions** will contribute to the improvement of such indicators. This approach will be pursued with particular consideration for various social disparities. **The “School for All” Project** will also be intensified vis-à-vis these countries. The activities under this approach can improve, in addition to the improvement of enrollment in primary education, both the completion

rate as well as the quality of primary education. Countries in zones 1 and 2 also have to address the challenges in the secondary education level, to which **strengthening teacher training** must be stressed, and in particular, in science and math that can serve as a foundation for the students' logical thinking abilities and general learning capabilities.

For countries in Zone 3, improving the enrollment rate in secondary education is a challenge, and for these countries, JICA could pursue, among others, support through the **construction of school facilities and teacher training institutions**, especially for secondary schools and teacher training institutions; more secondary schools are needed to accommodate an increasing number of pupils who are to complete primary education; and teacher training institutions for supplying qualified teachers to meet increasing demands. For countries in Zone 3, strengthening **teacher training (particularly in science and mathematics)** is important, since knowledge on science and math is a basic need for human resources for further professional training, employment and eventually for the country's sustained growth. And finally, countries in this stage of development need to nurture human resources competent in science and technology, who will lead the country's industrialization; hence, support for higher education and technical/vocational education will be provided through **the TICAD V human development framework**.

Zone 4 consists of countries that are already beyond the issues of enrollment or completion rates up to secondary education, with a significant portion of students advancing to higher or vocational education. An issue for these countries is how to develop highly qualified human resources, particularly in science and technology, by developing a system of quality higher education. For these countries, support through **the TICAD V human development framework** would be the main vehicle of cooperation.

In sum, JICA could furthermore commit to work in partnership under the education sector program in each country, and contribute to global policy dialogues as well as those in local education group with proactive and concrete actions and solutions, which could link between policy and practice.

Concluding Remarks

This chapter started with an overview of the current challenges in educational development in Africa (Section 1), and then looked at some of JICA's established models of development in education (Section 2). Combining these, the paper argued for a possible policy direction that JICA could employ in line with the policy message that would be agreed on at the TICAD V meeting (Section 3). As I see it, JICA has been active in program implementation on the ground, and also, recently, increasingly keen to contribute to policy debate at the country and international levels. Capitalizing on its comparative advantage that can link policy and practice, JICA has a lot to contribute to educational development in Africa. The challenges ahead of us are still enormous, and JICA should continue providing support for the realization of sustainable growth in Africa in partnership with a broad range of actors both from Japan and abroad.

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