For Inclusive and Dynamic Development

in Sub-Saharan Africa

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For Inclusive and Dynamic Development in Sub-Saharan Africa

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Foreword:

It is with great pleasure that I bring this volume to publication, a report summarizing JICA's experience with, and knowledge of, sub-Saharan African development. Drawing on literature surveys, empirical research and/or practical cases from JICA's on-the-ground experiences, the volume contains chapters that address, collectively, a range of issues of special pertinence to Sub-Saharan Africa's development. It starts with discussions on how to transform the agricultural and rural sector. It then discusses the need to diversify the economic structure, which should be buttressed by infrastructure and human resource development. Two chapters discuss how to prepare for and respond to shocks and threats, such as climate change and political instability. Finally, the volume also contains a chapter on mutual learning through South-South and triangular cooperation, along with a historical overview of the TICAD process.

Sub-Saharan Africa is much richer than it was twenty years ago, when the TICAD process began in 1993, and the continent is likely to continue its remarkable growth in the coming years and decades. We must acknowledge, however, that there remain cautious observers who point to the precarious sides of its development, such as sluggish poverty reduction, a declining manufacturing sector, a weak job market, and increasing inequalities among various segments of society. These obstacles must, and in my view can, be overcome with careful policies by the leaders and peoples of Africa, with continued support from the international community.

If this is the challenge that is facing Africa's development today, the issue to be discussed at TICAD V and beyond is how to sustain robust development over the long term, such that the benefits are shared widely both within and across countries. That is the view underpinning the current volume, which we titled *For Inclusive and Dynamic Development in Sub-Saharan Africa*. "Inclusive and dynamic development" has been part of JICA's corporate mission statement since its organizational rebirth in 2008, and we believe it is an important prerequisite for human security.

Japan has been a consistent supporter of African development, and JICA, as chief implementing agency of Japan's development cooperation, has been devoting considerable effort to that cause. We

have compiled this report in the hope that it will help us share our views, noteworthy cases, and practical knowledge, with a wide range of decision makers and practitioners involved in the development of Sub-Saharan Africa. I hope you will enjoy reading it.

Akihiko Tanaka
President
JICA

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This Report has been prepared by a team organized at the JICA Research Institute and comprises the members whose names are on the list of contributors. The team benefited greatly from a wide range of consultations, chiefly done through occasional workshops. The team wishes to thank the participants in these workshops, which included academics, policy researchers, and government officials at the Ministry of Foreign Affairs and JICA's staff members both in Tokyo Headquarters and elsewhere.

Our special thanks go to John Page, Homi Kharas and Laurence Chandy, all at the Brookings Institution, who kindly took the time to review the whole manuscript and provided the team with enormously useful and insightful suggestions and comments, without which this volume would not have taken this shape. Our thanks also go to Professor Keijiro Otsuka of the National Graduate Institute for Policy Studies (GRIPS), who not only provided the team with useful comments on the chapters on agriculture but also contributed a chapter of his own.

We are grateful also for the professionals who provided us with comments by participating in our workshops as commentators and in writing. They are, in alphabetical order: Mitsugi Endo (University of Tokyo), Katsumi Hirano (Institute of Developing Economies, JETRO), Norichika Kanie (Tokyo Institute of Technology), Izumi Ohno (GRIPS), Kenichi Ohno (GRIPS), Tetsushi Sonobe (GRIPS), Motoki Takahashi (Kobe University), Kenji Shibuya (University of Tokyo) and Kazuhiro Yoshida (Hiroshima University). We have also received insightful views from development partners at the African Development Bank, the United Nations Office of South-South Cooperation, and the World Bank. Last but not least, I would like to thank all the authors, the editorial team and the other staff of the JICA Research Institute, comprising Ippei Tsuruga, Yasuhiko Sato and Yoshiko Isozaki, for the tireless effort they have dedicated to this project.

While we truly appreciate the contributions from these collaborators, and have done our best to incorporate their suggestions and comments, we, the authors of the essays, are solely responsible for any errors, omissions and deficiencies that may remain. I hasten to add that the views and opinions expressed in this volume are those of the authors and do not necessarily represent the official views of the organizations they belong to or are affiliated with.

Hiroshi Kato
Director
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Executive Summary: For Inclusive and Dynamic Development in Sub-Saharan Africa: Challenges and Responses

Hiroshi Kato

1. What Is This Volume and What Is Its Purpose?

This volume is a compilation of JICA staff members' views on Sub-Saharan African development[1], as well as the views of the lead researcher of a research project being conducted at the JICA Research Institute.[2]

The chapters vary in their approaches and frameworks. In terms of methodology, some rely primarily on literature reviews, others on case analyses, and the rest on empirical research. In terms of message, some offer recommendations to all the stakeholders of African development, while others offer recommendations for consideration by the Japanese government. Though varied, however, the common thread running through them is the desire to share JICA's experiences on the ground and/or its research findings with various stakeholders, in order to enrich the international debates on African development.

The plan of this volume has been formulated keeping in mind the ongoing discussion on TICAD V. Specifically, the chapters have been prepared so that collectively they would address the major themes of the conference, which are, as of March 2013, as follows: (1) Robust and Sustainable Economy, (2) Inclusive and Resilient Society, and (3) Peace

1. This volume chiefly addresses the developmental challenges of Sub-Saharan African countries, based on the understanding that firstly, although they are much wealthier and are dynamically developing, they still need strong international attention; and that secondly, even though they do share certain development challenges with their North African peers, SSA countries are faced with substantially different and serious developmental challenges.

2. As such, the views expressed herein do not necessarily represent the official views of the Japan International Cooperation Agency (JICA.), though the authors have been encouraged to incorporate comments they have received during the internal peer review.

and Stability.[3] This report could also contribute to the discussion on the post 2015 agenda since Africa will be the major target region.

2. Africa's Challenge: Inclusive and Dynamic Development

Africa today is much wealthier and is developing much more dynamically than it was twenty years ago, when the TICAD process started in 1993. Currently, more than 23 Sub-Saharan African countries (including Sudan) have become categorized as middle-income countries with per capita GDP greater than $1,000. If seen as a single country, Africa is already a middle income country with per capita GDP circa $1500. And given the high price of food and natural resources likely to remain into the foreseeable future, it is not at all too ambitious to predict a high growth rate of the African economy in the coming years or decades. The African Development Bank predicts that, on certain assumptions, per capita GDP of Africa will be close to $4,000 in 2040, an income level comparable to Indonesia today.

The progress is not limited to income growth measured in terms of GDP. As the overview chapter (Ch. 1) summarizes, over the past decades, the continent has claimed a number of successes. These include, among others:

- ✓ Modest but symbolic progress in poverty reduction, with the poverty rate falling below 50% for the first time, and Africa's poverty headcount falling for the first time since the start of official records keeping in 1981.
- ✓ Large reductions in infant and maternal mortality.
- ✓ Large gains in enrollment of primary education.
- ✓ Improved macroeconomic stability (low inflation, rising domestic resource mobilization, good fiscal health), and,
- ✓ A reduced incidence of conflict.

The question is how to sustain such robust African growth of Africa for the long term; let us be reminded quickly that the long term prediction cited above by the African Development Bank is based on the assumption that a growth rate of close to 5% is maintained for 30 years

3. Important issues such as financial markets, urbanization, demographic changes and natural resource management have had to be left out; we will try to address them at another time.

between 2010 and 2040, which can actually be quite a bold assumption. Past experience shows that the economic growth rate of SSA has not been very stable. Skeptics point to the lack of improvement in governance indicators, insufficient good job opportunities, falling levels of manufacturing, little productivity growth in agriculture, sluggish progress in learning achievement in schools, and inadequate service delivery systems, including health, increasing vulnerability against climate change; and the list goes on.

In view of this, one cannot agree more with the organizers of the TICAD for choosing the themes of the upcoming conference: (1) Robust and Sustainable Economy, (2) Inclusive and Resilient Society, and (3) Peace and Stability. These three agenda items are intricately linked, and failure in achieving one of them will inevitably affect the performance of Africa in the other two.

It is based on the above that we have titled this small volume "For Inclusive and Dynamic Development in Sub-Saharan Africa." This summarizes a widely shared conviction at JICA (and perhaps elsewhere) that Africa must continue developing dynamically by reducing the vulnerability of its economic structure (hence "Dynamic Development" is indispensable), while at the same time such dynamic development must be realized in such a way that disparities between the rich and poor do not expand beyond a tolerable threshold; and that everybody in society is given opportunities to take part in the productive process (hence "Inclusive Development" is also imperative).[4]

The phrase "Inclusive and Dynamic Development" has been JICA's mission statement since its rebirth as a new JICA in 2008, coinciding with TICAD IV. Ever since, we have been working hard in Africa to realize this ideal with our partners around the world, and today we are ready to work harder than ever before with our African and international partners to achieve this same ideal.

3.Emerging Challenges

The biggest news at TICAD V is that in the period since 2008 Africa has

4. Our view shares perspectives with the debate which has been described in terms of a contrast between "Big development" and "Small development (Woolcock 2012).

continued to maintain its good track record of economic growth, despite the worst global financial crisis in half a century. This in itself is cause for celebration, but should not be a source of complacency. As the essay contained in Chapter 1 makes clear, the sources of Africa's sustained growth remain quite limited, and Africa's growth appears vulnerable.

The three major challenges identified below share a common underlying cause. Seen from an Asian perspective, structural change in Africa since its growth "turn around" in 1995 has been very limited. Agricultural productivity has been largely stagnant. The region's share of manufacturing in GDP is less than one half of the average for all developing countries, and it is declining; and FDI remains almost wholly in natural resources. Three significant risks appear to threaten the region's sustained progress for 2013-2018.

Jobs and poverty

Africa is not creating enough jobs to absorb the 10-12 million young people entering its labor markets each year. Today, according to the African Development Bank, less than one fifth of Africa's young workers find wage employment. Unemployment in Sub-Saharan Africa seems low. In 2009 it was about six percent. This is not because Africa is doing well at generating wage-paying jobs. Eighty percent of job seekers find themselves in informal employment, self-employment or family labor. These are not good jobs. In 2011, eighty-two percent of African workers were classified by the ILO as working poor. The sources of Africa's recent growth – improved economic management, strong commodity prices and new discoveries of natural resources – are not job creators.

The region's lack of "good" jobs – those capable of paying good wages and offering the potential to acquire skills – has also meant that compared with other developing regions, especially East Asia, growth has not resulted in rapid poverty reduction. Africa has the lowest elasticity of head count poverty to growth of any developing region. Jobs and poverty are closely linked, and will need to be urgently addressed.

New discoveries of natural resources

Ironically, one of the main drivers of Africa's current economic success may prove its long term undoing. New resource discoveries since 2008 have redrawn the map of natural resource rich economies across the continent. Ghana, Kenya, Mozambique, Tanzania and Uganda have all

recently had major discoveries of hydrocarbons, and newly resource rich economies are likely to increase in the future. Africa is richly endowed with metal and non-metal minerals, as well as energy resources. Although precise data are not available – principally because much of the continent is under-explored – it is likely that Africa hosts about 30 per cent of the world's mineral reserves.

In Africa, countries dependent on oil, gas, and mining have tended to have weaker long run growth, higher rates of poverty, and higher inequality than non- mineral dependent economies at similar levels of income. But geology is not destiny. Some societies have succeeded in harnessing natural resources for sustained increases in production, while others have not. The long run success or failure of resource rich economies depends on the choices made as to how resource riches will be used. Making the right choices with respect to public financial management and strategies for economic diversification will become increasingly important for a growing number of countries and their development partners.

Lack of export dynamism

For poor Asian countries the export has been the main source of rapid growth. There is persuasive evidence that what an economy makes matters for its long-term development. More diversified economies tend to have higher levels of income, and economies that produce and export more sophisticated goods tend to grow faster. Africa has had little export success: manufactured exports per person are less than 10 per cent of the average for low income countries. Industry in Africa has declined as a share of both global production and trade since the 1980s. Africa as a whole has become a net importer of food and of agricultural products (FAO 2012).

While manufacturing is most closely associated with rapid export growth, there are also "industries without smokestacks" in agriculture and services that can create export dynamism. Investors in these industries, however, do not see Africa as an attractive location. Domestic private investment has remained at about 11 percent of GDP since 1990. This is well below the level needed for rapid export growth. Diversification into new products and markets will be a daunting challenge for both resource poor and resource rich economies alike. Breaking into non-traditional export markets will demand a coordinated

set of public investments, policy reforms and institutional innovations more characteristic of Asian than African economies.

4. Appropriate Responses

The essays contained in the volume offer insights into a wide range of JICA's operational engagements in Africa. From these, three areas of activity have been selected to demonstrate Japan's distinctive role as a development partner, and offer the potential to address the three challenges described above.

Transforming agriculture

Given Africa's projected increase in food requirements and the limits to extensive agricultural growth, progress in agricultural yields is vital. Increasing yields and adapting to climate change will require African farmers to have access to new varieties of crops that are better adapted to the changing agro-climatic conditions. Chapter 3 makes a persuasive case that existing improved varieties in rice – originally developed for Asia – offer the potential for significant yield increases in Africa, if coupled with appropriate farming technologies and inputs. Japan should continue to take a leadership role both in the dissemination of existing technologies and in the development of new technologies.

Agricultural innovations alone will not be sufficient to transform African agriculture. A large number of complementary institutional and policy reforms will be needed. Agricultural innovation systems will need to adapt to cover a range of activities from development of new, appropriate agricultural technologies to the dissemination of good practices, and to the development of value chains. Investments in irrigation and a shift from dry land to irrigated agriculture will also be required. The essays in this volume show how Japan is responding to those challenges; Chapter 4 introduces a farming as business approach for value chain development through the empowerment of small scale farmers commonly called SHEP; Chapter 5 explains agricultural inclusive development by encouraging private responsible investment; and Chapter 11 describes how to make agriculture more resilient to climate change.

Entering these value chains will require public actions to improve

logistics capability. Physical infrastructure is particularly important at points of export (airports and seaports) and in connecting production centres to ports (roads and railways). The two essays that cover the Nacala corridor in Mozambique (Ch. 5 and 8) illustrate one approach to this problem.

Building capabilities in industry and service delivery in education and health

"Firm capabilities" – the know-how and working practices used in production – largely determine quality and productivity. Globally firms compete in capabilities. As the essay on industrial development (Ch. 6) argues, Africa needs higher capability firms to join the global game. Value chain relationships between local firms and foreign investors (FDI) are a good way to learn global best practice. Thus, policies and institutions for attracting FDI are a key capability building tool. Capabilities can also be taught through management training.

Despite substantial increases in budget commitments, the essays on education and health (Ch. 9 and 10) show that there have not been commensurate improvements in social sector outcomes. Service delivery remains poor. Educational quality and health service coverage are a particular concern. While better service delivery has a direct relevance to attainment of the MDGs, it can also – as illustrated by the East Asian Miracle countries – be an important component of a "shared growth" strategy to address poverty.

Strengthening infrastructure

Japan has been a consistent – and often lonely – advocate for the need to focus development assistance on infrastructure. As Chapter 7 reports, firm level studies in Africa highlight infrastructure deficiencies as a significant barrier to greater competitiveness. Sub-Saharan Africa lags at least 20 percentage points behind the average for low income countries on almost all major infrastructure measures. In addition, the quality of service is low, supplies are unreliable, and disruptions are frequent and unpredictable.

As the essays illustrate, infrastructure directly affecting the competitiveness of traded goods producing activities has been neglected. Road infrastructure has received only inadequate attention. While increasing investments in the power sector must be emphasized,

for improved industrial and export performance, investment in infrastructure in the area of trade logistics must also be promoted. Japan's efforts to improve connectivity through physical infrastructure and institutional reform – such as one stop border posts – represent major contributions to improving trade logistics (Ch. 8).

The Nacala project – and to some extent the Mombasa corridor – go even further. These have the potential to become regional Special Economic Zones[5] – often called "growth corridors" – developed around key natural resource investments and associated infrastructure (ports, roads, power projects). Developing growth corridors is attractive for three reasons. First, they emphasize the complementarities between transport infrastructure and resource- or agriculture-based projects within a region, and highlight the possible complementarities between investment projects (for example, agriculture and agro-processing). Second, the approach can help to solve coordination problems between investments in related projects, increasing the prospect of rapid private sector responses to infrastructure improvements. Third, it is possible that in resource concentrated zones, the bulk of capital spending on infrastructure (both transport and power) can be financed by the resource projects themselves.

5. The Features of Japan's Cooperation

The chapters that deal with JICA's specific projects and programs capture some of the salient features of JICA's approach to giving aid and supporting transformation. Three features seem to stand out.

The first is an emphasis on scaling up, which could take a variety of routes and methods. The programs in agriculture (CARD initiative, SHEP, and Win-Win-Win approach) all illustrate attempts to scale up desirable actions. Projects of School Based Management and Teachers' training (Ch.9), as well as the introduction of Kaizen to hospital management (Ch.10) are examples of gradual expansion of activities proven effective initially in one country. Also, the emphasis on the use of south-south cooperation (Ch.13) as an instrument for propagating and

5. While traditionally defined special economic zones (SEZs) are reported to have a mixed record (WDR 2013: p.221), regional SEZs or regional development corridors as advocated here are based on a different concept.

institutionalizing successful interventions embodies horizontal scaling up

The second feature is the emphasis on learning and continuous improvement, the importance of which Japan has learned through its own history of development. Chapter 3 argues for the applicability of the Asian rice cultivation techniques to Africa; the chapters on industrial development (Ch. 6) and health (Ch. 9) illustrate the attempt to impart successful Japanese management practices – such as Kaizen and total quality control – to firms of all sizes, and to adapt them to service providers in health. The efforts to promote FDI described in Chapter 6, speaking to the need to develop effective institutions to attract FDI to Africa, are an example of sharing experiences of Asia and Japan; and again, various and developing practices of South-South and triangular cooperation are instruments of knowledge sharing and co-creation.

And thirdly, though perhaps not unique to Japan's cooperation, many projects and programs have attempted to combine financial resources and knowledge transfer, in view of realizing comprehensive cooperation. This feature is particularly salient in infrastructure (Ch. 7 and 8), but is also highlighted in projects in other areas such as agricultural development (Ch. 5) and climate change (Ch. 11).

6. General Chapter Summary

Following the overview chapter (Ch.1), the essays in the volume can roughly be divided into two categories. There are analytical chapters which examine various aspects of the transformation process that are pivotal for Africa. Second, there are more programmatic chapters which describe JICA's approaches to supporting transformation in partner countries

The analytical chapters, respectively, ask how agricultural productivity can be enhanced (Ch. 2 and 3), look at the challenges in infrastructure development (7); explore what it would take to achieve universal access to health care (9), discuss how to improve quality of education (10), assess the challenges of building resilience to climate change (11), and explore how the capacity and legitimacy of the state can be strengthened to mitigate potential conflict risks (12).

The more programmatic chapters share JICA's experiences in agriculture (Ch.4 and 5), industrialization (6), infrastructure (8), and South-South and triangular cooperation (13).

Chapter 1: Achieving Economic Transformation for Inclusive and Sustained Growth in Africa: Prospects and Challenges (Kei Yoshizawa)

This chapter attempts to give an overview of recent development in Africa as a prologue to the subsequent chapters.

The basic view of the chapter on Africa is that while the recent high economic growth in Africa is appreciated, an economic transformation is called for. A transformation is needed to break away from the current dependence on primary products, from inadequate and uneven progress in poverty reduction, and from the alarming trend of the increase in the working age population and unemployment, with a transformation toward a more diversified economic structure that enables inclusive and sustained economic growth.

In terms of development strategies, the author argues for what he calls a "diversified and customized approach for development." He means that now as different countries are starting to follow different development paths, differentiated approaches should be applied to countries with different needs. He also emphasizes the importance of a regional approach, which has consistently been an important agenda issue throughout the TICAD process.

Chapter 2: Boosting Sustainable Agricultural Growth in Sub-Saharan Africa (Koji Makino)

This chapter serves as a stage setter for the following three chapters (3 through 5) on agriculture. It argues that JICA/Japan has been cooperating and will continue to cooperate with its African partners using four approaches. The first one is productivity increase on specific commodities of strategic importance in Africa, exemplified by the CARD initiative launched at the time of TICAD IV in 2008. The third is an approach that attempts to take advantage of the private sector in agricultural development, while at the same time increasing the productivity and hence the earnings of small scale famers. An example of this approach is the Mozambique-Brazil-Japan tripartite cooperation titled ProSAVANA. And the third is an attempt to encourage small

farmers to be more sensitive and responsive to market signals, the effectiveness of which has been proven by JICA's experience in Kenya. Finally, he states that JICA will continue to build up resilience of African agriculture against risks such as climate change and food price hikes.

Chapter 3: How Promising Is the Rice Green Revolution in Sub-Saharan Africa? - Evidence from case studies in Mozambique, Tanzania, Uganda, and Ghana (Keijiro Otsuka)

This chapter is written by Professor Keijiro Otsuka of the National Graduate Research Institute for Policy Studies (GRIPS) of Japan, and leader of an empirical investigation by the JICA Research Institute on the possibility of rice production expansion in the countries participating in the CARD initiative.

Starting with his premise that Sub Sahara Africa (SSA) needs a Green Revolution, the author argues that the most promising path for achieving a Green Revolution in SSA is through the development of lowland rice production. To support this claim, he presents two sources. The first is a macro level analysis: comparing SSA and Asia, he argues that there remains ample room for productivity improvement in rice. And second, he argues that the research conducted in Mozambique, Tanzania, Uganda and Ghana demonstrates that a significant increase in per hectare yield is possible both in irrigated and rain-fed areas by combining certain rice production techniques, which the author calls "Asian type production techniques" like bunding and leveling, together with the use of high yielding modern variety seeds and the application of fertilizer.

Chapter 4: The Inclusive Development Approach among Farmers, Private Partners and Government through the Promotion of Responsible Investment for Agricultural Development (Koji Makino)

This chapter starts by recognizing that investments both by the private sector and by farmers are essential for agricultural development, and argues that the issue is how countries can manage to secure "responsible investment" in agriculture. Specifically, the author argues that appropriate measures to promote responsible investment should be designed and put into practice in accordance with internationally agreed norms.

The chapter then introduces the case of the project entitled "ProSAVANA." A project of national priority for Mozambique, it aims to contribute to the improvement of income among inhabitants in the Nacala Corridor, suited to agricultural production but inhabited by many small scale farmers. The project intends to build up agricultural inclusive development models through dialogues with farmers and civil societies under the government's ownership.

Chapter 5: Initiatives of SHEP and SHEP UP
- Capacity development of small-scale farmers for increased responsiveness to market needs (Jiro Aikawa)

This chapter reports an encouraging outcomes being observed in a JICA supported project called SHEP and SHEP UP in Kenya, on developing the capacities of small-scale farmers. The idea is to help them be more responsive to the signals from the market and, at the same time, capable of strategically planning their production, and putting such plans into implementation. To that end, the project has devised a carefully designed model to motivate the farmers and provide appropriate assistance to help them overcome the information asymmetry and to upgrade their production and marketing techniques.

The achievements so far have been very encouraging: the unit yield and income of the farmers participating in the project increased dramatically. Encouraged by the success of the project, the model is being scaled up nationwide.

Chapter 6: Industrial Development of Africa
– JICA's commitment at TICAD IV and its follow-up
(Go Shimada, Toru Homma and Hiromichi Murakami)

To address the de-industrialization issue in SSA, this chapter argues for measures of promoting industry for the creation employment and added value, for private sector development, and for promotion of foreign direct investment.

The paper then looks at the history of three cases of cooperation projects that have been developing since TICAD IV in 2008. The idea underpinning these projects is that state has a role to play in promoting economic growth while maintaining equity, an idea that was stressed at the symposium held in 2008 as a side event to TICAD IV, participated in by African leaders as well as Prof. Stiglitz of Columbia University.

Presented in the paper are two projects in Ethiopia, one concerning industrial policy dialogue and productivity improvement, and the other quality and productivity improvement (Kaizen), as well as a project in Zambia for investment promotion and diversification entitled "Triangle of Hope."

Chapter 7: Policy Challenges for Infrastructure Development in Africa - The way forward for Japan's Official Development Assistance (ODA) (Yasuo Fujita, Ippei Tsuruga, and Asami Takeda)

This chapter proposes three recommendations for the government of Japan, based on an analysis of data provided by the Infrastructure Consortium for Africa (ICA) and JICA's internal information.

First, it argues that reallocation of resources to needier sectors, particularly to the power sector, is a high priority. Secondly, the chapter argues that the Japanese government may wish to expand its financial support for the operation and maintenance of infrastructure, which is at present left as the responsibility of recipient governments. And thirdly, the authors recommend more support for governance and management reform of public utilities; especially, the paper calls for intensified efforts to create effective organizations, like government agencies and public utilities in which, with appropriate external support, positive and immediate achievements can be expected in their organizational reforms.

Chapter 8: Cross Border Transport Infrastructure (CBTI) (Kaori Matsushita)

This chapter begins with a summary of the current situation of transport of goods in Africa and an overview of the CBTI development in the continent, and then introduces the three approaches that Japan has been pursuing for the development of CBTI, with specific examples.

The *first* is corridor development, one example of which is the project in an area connecting the Mombasa Port (Kenya) and inland countries of Uganda, Rwanda, and Burundi. It aims to upgrade the functions of the Port of Mombasa along with the development of roads connecting the port with the three countries, thereby encouraging the transport of goods as well as economic activities in the region. Another example of this approach is the Nacala Corridor in Mozambique, aiming to develop an area connecting the Nacala Port and the inland countries of Malawi

and Zambia. The *second* approach is pursuing border formalities facilitation, through the introduction of One Stop Border Posts (OSBP), a system that neighboring countries jointly conduct immigration, control customs clearance and quarantine. And the *third* approach aims to harmonize the transport rules and regulations across the borders, to alleviate problems arising from different regulations on road traffic on both sides of the borders.

Chapter 9: Toward Universal Health Coverage in Africa - Achieving MDGs with equity, and beyond (Ikuo Takizawa)

While noting that SSA has experienced quite impressive strides in improving a number of health indicators, this paper warns that there is a considerable disparity in the pace of progress within and among countries, and we cannot be complacent with the status quo.

Now that equity in terms of essential health service coverage is becoming a major issue, the paper argues that it is increasingly necessary to focus on health system issues, and especially equity in access and financial protection, which, together, call for concerted efforts toward universal health coverage (UHC). As well, in making efforts toward UHC, the chapter calls for a paradigm shift in the usage of development assistance for health (DAH). Specifically, it is argued that DAH should be provided more strategically and catalytically in a way to increase the allocation of *domestic* resources for health. Secondly, DAH should also be provided in a way to improve the management of health systems and programs.

Chapter 10: Challenges in Educational Development in Africa and JICA's Approach (Kazuro Shibuya)

While acknowledging significant advancement in education in Africa, the author states that challenges remain, first in the persistent disparity among and within countries, and second in the quality of education. The paper points out as well that higher education in the African continent is also inadequate.

Taking note of the shifts in the international education agendas from those of "Education for All" to "Learning for All," the author discusses the validity of approaches that Japan has developed that are consistent with such globally shared trends in education and different needs of partner countries. These include those for the improvement of school

management and strengthening of teacher training. The author also emphasizes that JICA could play a role in facilitating feedback from the good practices on the ground to education policymakers in the central government, with its comparative advantage as a donor covering a wide spectrum of activities from the ministry level to local governments and communities levels.

Chapter 11: Countermeasures against Climate Change in Africa (Tomonori Sudo)

This chapter discusses the challenges and potentials of Africa in terms of climate change. The paper argues, on the mitigation side, that though Africa is a region where the level of greenhouse gas emissions is the lowest in the world, ample possibilities for mitigating the climate change effect exist, especially in view of the robust economic growth foreseen for the continent in the coming decades. Such possibilities lie in energy and transportation, and forest management.

On the adaptation side, the author lists, among others, three major challenges. First, measures to reduce the agricultural sector's vulnerability must be strengthened because of its high dependency on rainwater and the inadequate product distribution system. Equally serious risks that warrant attention are those associated with natural disasters such as floods, droughts, coastal erosion, and mudslides. And third, water resources management is also a huge challenge in view of an unstable and insufficient water supply, the expansion of agriculture, industry and other sectors. The presence of international rivers in the continent also calls for effective cross border water resource management systems.

Chapter 12: State-building and Conflict Prevention in Africa (Ryutaro Murotani)

This chapter argues that post-conflict state-building processes must focus not only on public safety but also on assuring people's livelihood; livelihood improvement is necessary in order for people to perceive the dividend of peace and to accept the state as legitimate. In dealing with humanitarian crises, these perspectives for long-term institution building have to be introduced in the early stages of emergency responses to humanitarian crises.

The chapter then shares some research findings to identify important

factors of building up the state's legitimacy, as well as some examples of JICA's projects helping to improve people's livelihood, states' capacities, and eventually the people's trust of government institutions, contributing to improved state legitimacy.

Chapter 13: South-South and Triangular Cooperation for Sub-Saharan Africa's Development
- With special emphasis on knowledge exchange and co-creation
(Shunichiro Honda, Hiroshi Kato and Yukimi Shimoda)

This chapter looks at South-South cooperation (SSC) and Triangular Cooperation (TrC) for SSA development. SSC has a long history starting in the 1950s. Since its genesis, Africa, along with Asia, has played a leading role in its promotion. The TICAD process has played an important role since 1993 in promoting the momentum of SSC.

The paper pays special attention to knowledge exchange and co-creation through SSC and TrC. Drawing on the cases of TrC supported by JICA, the paper demonstrates that there are a number of possible ways of encouraging knowledge exchange and co-creation, from highly institutional models to more flexible ones, where institutional arrangements develop over time as the network among the participants develops. The paper also argues that knowledge sharing and co-creation should not be monopolized by a small number of actors but is a possibility to all aspiring countries and organizations.

Appendix: The TICAD Process and Japan (Kei Yoshizawa)

This essay looks back at the 20 years since the first TICAD in 1993. It traces how the TICAD process has contributed to ever-changing development issues in Africa, with each of the quinquennial meetings focusing on different issues and the priorities of the time. It also gives attention to the institutional development of the process, including result-focused orientation demanding action plans with numerical targets, and its follow-up mechanism. The author finds the significance of the whole process in its development as an open international forum, through which ideas and concepts such as the respect of African ownership, human security, and south-south cooperation have been incorporated into the debate on African development.

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Introduction and Overview

Chapter 1:
Achieving Economic Transformation for Inclusive and Sustained Growth in Africa: Prospects and Challenges

Kei Yoshizawa

Summary

<Current status of development in Africa>

- The economic growth rate in Africa since 2000 has generally been good, driven in many countries by commodity exports, mainly energy and mineral resources, and helped by the progress in economic reforms and generally stable political conditions. However, poverty reduction is slow, unemployment, especially among youths, is serious, and progress is steady but slow in many MDGs.
- Under such circumstances, achieving economic transformation – transformation from dependency on the export of energy and natural resources into a more diversified economic structure – is imperative, so that economic growth becomes more robust and the benefits are widely shared by the poor, and most notably the young. In other words, a transformation of the economic structure is needed to enable inclusive and sustained economic growth in Africa.

<For achieving economic transformation and inclusive, sustained growth in Africa>

- Productivity improvement in agriculture, Africa's major production sector, is urgently needed; this should be promoted by the public sector as well as by the increased participation of the private sector in both agriculture and its related agro-industries.
- A slump in manufacturing has continued for many years. Efforts to promote industrial development should be intensified, learning from a number of successful cases in Africa as well as from experiences from other continents, particularly Asia.
- Africa has a rich human capital to be developed and mobilized in the coming decades to achieve inclusive and sustained growth. Investing in effective education and healthcare system is imperative to increase

labor productivity and per-capita income. Creating sufficient and decent employment is critial to mobilize the increasing working-age population to growth.

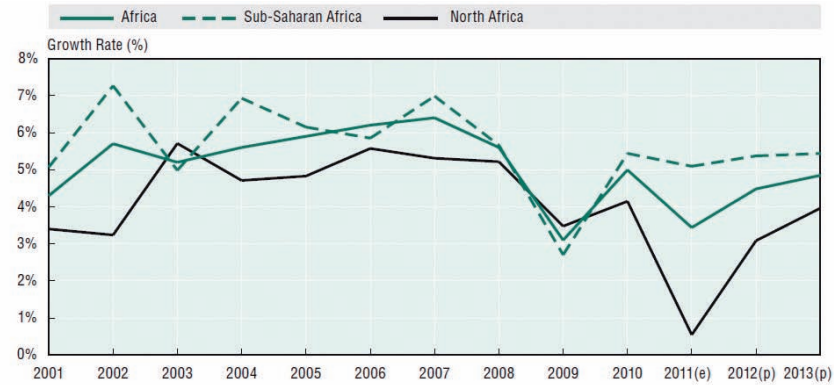
<Toward a differentiated and customized approach for development>
The continent-wide regional integration perspective, which has been one of the principles underpinning the TICAD process, is important and must be further promoted. Along with this, however, the widening diversity of situations and stages of development among countries must be taken into consideration. Therefore, in working out its Action Plan for TICAD V, African leaders and their partners must make sure that each country is encouraged to seek differentiated and customized development strategies to meet its specific needs, while strongly upholding the perspective of regional integration and cooperation.

1. Current Status of Development in Africa

1.1 Rate of economic growth

In recent years, the growth of African economies has received increasing attention. Between 2003 and 2008, the rate of economic growth in Africa, including North Africa, was maintained at a high level, between 5.3% ~ 6.2%. With a small variation, it has continued to grow at a stable pace: 3.1% (2009) → 5.0% (2010) → 3.4% (2011) → 4.5% (2012 – estimate) → 4.8% (2013 – estimate) (OECD et al 2012, p.243). The growth in 2009 was affected by the global recession and the financial crisis in 2008. Unlike the long slump after the oil shocks of the 1970s, however, the African economy showed a rapid recovery in 2010, a remarkable shift away from its dependence on the economies of developed countries in the past. It is also worthwhile noting that while the growth rate in sub-Saharan Africa was 5.1% (IMF 2012b, p.88), that of North Africa was 0.5% (OECD et al. 2012, p.24), which shows a remarkable slowdown in growth in North African countries, generally due to the area's political turmoil.

Figure 1. Change in the rate of economic growth of Africa (2001 ~ 2013)



e: estimates; p: projections.
Source: Authors' calculations.

(OECD et al. 2012, P.16)

Such economic growth has been possible mainly due to price hikes in energy and mineral resources since 2000. Mckinsey Global Institute (MGI) estimates that the sum of the increase in earnings from the export of energy and mineral resources and government spending on energy and mineral resource development accounted for 32% of economic growth in 2000-2008 (MGI 2010, p.2). Hirano (2009, p.220) estimates that 78.2% of the exports of sub-Saharan African countries in 2006, excluding South Africa, were from the mining sector and that there has been a strong correlation between the oil prices and the GDP (in nominal US dollars) of sub-Saharan Africa (correlation coefficient of 0.902 (1970-2007)) (ibid, p.202).[1] It is expected that the prices of energy and mineral resources will exceed the pre-2009 levels and the favorable economic environment for African countries will continue for the time being, accordingly (OECD et al. 2012, p.17, IEA 2012).

While oil-exporting countries[2] have benefited a lot from the above price hikes, oil-importing countries are also growing strongly with an economic growth rate similar to oil-exporters. While the rate of economic growth of oil-exporting countries in Sub-Saharan Africa is 6.0% ~ 7.1%, that of oil-importing countries (except South Africa) is 5.8% ~ 6.0% (IMF 2012b, p.88).

1. See also Hirano (2013) pp.76-80 for updated information.

2. IMF (2012a) defines Angola, Cameroon, Chad, Republic of Congo, Equatorial Guinea, Gabon, Nigeria and South Sudan as oil-exporting countries, and the others as oil-importers.

The prices of agricultural commodities also have been on a strong upward trend since the early 2000s (IMF 2013). However, a number of the oil-importing countries, which have been growing strongly, as mentioned above, have not benefited from these favorable external conditions, as the terms of trade of the non-resource-rich fast growers[3] had been remaining stable or declining since the early 1990s (Figure 2). This trend has been continuing despite strong and sustained growth except in Mali (IMF 2012 pp.99). Hirano (2009, pp.205-213) also suggests that the impact of the price hikes in agricultural raw materials and edibles on growth rates have been important but much weaker than those of energy and metals since the 1990s.

IMF (2008) notes that, while the fast growers[4] have had a variety of experiences with their terms of trade as in Figure 2, the most important factor for the fast growers has been a significant increase in total factor productivity, and that this underscores the role of strong policies and broad reforms by the fast growers, especially non-resource-rich countries (pp.26-27, p.30, pp.41-42). IMF (ibid p.31) also suggests that growth opportunities based on geography and endowments are not necessary conditions for fast growth based on recent experiences among fast growers in Africa.

Benno Ndulu et al. (2007 p.16) and Jorge Arbache et al. (2007 p.41, 2008 pp.27-28) also argue that the role of policy reforms undertaken in Africa since the 1990s was the most important growth factor since the late 1990s. They also suggest that the quality of policy and governance matter a great deal for growth, rather than initial conditions of geography and natural resources, which matter mostly for income levels, not for growth.

Collier and O'Connell (2007), however, propose a classification of Sub-Sahara African countries into three groups reflecting their initial geography and natural resource conditions: resource-rich, coastal resource-scarce, and landlocked resource-scarce (p.8) and suggest that a different policy choice for growth is required to overcome the

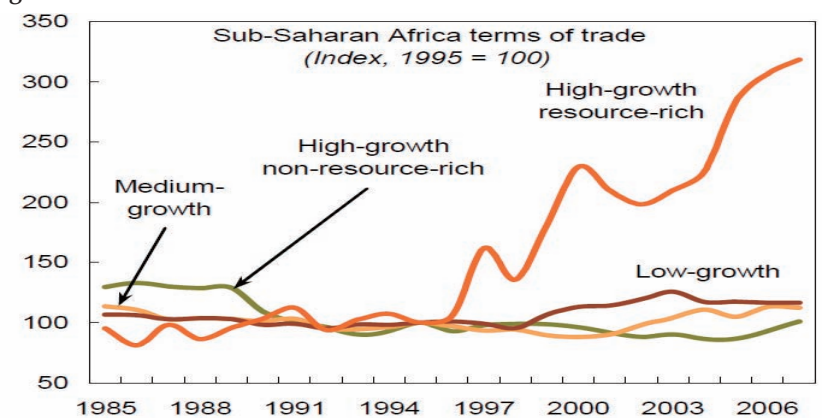
3. See footnote 4.

4. IMF (2008) defines "fast growers" as countries which had average annual real per capita GDP growth above 2.25% for 1995-2007. The group includes 4 oil exporters (Angola, Chad, Equatorial Guinea, Nigeria), 2 resource-rich countries (Botswana, Sao Tome and Principe), and 11 non-resource-rich countries (Burkina Faso, Cape Verde, Ethiopia, Ghana, Mali, Mauritius, Mozambique, Rwanda, South Africa, Tanzania, Uganda) (pp.26-27, p.53).

disadvantages for each group in terms of geography and natural resources (pp.55-58).

As above, the views on the role of initial geography and natural resource conditions for growth, especially those of landlocked resource-scarce countries, are mixed. Collier (2007) defines "landlocked with bad neighbors" as one of the major development traps in Sub-Saharan Africa and argues that growth in landlocked resource-scarce countries depends strongly on the performance of the neighbors. IMF (2008 p.31) notes that the growth acceleration of the five landlocked and non-resource-rich fast growers[5] may be partly explained by improvements in their neighboring high-growth coastal economies, which are increasingly pulling their landlocked neighbors. IMF (2012a p.27), however, estimates that the spillover effect from South Africa and Nigeria through trade, investment and finance is growing but the role of EU, US, Chinese and Indian markets continues to be the most important for the majority of African countries.[6]

Figure 2. Sub-Saharan Africa Terms of Trade since late 1980s



Source: IMF, *World Economic Outlook*.

(IMF 2008, p.33)

5. Burkina Faso, Ethiopia, Mali, Rwanda, Uganda (*ibid* p.31)

6. In regard to the role of the spillover effect through intra-regional trade, IMF (2011a) estimates the ratio of intra-regional trade to the total amount of trade by Sub-Sahara Africa still remained at 14% in 2010, while WEF et al. (2011, p.17) and Afrika and Ajumbo (2012) argue that informal cross border trade (ICBT) is also to be considered as important as official intra-regional trade despite difficulties in data collection and analysis (see Section 1.8 of this chapter).

The biggest constraint to economic growth in Africa is political instability (including civil war, conflicts and political unrest). The rate of economic growth of the 12 fragile countries[7] in sub-Saharan Africa was 2.3%[8] in 2011; this figure was affected by the unrest in the Cote d'Ivoire,[9] a figure significantly lower than that of the entire sub-Saharan Africa of 6.3% (IMF 2012a, p.76). The slowing down of the economic growth of North African countries caused by political turmoil also shows the magnitude of political risk (OECD et al. 2012, p.24).

Table 1. Growth rate by type of countries in Africa (%)

Calendar year	2010	2011	2012	2013
Sub-Saharan Africa	5.3	5.2	5.0	5.7
Oil-exporting countries	6.6	6.3	6.7	6.0
Middle-income countries, excluding South Africa	6.5	8.2	5.6	5.9
South Africa	2.9	3.1	2.6	3.0
Low-income countries, excluding fragile countries	6.4	5.5	5.9	6.1
Fragile countries	4.2	2.3	6.6	6.5
North Africa	4.1	0.5	3.1	4.0
Africa total	5.0	3.4	4.5	4.8

(Prepared by the author based on IMF 2012a, p.76 and OECD et al. 2012, pp.24, 243)

1.2 Economic relationship with foreign countries (trade, foreign direct investment, emigrant remittances and foreign aid)

Currently, the international balances of trade, foreign direct investment, remittances and foreign aid receipts are all surplus in contrast to the 1990s when Africa was plagued by debt problems and a deficit in its international balance from weak commodity prices. In 2005, foreign direct investment exceeded the amount of foreign aid for the first time and it was said that "Africa has become a target for investment and not a subject for aid". This does not mean, however, that Africa no longer needs aid; the most recent statistics show that foreign aid amounts to $47.9 billion (2010), a figure comparable to the surplus of $48.4 billion

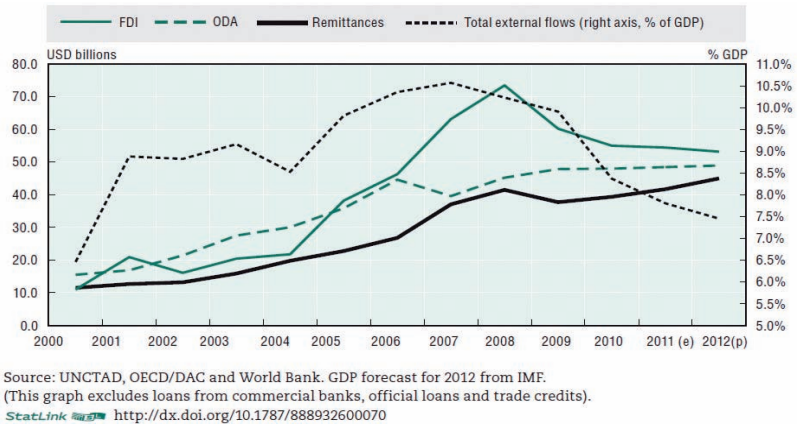
7. IMF (2012a) defines Burundi, Central African Republic, Comoros, Democratic Republic of the Congo, Cote d'Ivoire, Eritrea, Guinea, Guinea-Bissau, Liberia, Sao Tome and Principe, Togo and Zimbabwe as the Fragile States in sub-Saharan Africa.

8. Growth rate of Côte d'Ivoire in 2011 was -4.7%.

9. It is expected, however, to recover rapidly after 2012 due to improved political stability in Côte d'Ivoire.

(2010) in foreign direct investment, and $38.0 billion (2009) in remittances. (OECD et al. 2012, p.261, p.263 and p.281)

Figure 3. Change in foreign direct investment, emigrant remittances and foreign aid in Africa (2000 ~ 2012)



Source: UNCTAD, OECD/DAC and World Bank. GDP forecast for 2012 from IMF.
(This graph excludes loans from commercial banks, official loans and trade credits).
StatLink http://dx.doi.org/10.1787/888932600070

(OECD et al. 2012, p.41)

The fiscal balance continues to show a deficit both in oil-importing and oil-exporting countries because of their expanded public spending policy after the financial crisis in 2008. It is expected that while oil-producing countries will improve their fiscal balance (to about 2% of GDP) through the improvement in oil prices, non-oil-producing countries will continue to show a higher budget deficit (to about 5% of GDP) (OECD et al. 2012, pp.32-33). Although fiscal and monetary policies have been generally tightened, the budget deficit still continues. High inflation has been observed in Eastern Africa resulting from the expansion of government spending on infrastructure investment and soaring food prices in the "Horn of Africa". The levels of budget deficits and borrowing are under control at the moment, but some non-oil-producing sub-Saharan countries depend on foreign aid to finance government spending and international balance payments. Overall, it continues to be a challenge for African countries to control and manage their budget deficits and public debt. (IMF 2012b, pp.11-13)

Foreign direct investments are focused mainly on energy and natural resource development. Investments in energy and natural resource sectors are focused on Western Africa (e.g., Nigeria, Ghana

(development of new oil fields)), in Southern Africa (e.g., Angola), and in Central Africa (e.g., Democratic Republic of the Congo, Republic of the Congo), while investments in Northern Africa have dropped by 42% over the previous year ($9.48 billion in 2011) due to the political turmoil. However, there are signs of diversification in foreign direct investment,[10] such as growing investments in the ICT sector since the 2000s, and strong investment in non- oil-producing countries like Morocco ($3.44 billion, 2011) (OECD et al. 2012, p. 44).[11] Ernst & Young (2012) also suggests a growing share of manufacturing and service sectors in FDI into Africa[12] as an important lead indicator of a broader process of economic diversification from dependence on natural resources and commodity prices.

1.3 Progress of economic reform

Economic reform in African countries is progressing. Although the average CPIA[13] score for 38 IDA-eligible countries in sub-Saharan Africa (= 3.2) is a bit lower than that of countries in other areas (= 3.4), the level of economic reforms in African countries, excluding fragile countries (=3.5[14]), is mostly similar to that of developing countries in other areas (=3.6[15]). The trend for improvement in CPIA scores in fragile countries is also remarkable[16] and economic reforms in Africa as a whole are

10. Nishiura and Fukunishi (2008) reports the following six industries as major areas of foreign direct investment in Africa other than energy and mining: Automobile (South Africa), Horticulture (Kenya, Ethiopia, Zambia), Garment (Lesotho, Swaziland, Kenya, Madagascar), Aluminum (Mozambique), Retail Trading (South Africa, Zambia, Malawi), Mobile Phone.

11. Morocco was nominated as the "Top Investment Destination for 2012" by the Financial Times. (OECD et al. 2012, p.44). World Bank's Doing Business 2012 introduced Morocco as the country that most improved its ranking (ranked 115 ⇒ 94) (World Bank 2012d, p.13).

12. Ernst & Young (2012, pp.27-28) suggests the following key findings on the FDI into Africa during 2003-2011: i) The share of the FDI capital that has gone into the extractive sector is 27.6%, ii) Over 50% of the FDI projects have been in the service sector, iii) 70% of the FDI capital has gone into manufacturing and infrastructure sectors, iv) the manufacturing sector alone accounts for 40% of all new FDI-related job, v) 64% of the FDI capital invested in the manufacturing sector has gone into processing and beneficiation-type activities in the extractive sectors.

13. Country Policy and Institutional Assessment (CPIA) rates countries against a set of 16 criteria grouped in four clusters: (a) economic management, (b) structural policies, (c) policies for social inclusion and equity, (d) public sector management and institutions.

14. The average CPIA score of non-fragile countries (21 countries).

15. The average CPIA score of non-fragile countries in other areas.

16. When compared between 2009 and 2011, the number of countries that showed an improvement in CPIA scores was 8 out of 21 Non-Fragile States in 2009, and 10 out of 17 Fragile States in 2011.

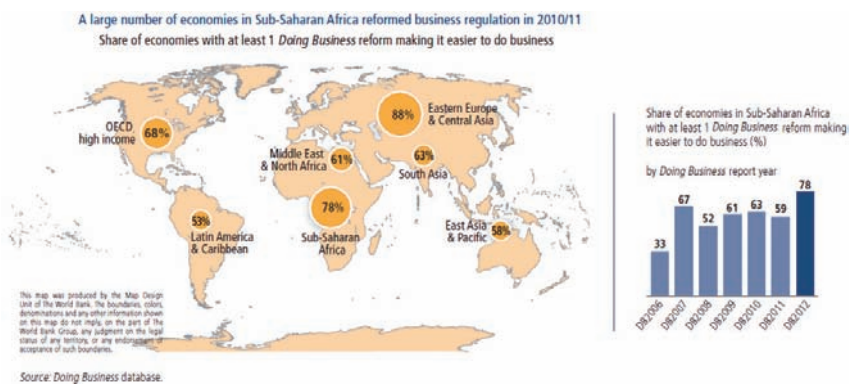
progressing. (World Bank 2012c. p.5)

Seventy-eight percent of sub-Saharan countries implemented some economic reforms in 2010 and 2011, an improvement from the average 56% between 2006 and 2011; it is widely recognized that the speed of economic reforms has considerably increased (Figure 4). Countries that have raised the Doing Business ranking by implementing reforms in more than three items include Morocco (115 ⇒ 94), Sao Tome and Principe (174 ⇒ 163), Cape Verde (129 ⇒ 119), Sierra Leone (150 ⇒ 141) and Burundi (177 ⇒ 169) (World Bank 2012d, p.1 and p.13).

Despite the progress in economic reforms, the absolute level of their business environment still remains low with many challenges still to be addressed. Out of 183 countries, 43 of 51 African countries score below 94th among 183 countries ranked in the Doing Business Report 2012; improvement in the business environment in African countries is still constrained.

Ernst & Young (2012), however, points out the need to bridge the perception gap among world investors and business leaders many of whom still view Africa as being a more challenging place to do business in than other emerging market regions, despite the fact that 14 African countries are ranked ahead of Russia, 16 ahead of Brazil and 17 ahead of India in the above Doing Business rankings (pp.5, 10).

Figure 4. Progress of economic reforms in sub-Saharan Africa



(World Bank 2012d, P.1)

1.4 Good governance and anti-corruption

UNECA (2009, p.1 and p.12) measures the progress on governance in Africa by using the benchmarks of the first edition of the Africa Governance Report in 2005. It concludes that economic management, pro-investment policies and efficiency of the tax system have made some notable progress; however, corruption has made no progress or a marginal decline of the corruption control index. This shows that corruption remains the most important challenge to the eradication of poverty, the creation of a predictable and favorable investment environment and in general, socio-economic development in Africa.

UNECA and AU (2011, p.4) reports that the socio-economic and political cost of corruption in Africa was estimated at over $148 billion per year in 2004, which is equivalent to three times the amount of the current foreign direct investment into Africa in 2010, and that 50% of tax revenue, 25% of the continent's GDP and that $30 billion in aid for Africa are eaten up by corruption. World business leaders raise corruption as the second most problematic factor for doing business in Africa, following lack of access to financing (WEF 2011, p.12). Out of all the 53 countries in the African continent except South Sudan, 48 countries[17] are ranked below 50 in the Corruption Perception Index (CPI) 2012, which shows that public institutions need to be more transparent and powerful officials more accountable in these countries (Transparency International 2012).

Many experts suggest a variety of measures to combat corruption in Africa; however, their views are mixed, as follows:

- UNECA (2009, p.235) proposes three priority areas for African countrιεσ: 1) strong institutions including parliament, judiciary, office of auditor-general, public procurement system, anti-corruption bodies, etc., ii) powerful anti-corruption constituency with civil society and media, and iii) better remuneration for public servants to reduce petty and grand corruption undermining all the development and anti-corruption efforts.
- Hanson (2009, pp.5-6) of the US Council on Foreign Relations is suspicious about the effects on African governments brought by donor intervention in an anti-corruption context, while reserving evaluation on some anti-corruption practices such as Millennium Challenge Corporation (MCC), and Extractive Industries

17. Five countries ranked over 50 in the CPI 2012 are Botswana, Cape Verde, Mauritius, Rwanda, and Seychelles.

Transparency Initiatives (EITI).

- ➢ Global Integrity (2011) suggests that the "implementation gap" between progress in anti-corruption frameworks and results should be addressed more since the implementation gap in many countries, including those in Africa, is widening. It also notes that the establishment of an anti-corruption agency is relatively ineffective in strengthening transparency and accountability.
- ➢ Some academics are very pessimistic about combatting corruption; Collier (2007) raises "Bad Governance in a Small Country" as one of the four major Development Traps that African countries suffer from. Moyo (2009) insists on cutting off foreign aid which, she argues, has brought corruption rather than development to Africa.

Across these discussions, the following could be noted as a broad and minimum consensus on corruption in Africa: i) corruption is undoubtedly the most pressing governance and development challenge that Africa is confronted with today (UNECA and AU 2011, p.3), ii) the progress of anti-corruption is quite slow or making no progress (UNECA 2009, p.1), iii) effective measures and actions are urgently needed.

1.5 Economic growth and poverty reduction

The percentage of the population living below $1.25 a day in sub-Saharan Africa has decreased and is expected to continue as follows: 58% (1990) ⇒ 59% (1995) ⇒ 51% (2005) ⇒ 47.5% (2008) ⇒ 38% (estimate for 2015) (IMF 2011a, p.14, World Bank 2010a, p.11). In addition, the number of people in poverty in sub-Saharan Africa decreased by 8 million from 2005 to 2008. The World Bank reports that this was the first time that the absolute number (not the rate) of people in poverty in sub-Saharan Africa decreased since the Bank began to record poverty-related statistics (World Bank 2012a).

However, sub-Saharan Africa[18] as a whole is unlikely to achieve the MDG target of halving the poverty rate in 1990 by 2015 (from 58% in 1990 to 29% by 2015) (UNECA et al. 2012, p.3, Table 6). While four countries[19] in Sub-Saharan Africa have already achieved the target, and five countries[20] are expected to achieve it, the other countries are lagging

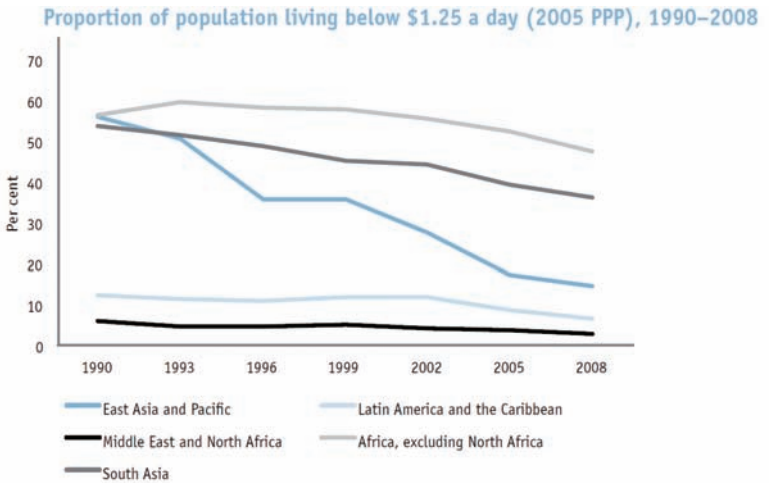
18. North Africa, by contrast, has already achieved the goal of halving the proportion of the population living in poverty (5%) in 1990 by 2015; the rate was lowered to 2% (2008) (United Nations 2012).

19. Cameroon, Kenya, Mauritania and Senegal

20. Central Africa, Ethiopia, Ghana, Seychelles and Swaziland

behind (World Bank 2010a).

Figure 5. Proportion of Population Living in Poverty in sub-Saharan Africa and other regions (1990-2008)



Source: Compiled from World Bank, http://data.worldbank.org/indicator/SI.POV.DDAY?page=4, updated February 2012.

(UNECA et al. 2012 p.3)

IMF (2011a) suggests that in sub-Saharan Africa the relationship between per capita GDP growth and poverty reduction is weak, and that it is imperative to realize economic growth in such a way to further accelerate poverty reduction. IMF (2011a) also notes that in high-growth sub-Saharan countries,[21] an increase by 1% in the growth rate corresponds to a decrease by about 1% in the poverty reduction rate, showing a clear relationship between economic growth and poverty reduction. And according to case studies on some of the high-growth sub-Saharan countries, job creation in the agricultural sector has a high impact on poverty reduction.

However, it is reported that no such relationship between economic growth and poverty reduction was observed in low-growth sub-Saharan countries.

When compared with Asia, the poverty reduction effect of economic

21. IMF (2011a) defines high-growth countries as countries with an average annual growth rate of real GDP per capita of over 2.25% during 1995 and 2010. Low-growth Sub-Saharan countries are those other than the high-growth countries.

growth is modest in sub-Saharan countries; in high-growth Asian countries, an increase by 1% in the growth rate corresponds to a decrease by 2.3% in the poverty reduction rate.

This shows that more efforts are required in Sub-Saharan Africa to make growth more inclusive and to enable more people to enjoy the fruits of growth.

1.6 Demographics, employment and urbanization

It is expected that the population and working-age population will increase in the coming decades in Africa. As of 2008, the youth population (aged 15-24) and that of working-age people were 200 million and 550 million, respectively. The working-age population is increasing by 2.7% every year and is expected to reach 1.7 billion and overtake that of China and India by 2040 (OECD et al. 2012, p.99).[22] In most African countries, unemployed youths account for 60% of all the unemployed, and the youth unemployment rate is double the adult unemployment rate (ibid. p.100). As 72% of youths have an income of less than $2 a day (ibid. pp.99-100), it is imperative to reduce poverty among youths through job creation. In addition to unemployment, underemployment and working poverty are also to be addressed as low-skilled and low-wage employment are so broad in Africa especially in the informal sector.

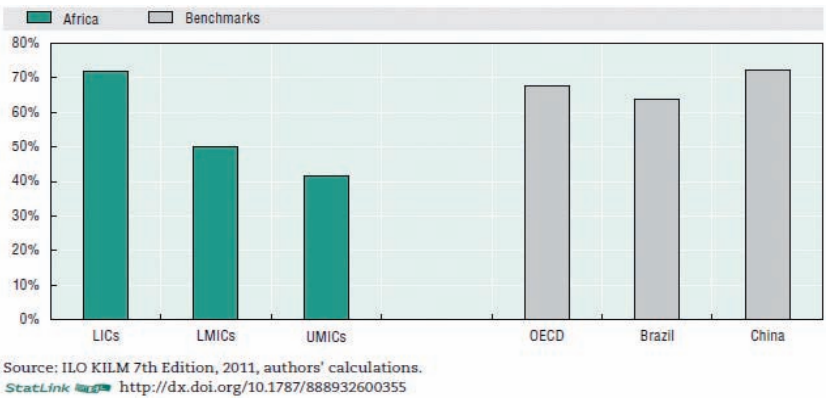
The employment situation in Africa varies depending on the situation of individual countries, but generally, there is a tendency that higher income per capita is associated with a lower employment rate of the working-age population (OECD et al. 2012, p.108 and Figure 6). In low-income sub-Saharan African countries,[23] the employment rate of the working-age population is about 70%, which is comparable to China and Brazil. However, employment in low-income countries has a weak impact on poverty reduction and human resource development because a large part of employment is in the informal sector that depends on low-

22. African Development Bank Group (2011) estimates that the working-age population in 2010 was 399 million people with a growth rate of 3.5%, and the working-age population in 2040 will be in the range of 1.07 billion ~1.12 billion people.

23. Based on the Statistics by the World Bank in 2011, low-income countries (LICs) (less than $1.025 per day) include Kenya, Ethiopia, DRC, Tanzania, Uganda and Mozambique, while lower-middle-income countries (LMICs) ($1.026 – 4.035 per day) include Cameroon, Ghana, Egypt, Morocco, and Nigeria, and upper-middle-income countries (UMICs) ($4.036 – $12.475 per day) include Angola, Algeria, Gabon, South Africa, and Tunisia, etc.

skilled, low-wage labor. On the other hand, in middle-income sub-Saharan African countries,[24] the employment rate of the working-age population is much lower, below 50%, and therefore, a quantitative improvement of employment is strongly needed rather than quality improvement. As the youth unemployment rate is quite high,[25] it is imperative to promote youth employment for new entrants in the labor market. (OECD et al. 2012, p.100).

Figure 6. Comparison of the employment rate of the working-age population by country income groups in Africa and others



(OECD et al. 2012, P.108)

Figure 7 below shows that higher educational record, including vocational training, does not necessarily contribute to a decrease in the unemployment rate; conversely, a higher educational record tends to be associated with higher rates of unemployment in middle-income countries. This means that the improvement in the education system or labor market legislation alone will not suffice; massive creation of employment opportunities driven by the private sector is called for, to accommodate the increasing number of youths and their improving educational records.

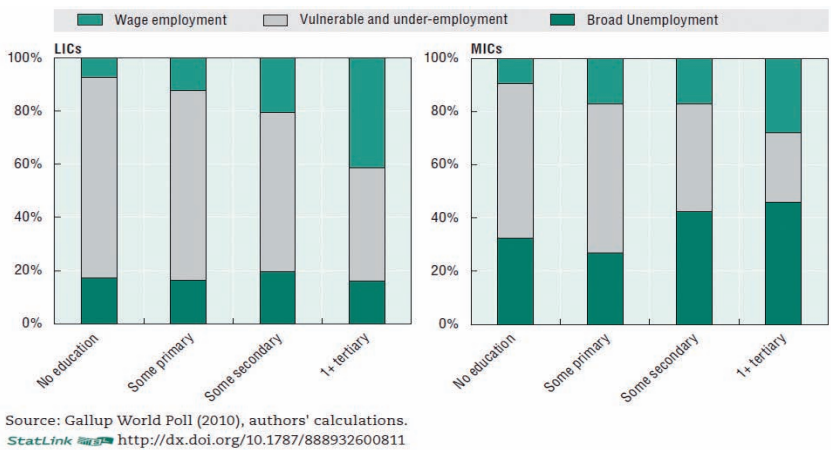
There is also a number of challenges in terms of the quality of education, especially the employability of graduates, ranging from basic education to higher education, and both in levels and content. While the

24. Including both lower-middle-income countries and upper-middle-income countries.

25. 23.4% in North Africa (3.8 times higher than the adult unemployment rate), and 48% in South Africa (2.5 times higher than the adult unemployment rate)

enrollment rate for primary and secondary education has been remarkably improved, the low quality of education, or a decline in quality in some countries, has been growing as a major challenge. It is reported that the average academic achievement of sixth-grade children in sub-Saharan Africa is at the same level as that of second-grade children in OECD countries.[26] In addition to the lack of basic literacy and numeracy, the achievement test scores of students in some African countries have dropped when compared to those in the 1990s (MGI 2010, pp.20-21). Also pointed out is the lack of practical skills and knowledge in school education curriculum, as well as a mismatch between the educational content and employment needs (OECD et al. 2012, pp.141-144).

Figure 7. Comparison of the employment rate by education and country income groups in Africa



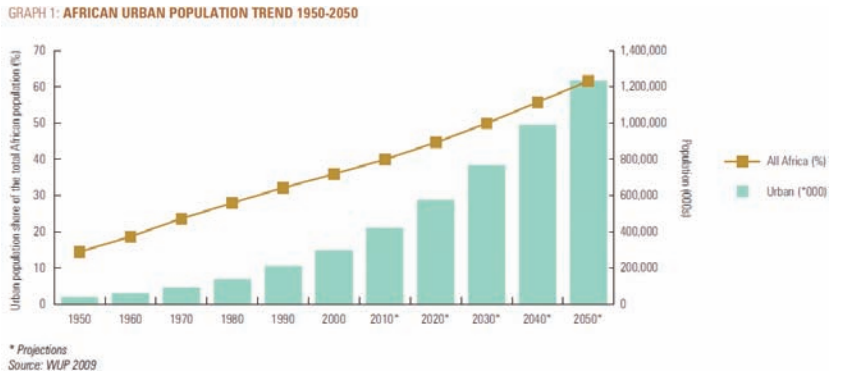
(OECD et al. 2012, P.142)

Urbanization in Africa, which is expected to rapidly spread, is to be addressed as a major urgent policy challenge. Urban population levels in Africa have been consistently increasing since the 1950s. In 2009, 395 million people, equivalent to about 40% of the population were living in urban areas, and the number is increasing by about 13 million annually (UN HABITAT 2010). The increase in the urban population in sub-

26. See Chapter 10 of this volume.

Saharan Africa is consistent even during low growth periods,[27] as shown in Figure 8. The insufficient government measures to address urbanization have been exacerbating difficulties such as urban poverty, prevalence of slums, and informalization of the urban economy, which are becoming more critical issues to be tackled by African governments and the international community.[28]

Figure 8. Urban demographics in Africa (1950-2050)



(UN HABITAT 2010 P.1)

The presence of the informal sector has been a buffer to absorb the increase in the urban population and working-age population. So far, however, the response of the international community and African countries to the increase of the informal sector has been insufficient. The dependence on the informal sector may deepen difficulties in urban areas, lead to the further expansion of low wages, low-skilled labor and vulnerable employees.

27. In Africa, from 1970 to 1995, GDP per capita fell by 0.7% annually, but the urban population increased by 4.7% annually. This is reported as "urbanization without economic growth" (Watanabe 2010). As will be mentioned in Chapter 2, although the cropland per capita of the agricultural population in Africa has been decreasing, the increase of the rural population cannot be absorbed in agriculture, resulting in the above continuous population shift to urban areas. In addition, though experts' views are varied, it is also possible that modernization in agriculture could accelerate the increase in the urban population, since, as some argue, that the improvement in agricultural productivity produces a surplus in the agricultural labor force rather than an increase in employment in the non-agricultural sectors in rural areas (Ranis and Gollin 2012).

28. In the case of Kenya, 60% of the urban population of Nairobi (3.36 million (2007)) live in slums and the informal sector accounts for 60% of overall employment in the country. The unemployment rate in the slums of Nairobi is 26% and that of youths (15-24 years) and women is even higher, reaching 49%; this situation is reported to have contributed to the riots after the presidential election in early 2008 (Watanabe 2010, p.137).

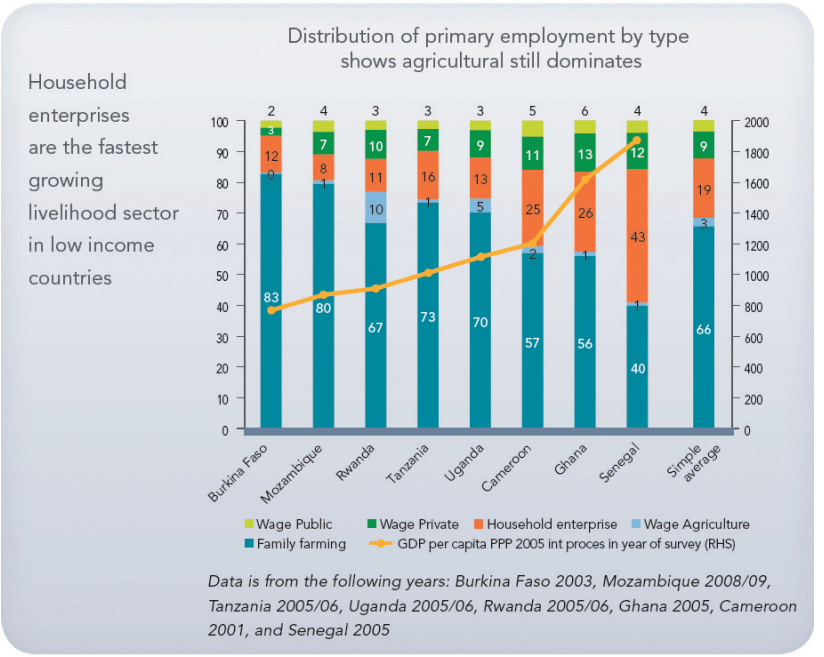
The creation of sufficient formal sector employment is an imperative for Africa in order to achieve sustained economic growth, reduce poverty, and develop and make use of human resources to support its future. Employment is to be created by improving the business environment, i.e., management of local small to medium-sized businesses, development of infrastructure (particularly, stable power supply), improvement of access to finance, promotion of capital investment, improvement of labor productivity, promotion of human resource development, and employment creation that can result in an increase in per capita income. (OECD et al. 2012, pp.135-140)

The informal sector, where most Africans work and will continue to work, plays an important role in poverty reduction and equitable growth. The World Bank (2011c, pp.9-14) argues that even rapid growth of the formal sector is unlikely to keep pace with the growing number of new entrants to the labor market since private wage employment in the formal sector has a very limited share in the labor market of low-income African countries.[29] The cross country analysis (Figure 9) suggests that the ratio of household enterprise employment to total employment increases rapidly with growth of GDP per capita and surpasses the increase of wage employment, by absorbing employment shifting out of family farming, the most dominant type of employment in most low-income African countries. Against this background, World Bank (2011c) suggests that raising productivity and income in the informal sector, notably household enterprises,[30] should be recognized as an important challenge of employment in low-income African countries.

29. In the case of Uganda in 2003-2006, although wage employment grew at 13% per annum, it only accounted for 20% of the new jobs created. In the case of Tanzania in 2000-2005, private wage employment grew at 11.2% per annum, which was surpassed by household enterprise employment growth at 12.9% per annum.

30. World Bank (2011c, p.14) also notes that more "formality" of household enterprise may not be the answer when the cost and benefits of more regulation are carefully considered. It also notes that legal regulations on household enterprises, as well as local taxes imposed on them, exist in many African countries.

Figure 9. Cross Country Analysis of Distribution of Primary Employment by Type



(World Bank 2011c, p.10)

1.7 Current situation and future expectations for achieving main goals of MDGs

According to the assessment of the progress of MDGs in Africa (UNECA et al, 2011 and 2012), Africa has recorded remarkable progress in the areas of the primary education enrollment rate, gender equality in the primary education enrollment rate, improvement in the literacy rate of 15-24 year olds, women's participation in political decision-making, immunization for children, prevention of the spread of tuberculosis and HIV / AIDS and the decrease in the malaria mortality rate. A remarkable decrease has also been observed in the under-five infant mortality rate in post-conflict countries.

However, progress is slow in other areas: in halving the poverty rate, creating productive employment and decent work, and reducing hunger and malnutrition. Youth unemployment is also high. Although the primary education enrollment rate has risen, the primary education

completion rate has not risen enough to match the enrollment rate progress. The gender equality in secondary education and higher education is off track. Despite a substantial improvement, the access to safe drinking water target is unlikely to be achieved by 2015. The progress in improving access to sanitation is extremely slow.

The MDGs 2012 Progress Chart (United Nations 2012) shows that sub-Saharan Africa has only two goals that it is likely to achieve by 2015: "Equal girl's enrollment in primary education" and "Halt and begin to reverse the spread of HIV/AIDS". The other 14 goals are assessed as "Progress insufficient to reach the target if prevailing trends persist." With respect to the "Reduce maternal mortality by three quarters," though, the prospects are improving.[31] In North Africa, 9 of the 16 goals are within the "Target already met or expected to be met", but the "Halt and begin to reverse the spread of HIV/AIDS" is classified as "No progress or deterioration".

As shown above, the progress of MDGs varies by goal and by country, and it is difficult to make sweeping statements about the development goals and policies for Africa beyond 2015. The following, however, are common and major challenges remaining in the post-2015 era:

- Acceleration of poverty-reducing policies or implementation of adequate policies (job creation, agriculture and rural development) toward inclusive growth.
- Initiatives to address the quality of education to upgrade and enhance the curriculum to meet society's needs, while maintaining momentum toward the quantitative improvement toward universal basic education.
- Expansion of access to health services in the field of infectious disease control and maternal and child health, and further expansion of access to safe drinking water and sanitation facilities.
- Continuation of support for achieving MDGs beyond 2015 in countries which will not have achieved them, with diversification of programs and approaches to adapt to conditions of different countries and regions.

31. The progress on this goal was assessed as "No progress or deterioration" in Progress Chart 2011, while the assessment in the 2012 edition improved to "Progress insufficient to reach the target if prevailing trends persist."

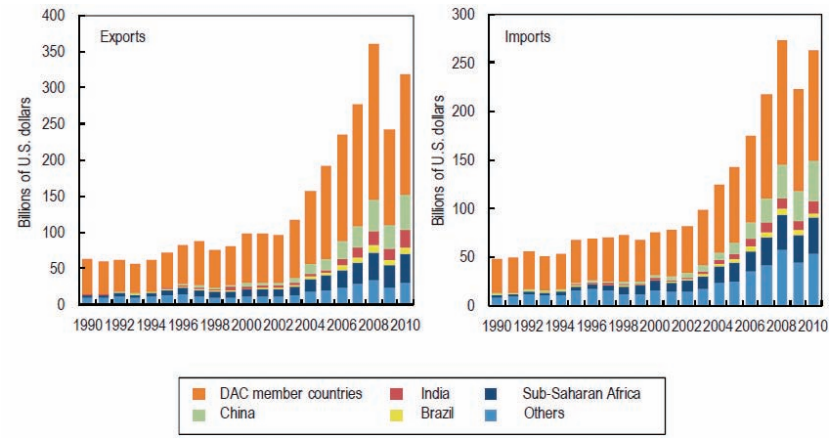
1.8 Diversification of trade partners and the progress of intra-regional integration

Until the 1990s, the African economy used to be heavily dependent on the European market; however, since the 2000s, economic ties have been strengthened with emerging countries (particularly, China, India and Brazil). As a result, the trade with these emerging countries and intra-regional trade have come to account for 50% of exports and over 60% of imports (IMF 2011a, p.39).

Intra-regional trade has come to account for about 14% due to the development in intra-regional economic integration (ibid p.41). Advancements in this respect are facilitated by development of regional infrastructure, promotion of a customs union and common market by regional economic communities (RECs) and elimination of non-tariff barriers. The advancement of intra-region trade is making some African economies less vulnerable to external shocks. For example, EAC countries, which are more dependent on intra-regional trade and are diversified in terms of trade partners compared to countries in other sub-regions, are considered to be more resilient to external economic shocks than countries in other sub-regions; EAC countries experienced a relatively moderate slowdown of economic growth following the financial crisis in 2008, with their growth rate reaching 4.7% in 2009. (WEF et al. 2011, p.16-17)

Despite difficulties in data collection and analysis, informal cross border trade (ICBT) is also quite extensive within Africa. For example, in Uganda, informal exports in 2009 ($1.56 billion, all of which is for neighboring countries) were equivalent to formal exports ($1.57 billion, 44% of which is for neighboring countries) (WEF et al. 2011, p.17). Afrika and Ajumbo (2012) estimates that ICBT is a source of income for 43% of Africa's population, and stands at $17.6 billion per year in the Southern African Development Community (SADC) region, accounting for 20% of GDP in Nigeria and 75% in Benin.

Figure 10. Change of trading partners of Sub-Saharan Africa



(IMF 2011a, p.41)

1.9 Development risks in Africa

Having looked at the current situation, as well as the challenges to economic growth and the achievements of MDGs since the 2000s, we now move to see the risk factors for Africa, among the most notable of which are political instability, global economic downturn, climate change and food security as well as debt sustainability.

1.9.1 Risk of political instability

Political risks, including the possibilities of civil wars and political turmoil, exemplified in the "Arab Spring" in North Africa, pose the biggest risk to economic and social development in Africa. While a number of civil wars and conflicts have been settled thanks to the efforts of African countries throughout the African Union and the support of the international community, there is always a risk of recurrence. With this recognition, efforts must continue by individual countries as well as by regional and international communities to support the peace-building, reconstruction and state-building of conflict-affected or conflict-prone countries. And, in the longer term, countries must achieve inclusive growth for socio-economic stability, since, as seen in the case of the Arab Spring, at the root of political and social unrest lies people's discontent about persistent unemployment and disparities.

1.9.2 Risk of the impacts of a global economic downturn

Africa always faces the risk of economic slowdown caused by a global

economic downturn such as the financial crisis in 2008, and the recent Euro crisis. Countries with close links to the global economy tend to be strongly affected by such external shocks. South Africa, for example, which has close economic ties with Europe, recorded a considerable slowdown in its growth rate following the financial crisis in 2008[32] and there is similar concern in countries in North Africa where export and tourism revenue strongly depends on Europe.[33] Also, as we saw in the previous section, Africa is coming to have closer ties with emerging countries like China, India and Brazil. Any economic downturn in these economies will inevitably affect Africa's economy.

1.9.3 Risk of climate change and food insecurity

While Africa is the region with the least amount of GHG emissions, it is the region most vulnerable to climate change. The risk of climate change in Africa was widely recognized in COP17, which was held in Johannesburg in 2011, and owing to the drought in the Sahel region and the Horn of Africa during 2011-2012. At the Camp David Summit in May 2012, G8 and African Leaders agreed upon forming a New Alliance for Food Security and Nutrition in Africa.

UNFCCC (2007 pp.18-20) highlights some impacts of climate change in Africa on key sectors including: increasing risk of drought, flooding, and inundation due to sea-level rise in the coastal areas; increasing water scarcity and stress; loss of agricultural land and declining production of subsistence crops; increasing infectious diseases such as malaria, tuberculosis and diarrhea; malnutrition for both adults and children; loss of biodiversity; and damage to coastal infrastructure.

The annual cost of adaptation in Sub-Saharan Africa is estimated at $16.9-18.9 billion (2010-15),[34] which is lower than those of East Asia and Pacific ($19.5-28.7 billion) and Latin America and the Caribbean ($16.8-22.5 billion); however, in terms of share of GDP, Sub-Saharan Africa

32. South Africa's average growth rate was 4.9% during the 5-year period between 2004-2008. It dropped to -1.5% in 2009, and is expected to recover only to 3.0% in 2013. (IMF 2012a, p.76).

33. OECD et al. (2012 p.33) reports that a 1% decline in the economic growth rate in OECD countries will cause a 0.5% decrease in economic growth in Africa and a 10% drop in export revenue in Africa.

34. In sector analysis, water supply and flood protection ($6.2-6.6 billion), coastal zone ($4.0 billion) and agriculture ($3.3 billion) are the important sectors in Sub-Saharan Africa. The cost of infrastructure is forecast to increase significantly from $1.1 billion (2010-19) to $6.0 billion (2040-49).

(0.70%) is much higher those of East Asia and Pacific (0.20%) and Latin America and Caribbean (0.30%) (World Bank (2010b)).[35]

The Copenhagen Accord, which was agreed in COP15 in December 2009, recognizes Africa as the most vulnerable developing region for which enhanced action and international cooperation on adaptation is urgently required, and also funding for adaptation will be prioritized in the future climate change financing mechanism, which aims at mobilizing $100 billion per year by 2020 (para 3, 8). The High-Level Advisory Group on Climate Change Financing (2010), established by the UN Secretary-General in February 2010, also suggests that grants and highly concessional loans are crucial for adaptation in the most vulnerable countries including those in Africa (pp.5, 10). Against this background, the African Development Bank Group (2011) proposes to establish the African Green Fund to complement existing instruments and enhance the ability of African countries to respond to Climate Finance challenges.

Africa has the potential for mitigating the negative impact of climate change. It is endowed with a variety of abundant natural renewable energy resources such as hydro, geothermal, solar and wind power, though much of this potential remains to be developed. Climate change mitigation will increasingly be a challenge for the continent, for it will have to expand its energy production to meet the continent's ever-increasing demand coming from growing economies and increasing populations.

Africa could improve its energy efficiency by taking such measures as the development of renewable energies, installation of high-efficiency natural gas and coal-fired power plants, and reduction of power-transmission loss. Outside the power sector, Africa can also contribute to the mitigation of climate change by conserving the tropical rainforests of the Congo Basin and in other areas, and by developing energy-efficient urban transportation networks.

1.9.4 Debt sustainability

Sub-Saharan countries are employing cautious debt management policies, and debt sustainability has continuously improved. The ratio of

35. World Bank (2010b pp.1, 13) also notes that flexible policies and more research are needed due to the imprecision of existing studies and models providing a wide range of estimates.

the external public debt over the GDP of sub-Saharan countries has significantly improved from 31.0% in 2004 (55.8% when South Africa and Nigeria are excluded) to 9.7% in 2011 (18.5%, ibid.). Especially, the improvement between 2004 and 2007 was significant[36] due to the debt reduction in the mid-2000s which has led to a considerable reduction in the debt burden. In addition, the outstanding debt has continued to decline since the late 2000s.[37] It should be noted, however, that the outstanding debt of oil-importing countries excluding South Africa as of 2011 is 24.0%, which is much larger than the 4.8% of oil-exporting countries (IMF 2012b, p.112 and Table 9).

Table 2. Outstanding government debt of sub-Saharan countries (% of GDP)

Calendar year	2004	2005	2006	2007	2008	2009	2010	2011
Whole of sub-Saharan Africa	31.8	23.0	14.6	12.1	11.2	12.1	10.0	9.7
Excluding Nigeria and South Africa	55.8	45.2	31.0	24.4	20.9	22.6	19.2	18.5
Oil-exporting countries	38.8	20.3	6.8	6.6	5.3	6.1	5.4	4.8
Oil-importing countries (excluding South Africa)	61.1	52.4	38.2	30.0	27.2	28.0	23.9	24.0

(Prepared by the author based on IMF 2012b, P.112)

The sustainability of African debt is not an immediate concern, but it depends to a great extent on the macro-economic policy, fiscal policy, and debt management ability of each country. According to the IDA traffic lights (fiscal 2012/2013), the number of countries in high or medium risk regarding debt sustainability (red and yellow) accounts for the majority among IDA-eligible countries in Africa[38] and thus, it is necessary to monitor the performance of each country. Also important is to keep track of the borrowing trend from emerging non-Paris Club countries, such as China, and also borrowings from international financial markets through bond issuance, etc.

36. 31.0% in 2004 (55.8% excluding South Africa and Nigeria) ⇒12.1% in 2007 (idem 30.0%)
37. 12.1% in 2007 (30.0% excluding South Africa and Nigeria) ⇒ 9.7% in 2011 (idem 18.5%)
38. Red: 7 countries, Yellow: 14 countries and Green: 15 countries

2. Toward the Structural Transformation of African Economies and the Achievement of Inclusive and Sustained Growth

2.1 Medium to long-term prospects of African economies

Since the 2000s, while maintaining economic growth primarily led by the export of energy and mineral resources, Africa has also diversified trading partners and regions, deepened intra-continent regional economic integration, expanded the internal market, increased middle class consumers, and improved fiscal and monetary policies as well as debt management. These structural changes seem to have made the African economy more resilient to external shocks, such as sharp declines in energy and resource prices.[39]

Based on the assumption that the current economic growth will continue, the African Development Bank Group (2011a) envisions the African economy and society in the year 2040 as follows:[40]

- Assuming an economic growth rate of 4.9% to 5.5%, its GDP will grow from $1.7 trillion in 2010 to $5.9 trillion in 2040, while the GDP per capita will grow from $1,667 in 2010 to $3,733 in 2040, reaching the range between today's Indonesia ($2,974) and China ($4,328).
- The population growth rate will drop from 2.27% in 2010 to 1.37% in 2040, but the total population will increase from 1.03 billion in 2010 to 1.59 billion in 2040, which will exceed the prospective population of both China and India in 2040 (estimated to be around 1.5 billion).
- The working-age population (aged 15-64) will increase from 400 million in 2010 to 1.07 billion in 2040, and the ratio of the working-age population over the total population will increase from 40% (2010) to 67% (2040). This is comparable to the current rate of the working-age population of Asian countries which are thought to enjoy a demographic dividend (JICA 2008, p.26).
- The number of middle class people[41] whose daily income ranges from $4 to $20 (equivalent to an annual income of $1,460 to $7,300)

39. IMF (2011a p.7) remarks "the region's recent sustained strong growth represents a sharp break with the past, when the region lagged far behind other parts of the developing world."

40. The forecast is a 50-year forecast until 2060. Here, we are presenting the estimate in 2040. There are 2 types of simulations, i.e., High-Case Scenario and Low-Case Scenario and the following is all based on Low-Case Scenario.

41. Mckinsey Global Institute defines the middle class in a more precise manner: as a household with an annual income of more than $5,000, which is a threshold where expenditure other than the necessities of daily life such as food increases, and forecasts that the number of middle class households will increase from 85 million in 2010 to 128 million in 2020 (MGI 2010, pp.3-4).

will increase from 360 million in 2010 to 620 million in 2040; and the ratio of middle class people over the total population will increase from 34% (2010) to 38% (2040). However, the percentage of the population with daily income of less than $1.25 will only decrease from 44.15% in 2010 to 37.77% in 2040; if this forecast comes true, the poverty reduction target of MDGs (to halve the poverty population rate of 1990 (58%) to (29%) in 2015) will not be achieved even in 2040 (African Development Bank Group 2011a, p.70).[42]

2.2 Prospects for the transformation of African economies

As shown above, even with the assumption of 30-year, continuous economic growth of 5%, in 2040, as much as 37.77% of the total population in Africa will still be living on a daily income of less than $1.25. Given this kind of gloomy prediction on the one hand, and the brighter-looking forecast of GDP per capita close to $4,000 on the other, it will be critically important for the African economy to realize "sustained growth" and "inclusive growth," which will allow the broader population as well as the poor and vulnerable to enjoy the fruits of economic growth in the next few decades.

In order to make such economic development a reality, Africa needs to realize the following:

- Transformation from an economy dependent on energy and mineral resources into an economy led by new leading sectors such as
  i) agricultural sector revitalized through agricultural productivity improvement resulting in increased agricultural production and growth of agro-industries and agro-business,
  ii) labor-intensive manufacturing industries, especially local industries that respond to increasing demand from the emerging middle class consumers and regionally integrated market, and
  iii) modernized and private-sector-led service sector combined with highly educated human capital, innovative technology and better quality of service delivery.
- Provision of employment for a rapidly growing, working-age

42. The African Development Bank Group states that it is necessary to achieve economic growth of over 7% on average in order to produce rapid poverty reduction. In this redar (note: what does 'redar'?), the growth rate of this forecast is insufficient (African Development Bank Group 2011, p.12).

population, especially for youths, through fostering of the manufacturing and service sectors.

- ➢ Equitable income distribution: through job creation, and increase in per capita income through improving labor productivity and agricultural productivity. This must be accompanied by the development and effective use of human capital and the strengthening of social services and a social safety net for the poor and vulnerable.
- ➢ Infrastructure development: to support increasing demand for transport, energy and water driven by long-term economic growth, population growth and improvement in living standards. The necessary amount of investment is to be mobilized to fulfill the estimated funding gap of $40 to $50 billion per annum (World Bank 2008).

In the following sections, the term "transformation" is used to mean a change in economic structure, which, as described above, will simultaneously bring about the shift from the dependence on energy and mineral resources through the diversification of growth sectors and trading partners (hereafter termed as "sustained growth"), and the enjoyment of the fruits of growth by a broader population through employment and social services (hereafter termed as "inclusive growth").[43]

We will now discuss the diversification of sources of wealth (i.e., agriculture, manufacturing and service sector) in sections 2.2.1 through 2.2.3, and the investment in human capital and its use (i.e., education, employment and labor productivity) in section 2.2.4.

2.2.1 Potential of African agriculture

Unlike agriculture in Asia and Latin America, African agriculture has not gone through the transition process to modern agriculture and adoption of agricultural technology through the Green Revolution, and agricultural land productivity improvement has been stagnant. The increase in food demand due to population growth has been met so far by the expansion of cultivated land and increased food imports. As

43. IMF (2012a), based on the definition that the Structural Transformation is the shift of workers from low to high average productivity activities and sectors, P.51), analyzes the structural transformation of sub-Saharan Africa by taking the labor mobility between sectors as the main indicator. IMF (2012a) also indicates some good examples of structural transformation such as: Burkina Faso (agriculture), Tanzania (manufacturing), Namibia (manufacturing), Mauritius (service industry) and Kenya (service industry) (idem, P67-71).

African governments have not tended to prioritize agricultural modernization since their independence, farmers have returned to stable cultivation of subsistence crops since the economic slump in the 1970s (Hirano 2009, pp.109-102), and the cropland per capita of the agricultural population decreased by 40% between 1960 and 2003. However, as agriculture is still the main sector in Africa, accounting for 32% of the GDP, it is critical to improve productivity through the introduction of modern agricultural technology for achieving sustained growth in the African economy.[44]

MGI (2010) estimates that, with 60% (590 million ha) of the world's uncultivated arable farmland (970 million ha in total),[45] Africa has the potential to increase its current agricultural production from $280 billion (2010) to $500-880 billion in 2030, through enhancing agricultural land development, increasing agricultural productivity and transitioning to high-value-added crops. The Coalition for African Rice Development (CARD),[46] which aims at doubling rice production in sub-Saharan Africa from 14 million tons in 2008 to 28 million tons by 2018, shows good progress toward the achievement of the above goal with the production of 18.4 million tons in 2010.[47]

In recent years, investment in agriculture by the private sector is growing, which has the potential to bring productivity improvement, new technology, agricultural land expansion, supply chain and value chain development, etc., resulting in comprehensive development of agricultural production and creation of added-value. One example of efforts to take advantage of private sector investment is a regional development program in Mozambique supported by the Japanese government (JICA) to promote agriculture in the Nacala Corridor in the north of the country. In a similar context, the G8 Summit held in Camp David in May 2012 announced a joint action plan, "New Alliance for Food Security and Nutrition", backed by G8 and African countries for

44. See also Hirano (2013), pp.123-127, Takahashi (2010), pp.145-203, and chapters 2 and 3 of this volume.

45. Sudan (72 million ha), Democratic Republic of Congo (66 million ha), Angola (53 million ha), Zambia (53 million ha), Mozambique (49 million ha), Central African Republic (45 million ha), etc. (MGI 2010).

46. Joint initiative of 23 African countries and 11 institutions centered on JICA and AGRA (Alliance for a Green Revolution in Africa) a private organization formed by African farming experts, following TICAD IV Yokohama Action Plan for doubling rice production in 10 years.

47. For more detailed discussions on the CARD initiative, see chapters 2 and 3.

the purpose of promoting private investment in African agriculture and dissemination of agricultural technology.

On the other hand, large farmland acquisition by the private sector may cause conflicts over land and water resources with local populations and farmers. To prevent such risks, a framework for the protection of the rights of local populations and farmers is needed to create an environment benefitting both private investors and local populations and farmers.[48] Government should play an important role in creating such investment climate, in addition to its traditional roles such as in the provision of economic and technical assistance to local farmers and in agricultural technology development and dissemination.

Agriculture can boost the African economy. Despite the low performance of exports (cocoa, coffee, and tea) since the 1990s,[49] encouraging cases are emerging in export promotion through developing new products with new technology, such as horticultural products in Eastern and Southern African countries. Also encouraging is the expansion of the intra-African market[50] due to economic growth; this can bring a huge business opportunity for exports within the continent. The expansion of agricultural production could boost the development of the agro-industry and agro-business such as agro-processing, food processing, distribution, transportation, and finance, leading to rural employment and improvement of the livelihood of the non-farming population, which accounts for half of the total population in rural areas. It could also lead to foreign currency savings through reducing food

48. As an example of such an initiative, a set of Principles for Responsible Agricultural Investment (PRAI) was proposed by the Japanese government and adopted at L'Aquila G8 Summit in April 2009.

49. The share of agricultural exports from Sub-Saharan Africa in world agricultural trade decreased from 5.4% (1995-97) to 2.7% (2006-08). Such sluggish development may be attributable not only to the stagnation of agricultural productivity, but also to high indirect costs such as transportation costs, underdeveloped infrastructure and business environment (WEF et al. 2011, pp.18-19).

50. For example, MGI (2010) reports that food products and beverages markets are expected to grow from $369 billion in 2008 to $544 billion in 2020 (p.39). CAADP Pillar II Experts Reference Group (2009) notes that demand in local and regional urban food markets across Africa is expected to increase from US$50 billion to US$150 billion in 2000-2030, while foreign demand for agricultural commodities and high-value exports is projected to grow from US$11 billion to US$20 billion in the same period (p.21).

imports, which exceed that of Japan.[51]

African agriculture has significant potential but faces various development challenges. To summarize, it should be remembered that the vision of the original Comprehensive Africa Agriculture Development Programme (CAADP) in 2003[52] remains relevant to the current major challenges of African agriculture. It is also to be noted that the market-oriented approach and the small-scale farmers' approach, which are discussed in the following chapters 4 and 5, respectively, are both to be addressed in a balanced and integrated manner as described in the original CAADP.

2.2.2 Potential of African manufacturing industry

Manufacturing is important for the African economy due to the following reasons: for the diversification of its economy, reduction of external vulnerability, job creation for the working-age population (especially for youths), improvement in the trade balance, notably for non-oil-producing countries with trade deficits, etc. The potential for manufacturing in Africa stems mostly from the prospective market expansion due to economic growth, increasing population, growing middle class consumers, increasing working-age population and effect of the future demographic dividend.[53] The MGI (2010) states that the consumption markets within Africa have already reached $860 billion (2008), which are equivalent to those of India and Russia. It also estimates that they will grow to $1.38 trillion in 2020, and the number of middle class households with an annual income of over $5,000 is expected to increase from 85 million in 2008 to 128 million in 2020[54]

51. According to FAO data, agricultural exports from Africa amount to $34.2 billion (2009), agricultural imports to Africa amount to $53.2 billion (2009), and with a deficit amounting to $19.0 billion. Agricultural imports exceed that of Japan ($35.7 billion). 45% of rice and 85% of wheat consumed in Africa are imported in 2009 (WEF et al. 2011, p.19).

52. The vision for agriculture is that the continent should, by 2015: attain food security (in terms of both availability and affordability and ensuring access of the poor to adequate food and nutrition); improve the productivity of agriculture to attain an average annual growth rate of 6%, with particular attention to small-scale farmers; especially focusing on women, have dynamic agricultural markets between nations and regions; have integrated farmers into the market economy; including better access to markets, with Africa to become a net exporter of agricultural products, achieve the more equitable distribution of wealth; be a strategic player in agricultural science and technology development; and practice environmentally sound production methods. (NEPAD 2003 p.9)

53. Please see MGI (2010), IMF (2011b)

54. IMF (2011b) also features an article on the expansion of the internal market and the middle class in Africa.

(ibid).

In fact, in recent years, manufacturing exports in Africa are increasing to neighboring countries in the continent. For example, the value of exports of eight African countries[55] increased from $1.5 billion in 2000 to $10 billion in 2008, and the proportion of manufactured exports in total exports increased as follows: Kenya: 21% (2000) → 37% (2008), Uganda: 6% (2000) → 30% (2008), and Senegal: 27% (2000) → 30% (2008). The main export items are processed fuels, food, chemical products, clothing and cosmetics (MGI 2010).

However, manufacturing in Africa has not emerged from the 1980s slump and it accounts for less than 10% of GDP in many African countries.[56] In terms of the share of world exports for developing countries and regions, East Asia showed rapid growth of 3.3% (1980) ⇒ 8% (1995) ⇒ 14% (2008), and other regions are also generally in the process of expansion. By contrast, Africa has experienced a modest expansion of 1.3% (1990s)⇒1.6% (2000s) and moreover, it is due mainly to the export of primary products (WEF et al. 2011, pp.3-4). The share of industrial products of sub-Saharan countries in world trade is declining, where light industrial products showed a decline of 1.2% (1980) ⇒ 0.9% (2008) and heavy industrial products showed a marginal increase of 0.3% (1995-97) ⇒ 0.4% (2000-2008) (WEF et al. 2011, p.15-20).

The slump in manufacturing in Africa is attributed to various factors: underdeveloped infrastructure (especially, power and transportation), inadequate business environment, relatively high labor cost (excluding the informal sector), low education, health and sanitation levels, insufficient financial access, high socio-political risks, and so on. It is important to comprehensively address these issues; particularly in sub-Saharan countries, high indirect costs due to the underdevelopment of infrastructure, business environment and financial systems are reported to be the main causes of high manufacturing costs, although the issue of human capital such as insufficient education and relatively high labor costs are also raised. (WEF et al. 2011, p.12, OECD et al. 2012, p.21)

55. Cameroon, Côte d'Ivoire, Ghana, Kenya, Mozambique, Senegal, Tanzania, Uganda, Zambia

56. In the following 11 countries, the manufacturing industry accounts for 15-20% of GDP: Cameroon, Côte d'Ivoire, Egypt, Lesotho, Madagascar, Mauritius, Morocco, Namibia, South Africa, Tunisia and Zimbabwe. (OECD et al. 2012).

In 1980s' Asia, having overcome these constraints (except labor costs), economic growth through the development of labor-intensive industry, poverty reduction through job creation and increases in per capita labor productivity and income were achieved simultaneously. The Asian experience in development provides rich experience and lessons to be referred to for African development. Africa may take advantage of the increasing working-age population and improving education levels, while addressing issues such as high cost in manufacturing, service reliability in logistics and energy supply. Consistent investment is needed in infrastructure and human resource development and in creating an enabling business environment to meet the needs of industry. However, Africa now finds itself in a quite different environment from what it was in the 1980s and 1990s, when Asia began to rapidly grow. Today, as low-wage, labor-intensive export industries have developed nearly all over the world except Africa, Africa has some disadvantages in the international business environment for promoting labor-intensive industries.[57] As Noman and Stiglitz (2012) states, there is no policy package that fits all countries, so adopting one specific development strategy in Africa, such as low-wage, labor-intensive export industrial development, is to be avoided.[58] While the Asian experience might be a useful reference, African countries must be flexible and selective in policy formulation to fully take advantage of their respective comparative advantage and resource endowments, such as the availability of raw materials and the level of local labor costs.

2.2.3 Potential of the service sector in Africa (Trade, transportation, telecommunications, finance)

The service sector's[59] share of total GDP in Africa has increased from 44.4% in 1980 to 53.1% in 2009. (World Bank 2011a). This is in sharp contrast to other sectors: the share of agriculture, forestry and fisheries[60] in total GDP in Africa has decreased from 17.2% in 1980 to 13.1% in 2009,

57. IMF (2012a) p.62-63

58. Noman and Stiglitz (2012) p.40

59. Including wholesale and retail trade (including hotels and restaurants), transport, and government, financial, professional, and personal services, such as education, health care, real estate, and all other branches of economic activities that are not included in agriculture, forestry and fisheries and industry sectors (World Bank 2011a, p.136).

60. Including forestry, hunting, and fishing, as well as crop cultivation and livestock production. (World Bank 2011a, p.135)

and that of the industrial sectors[61] likewise has decreased from 38.4% to 33.8%, and the manufacturing sector from 10.7% in the 1980s to 8.5% in the 2000s (ibid).

While the service sector's increasing share in GDP is helped by the relative slump in other sectors, the sector is expanding thanks to growing private sector participation facilitated by deregulation and cost reduction through technology innovation. A typical example is the mobile phone service, which is expanding rapidly, as the telecommunications sector is a "high growth sector" comparable to energy and resource sectors. Demand in the trade and transport sectors is also expanding, presumably due to the increase in logistics caused by economic growth, rapid increase in final consumption expenditure[62] and the expansion of the intra-African market.

IMF (2012a) refers to Kenya as a good example of the development of the service sector. In Kenya, the contribution of the service sector to GDP was strong, ranging between 2 and 5% in 2005-2011, while that of agriculture and manufacturing stagnated, with less than 2% or negative growth rates. This was made possible by, along with the country's relatively high education standards, the increasing demand for transport, telecommunications and financial services against the backdrop of Eastern African regional integration and strong ICT service exports; ICT accounted for over 10% of the service exports of the country during 2007-2011.

Within the service sector, lagging behind is the financial sector, except in South Africa, Mauritius, Tunisia, Morocco, Cape Verde, Namibia, Nigeria, Egypt, and Kenya;[63] the importance of developing the financial sector in Africa is to be emphasized for the mobilization of domestic capital for investment, particularly in view of a substantial expansion in national savings that is expected to occur thanks to the demographic

61. Including mining, manufacturing, construction, electricity, gas, and water (World Bank 2011a, p.136).

62. Final consumption expenditure per capita in Africa increased as follows (US dollars: nominal): 541 (1980s) ⇒ 586 (1990s) and ⇒756 (2000s), in particular it soared in the late 2000s (600 (2003) ⇒ 1,082 (2009)). This trend is seen both in Sub-Saharan countries (487 (2003) ⇒ 864 (2009)) and in North Africa (1,179 (2003) ⇒ 2,240 (2009)). (World Bank 2011a)

63. In these countries, the ratio of domestic credit to private sector to GDP, a proxy of financial market development, exceeded 30% in 2009 (World Bank 2011a p.65).

dividend in the coming decades.[64]

Transformation of the service sector will have far-reaching impacts on other sectors: it will not only help facilitate the modernization of traditional services through encouraging technological innovation and market integration and deregulation, but it will also improve productivity, strengthen competitiveness and encourage investment and reduce costs in agricultural and industrial sectors. To make this happen, however, African countries need to enhance the supply of highly skilled human capital through higher education in science and engineering. They also need to take measures to address the sector's current over-dependence on the informal sector[65], which contributes little to human resource development.

2.2.4 Investment in human capital (education, employment, labor productivity)[66]

Africa needs to develop education not only in quantity but also – and more importantly – in quality. Quantity-wise, many African countries have made substantial strides in basic education; many have introduced a policy of free primary education since the 1990s, resulting in the improved net enrollment rates in primary and secondary education rising from 58% (1999) to 76% (2009), and from 19% (1999) to 29% (2009), respectively. Quality-wise, however, much remains to be done, for the academic performance of children is still quite low in Africa. This needs to be urgently addressed given the plausible correlation between the rate of economic growth of a country and academic achievement of school children.[67]

Higher education and vocational technical education in Africa are undergoing rapid development. However, here again, a lot of challenges still remain; they include: the improvement of the basic quality of education and research, securing employment of graduates (refer to Figure 7 in Section 1.6), and the issue of the 'brain drain'. Added to these is the need to satisfy the changing and growing demand for highly

64. Currently, the national savings rate is around 15% over the GDP.

65. According to Watanabe (2010), the informal service sector accounted for 34% of employment in Nairobi in 2002 and the formal service sector 4%. The informal sector accounts for nearly 90% of employment for the whole of the service sector, including formal and informal sectors.

66. For discussions on physical infrastructure development, see Chapter 7 of this volume.

67. See Chapter 10 of this volume.

skilled labor from the newly growing service sector including ICT, and to cope with the needs of the globalizing environment. The current system of higher education and vocational training, including the stock of teaching faculties, seems incapable of satisfying these changing demands of society, and needs to be systematically reviewed and improved upon.

There are indeed mounting expectations and needs for improved human resources in Africa on the one hand and, on the other, there has been a steady improvement in the supply of better-educated human resources. Under these circumstances, the most critical issue is to provide sufficient employment to young people who possess improved academic capabilities. This is becoming a huge challenge both in low- and middle-income countries. Low-income countries, where the informal sector accounts for the majority of employment, are often unable to provide appropriate job opportunities that are on a par with the skill levels of better-educated youths; the informal sector is also weak in providing the workers with opportunities to further upgrade their skills. In middle-income countries, by contrast, unemployment of highly educated youths is a serious problem, resulting from the mismatch between the needs of industry and the qualifications of graduates coming from higher education and vocational/technical education. (See Figure 7 in Section 1.6).

These immense challenges appear to require comprehensive approaches that look simultaneously at the supply and demand sides of human resources, for the above-mentioned puzzle can be solved only by the coordination of investment in human capital (education) and its effective use (employment). World Bank (2012e) cites an example of a comprehensive promotion program of employment and labor productivity in Ethiopia; it reports that policies that address the labor market (like deregulation and vocational training), private sector productivity (like company managers' training), and the industry as a whole (like industrial promotion measures) are called for.

Also encouraging might be to look at the effects of various human capital development measures on the academic ability and employability of children and youth. Such measures include, for example, promotion of pre-primary education, incentivizing of parents to educate children (e.g., conditional cash transfers, meal provision

schemes, and scholarships), childhood nutrition and health support (e.g., parasite control), and prevention of sexually transmitted infections (e.g., provision of contraceptives and promotion of family planning). The effectiveness of these interventions on education and employment are being clarified with massive empirical studies, providing useful insights on policy.[68] Policy debate on human resource development and employment may have a lot to gain from learning from the achievements of such studies.

3. African Development beyond TICAD V: Toward a Differentiated and Customized Approach for Development

The approach based on intra-regional integration responding to geographical proximity and common interests of neighboring African countries has been attempted in various ways.[69] Since the 2000s, its importance has been newly highlighted in New Partnership for Africa's Development (NEPAD 2001), and the African Union and Regional Economic Communities (RECs)[70] are promoting a variety of regional integration programs and initiatives including cross-border infrastructure development and promotion of intra-regional trade. This development perspective through regional integration and cooperation must be the central thrust in African development.

However, countries are quite varied; as seen above, since the 2000s, some countries have achieved steady economic growth and social development, while others are still in need of continued assistance on their way towards achieving MDGs and/or post-conflict state-building. Thus, the needs for development have come to be increasingly diversified and complicated. Given these variances, it is important that African countries adopt policies best suited to their different needs. The

68. See, for example, Bertrand and Crepon (2012).

69. Many of the regional economic communities (RECs) include regional cooperation mechanisms founded in the early 1960s to 1970.

70. The African Union Commission established close cooperation with the following 8 Regional Economic Communities (RECs) as one of the pillars of the basic strategies of 2009-2012: Community of Sahel Saharan States (CEN SAD), Common Market for Eastern and Southern Africa (COMESA), East African Community (EAC), Economic Community of Central African States (ECCAS), Economic Community of West African States (ECOWAS) Intergovernment Authority for Development (IGAD), Southern African Development Community (SADC) and Union du Maghreb Arabe (UMA). (African Union Commission 2009)

international development community must make sure that individual countries are given sufficient policy space to pursue their developmental goals, recalling that their policy recommendations since the days of structural adjustments in the 1980s have often been criticized as being too rigid with no policy space for African governments. Actually, similar arguments calling for customized or differentiated approaches for countries at different stages are emerging with respect to the discussions on the post-2015 development agendas; the argument goes that different targets must be provided for countries and areas that are likely to achieve MDGs by 2015 and those which are not (UNECA et al. 2011).

It is expected that the action plans to be adopted at TICAD V will incorporate these diversified and complicated development needs. In working out these plans, African countries and their partners, while upholding the perspective of regional integration and cooperation, must make sure that African countries are encouraged to seek differentiated and customized development strategies to meet their specific needs. These two approaches, i.e., the regional integration approach and the "differentiated and customized approach" must be the central philosophy underpinning the upcoming new TICAD V Action Plan.

3.1. Regional integration approach

The regional integration approach comprises a variety of programs, including cross-border infrastructure development, corridor development, intra-regional trade promotion, support to regional economic communities (RECs), and rural infrastructure development. African Union, NEPAD and RECs are positioned as central promoters of the most important initiatives for regional integration, such as the Program of Infrastructure Development in Africa (PIDA), and Action Plan for Boosting Intra-African Trade.

The importance of regional integration was also highlighted in the TICAD IV Yokohama Action Plan.[71] Various partners of Africa have been supporting moves along the lines of this approach. Japan and JICA have been providing support to regional infrastructure development and "one stop border posts (OSBP)" as their flagship projects listed in the Action Plan;[72] the African Development Bank Group considers regional

71. See the section of "accelerated growth" and "infrastructure" of TICAD IV Yokohama Action Plan

72. For more details of the OSBP, see Chapter 8.

integration as a strategic priority at the regional level in its mid-term business strategy 2008-2012 (African Development Bank Group 2008, p.11); the World Bank considers regional integration as a key instrument to implement its African regional strategy, in addition to responses to middle-income countries and fragile states (World Bank 2011b, pp.29-31).

The perspective of regional integration must also be incorporated in individual countries' development planning. In other words, governments and donors must make sure that their development strategies are worked out so that they promote the interests not only of the country but also of neighboring countries in the region. Formulation, prioritization and sequencing of development projects must take into consideration their regional integration effects; for example, Kuchiki (2010, p.121) is proposing the formation of industrial clusters in Mozambique and its neighboring region based on the experience in the industrial cluster policy in Northern Vietnam and in the Eastern Seaboard Development Plan in Thailand.

Rural areas are also to be incorporated into the regional integration approach to enhance urban-rural connectivity and to develop agricultural potential, by investing in rural infrastructure such as transport, telecommunication and irrigation, strengthening access to market, finance and technology, and creating employment in agricultural and non-agricultural sectors in rural areas. Only one-third of Africans living in rural areas are within two kilometers of an all-season road, compared with two-thirds of the population in other developing regions (World Bank 2011d). In this context, the Comprehensive Africa Agriculture Development Program (CAADP) proposes the Framework for the Improvement of Rural Infrastructure and Trade-Related Capacities for Market Access (FIMA) as the second pillar of CAADP.

3.2. Differentiated and customized approach

While maintaining the regional integration perspective, countries must pursue customized strategies to meet their specific needs. Though not exhaustive, the following are proposed for countries under different circumstances:

3.2.1. Development challenges in fragile states

While many African countries are starting to show high economic growth rates, some other countries lag behind, and some are still on their way to post-conflict state building. Many of these countries are called "fragile states." Though there is no single effective prescription for the development of such countries, several points are worthy of consideration. First, short-term humanitarian assistance in the immediate aftermath of conflict and long-term development assistance for state building must be coordinated to avoid any gap between the two. Second, states must have the capacity to provide their citizens with basic services such as food, health, and education, along with the ability to secure law and order; the former is very important for the state to be regarded as legitimate by its people.

With this in mind, support for countries in fragile situations must incorporate not only assistance for improved governance such as the restoration of political stability and strengthening of security sectors, but also a well-balanced economic and social assistance program in the fields of infrastructure development, job creation and food security as well as healthcare.[73]

3.2.2. Development challenges in resource-rich countries

As IMF (2012b) defines 20 Sub-Saharan countries as Resource Intensive Countries[74] and notes that several countries[75] are expected to soon join the ranks of significant natural resource exporters, given recent discoveries and exploration results, "Mineral Governance" (World Bank 2012b) is newly focused as a major development challenge of Africa.

The debate on the "resource curse" is still going on. Paul Collier (2007) cites a natural resource trap or resource curse as one of the four development traps[76] preventing Africa from escaping poverty. World Bank (2012b), on the other hand, maintains that there is hardly any

73. For more detailed discussions on state-building in fragile states, see Chapter 12 of this volume.

74. 7 countries (Angola, Cameroon, Chad, Republic of Congo, Equatorial Guinea, Gabon, Nigeria) as oil-exporters, and 13 countries (Botswana, DRC, Guinea, Central African Republic, Ghana, Mali, Namibia, Niger, Sierra Leone, South Africa, Tanzania, Zambia, Zimbabwe) as other-resource intensive countries (IMF2012b, p.62). In North Africa, Algeria and Libya are traditional oil-exporters and Morocco is a phosphate-exporter.

75. Cote d'Ivoire, Kenya, Liberia, Mauritania, Mozambique, South Sudan, Sudan, and Uganda etc. are expected to be new resource-exporters in the IMF ranking.

76. The other three development traps are: conflict trap, landlocked with bad neighbors, and bad governance in a small country.

empirical data that endorses the resource curse theory[77] and calls for policy initiatives directed at sustained development by making use of abundant resource-derived revenue in order to achieve the economic development and growth of resource-rich countries.

Even supposing, as Paul Collier (2007) indicates, a negative impact of some degree of natural resource exports on economic development and growth, it should be possible to promote economic development and growth through a combination of effective policies.[78] Such policies can include: effective use of resource revenues generated from natural resources for productive investment in infrastructure and human capital; strengthening of transparency and accountability for resource revenue spending and prevention of corruption; and robust fiscal policy and prudent public investment policy. Thus, there must be strong needs for assistance for resource-rich countries for their policy system reforms, strengthening of governance, and diversification of economic structure.

In addition, the private sector is greatly interested in resource-rich countries and they, too, have a strong interest in the improvement of the investment climate, comprising, most importantly, of well-developed infrastructure and capable human resources, stable macroeconomic management, and accessible long-term development financing. Thus, there is strong demand in the private sector for increased public support measures for resource-rich countries, which could be promoted either through official development assistance (ODA) or through public-private partnership arrangements. Such support measures could contribute directly to business environment improvement, or, as a long-term initiative, could help reduce investment risks through improved socio-economic stability through social development and diminished social disparities.

77. Lederman and Maloney (2008) reviewed the past empirical analysis on the resource curse that regarded the indicators such as the ratio of resource exports to GDP or to the total exports as a proxy of the degree of resource dependence. As a result of reviewing the analysis method and using the net resource exports per head of the working population, they reported that there was a positive correlation between the degree of resource dependence and GDP per capita and that the per capita resource exports have a positive impact on GDP per capita.

78. The Commission on Growth and Development (2008, p.80) argues that the problem is not the resources themselves, but how the proceeds (or "rents") are handled. It also suggests the Extractive Industries Transparency Initiative (EITI) as a successful initiative jointly managed by a broad coalition of governments, companies, industry associations, investors, the World Bank, and non-governmental organizations like Transparency International and Global Witness (p.81).

3.2.3. Comprehensive yet differentiated approach for countries with varying performances with respect to MDGs[79]

Since MDGs were agreed on in 2000, a lot of effort has been made toward their achievement, receiving broad international support. Overall, these efforts have resulted in significant advancement in many countries and are to be highly appreciated. However, these efforts toward MDGs inevitably tended to concentrate on the achievement of indicators and numerical goals itemized in the MDGs, resulting in insufficient resource mobilization for objectives not explicitly included in the MDG framework, such as income disparity, quality of primary education, health systems improvement, climate change and governance. Also, there was a tendency for policymakers' attention to be focused on the overall achievement of the targets, resulting in insufficient attention being paid to disparities among and within countries.

The upcoming post-2015 development agenda should be agreed on in such a way that individual countries are encouraged to pursue their development goals. Such country-wise development goals should be based primarily on the country's achievement of the goals in 2015. In the post-2015 era, countries must be guided by a comprehensive yet simple and easy-to-understand framework of development norms like the current MDGs. They must, at the same time, be allowed to flexibly pursue their development agenda, employing development policies most appropriate for their needs.

Though quite challenging, the international community must seek a developmental framework that has this comprehensiveness and flexibility to allow development policies to be selected to meet differing and complicated needs and to incorporate the country's various developmental conditions.

As the post-2015 development agenda will be so broad including inclusiveness, equity and sustainability of economic growth, quality of education and health services, addressing climate change challenges and environmental sustainability, peace and security for development, transparency and accountability of governance, Human Security is expected to be an overarching principle to lead and promote the post-

79. The discussion in this clause is mainly based on preliminary discussions on the post-2015 agenda in UN System Task Team on the Post-2015 UN Development Agenda (2012) and UNECA et al (2012).

2015 development agenda across the broad needs and areas of the post-2015 agenda, by focusing on empowering people, managing downside risks and addressing vulnerability and resilience in a comprehensive manner.[80]

Concluding Remarks

We have broadly looked at the current situation and future challenges of African development, with the focus on "inclusive and sustained growth." More detailed discussions will follow in the subsequent chapters on agriculture, industry, infrastructure, health, education, the environment, state-building and South-South cooperation.

The needs and challenges of African development are increasingly becoming more diversified and complicated. Despite this, TICAD V must come up with a simple, clear, forward-looking proposal, as well as a powerful message establishing a path for collective and individual actions for African development, and provide policy makers and aid practitioners with guidance so that they can respond appropriately and effectively to such diversified and complicated challenges and needs for African development.

80. In regard to the concept and action agenda of Human Security, please see the final report by Commission on Human Security (2003), co-chaired by Ms. Sadako Ogata and Mr. Amartya Sen.

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Part I:
Rural Development and Food Security

Chapter 2:
Boosting Sustainable Agricultural Growth in Sub-Saharan Africa

Koji Makino

In transformation of the global food security, agriculture in Africa is dynamically and rapidly developing. This chapter tries to review African Agriculture, to identify its challenges, and then shares recent topics of agricultural development such as investments, resilience issue and CAADP. Finally it discusses JICA's support for African agricultural development with an eye toward TICAD V. This chapter provides a general overview for subsequent three chapters as an introduction.

1. Overview of African Agriculture

1.1 Global food security surrounding Africa

In recent years, agricultural and food issues have been attracting much more attention in the international arena. The G20 meeting held in France in June 2011 placed these issues at the top of its agenda, and adopted the Action Plan on Food Price Volatility and Agriculture. Meanwhile at the G8 meeting held in the United States in 2012, agricultural development in sub-Saharan Africa was discussed, it being the region most susceptible to food crisis. These issues have been frequently brought up in the media in the past. But why are they drawing so much of the international community's attention now? It is primarily due to the record-breaking rise in international food prices and concerns over food security (Figure 1).

Figure 1. FAO Food Price Index

Source: FAO (as of July 2012)

Since 1990 when the Food and Agriculture Organization (FAO) began measuring the Food Price Index, it experienced a sharp increase in 2008 followed by a sharp decline after the Lehman shock, and reached its peak (the nominal highest value) in February 2011. Even though there were signs of slight stability in 2012, the effects of serious drought in the United States, the world's largest food exporter, became apparent in July; therefore it is presumed that food prices would increase in the near term.

The steep rise in world food prices can be caused by the following short-term and structural factors:

① Short-term (shock) factors-
- ➢ Crop damage caused by poor weather and natural disasters (drought, flooding, typhoons, etc.)
- ➢ Overheated investment (financialization of agricultural commodities)
- ➢ Increases in energy costs (rising costs of transportation and input goods, such as fertilizer)

② Structural factors
- ➢ "Thin" and volatile international market structures (lower export rates compared to mineral or industrial products, and the concentration of exporting countries and regions)
- ➢ Demand increase in emerging countries (cereal import volume tripling from 1990 in China and India; cereal consumption in both countries accounts for about 40 percent of the total

volume of cereal production in the world)
- ➢ Medium and long-term constraints on the supply side (constraints on the area of arable land and water resources, slowing in agricultural productivity, effects of climate change, etc.)
- ➢ Pressure of demand increase due to expansion in biofuel production.

According to estimates by the United Nations and the FAO, the world population, which is expected to reach 9.1 billion in 2050 (7 billion as of 2012), will require a 70 percent increase in food production by that time. With this situation surrounding global agriculture and food supplies, poor countries that need to import their food are the ones most affected. Sub-Saharan Africa has the largest number of such countries. It is therefore no exaggeration to say that agricultural and food issues discussed in the international arena are significant problems for Africa.

In the midst of rapid globalization, it should be kept in mind that global issues have a direct impact on Africa. High food prices in recent years have caused the attention of African governments, donors, and international organizations to "return" to agriculture and food security. This has led them to attempt to reform agricultural policies and mobilize resources; this has also motivated domestic and foreign farmers and firms to increase their production, beginning with investment incentivization from private sectors. This can be regarded as an opportunity in some respects, and it is quite timely and appropriate for the international community, including Japan, to re-strengthen their efforts to increase food production in sub-Saharan agriculture.

1.2 Overview and challenges in African agriculture

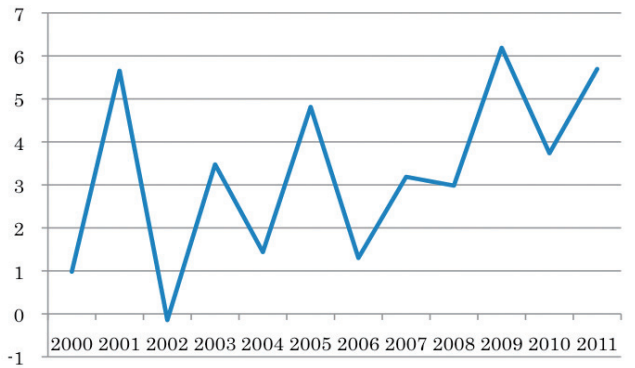
(1) Overview

In Africa, agriculture is the principal source of wealth and of poverty reduction. Agriculture has a strong presence in Africa, accounting for 64 percent of its employment, 34 percent of its GDP, and its growth explains one-third of economic growth (World Bank 2008). Facing the most serious starvation in the world with a 27 percent starvation rate (FAO-WFP 2012), tackling agricultural development for African food production is an immense challenge.

The real GDP growth rate for the agricultural sector remained low with a

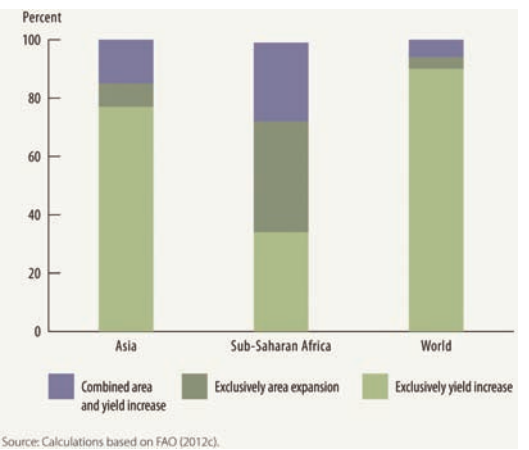
2.2 percent average between 2002 and 2006, but it showed a recovery trend with a 4.4 percent average between 2007 and 2011 (Figure 2). Grain production in Africa tripled from 1961-1963 to 2008-2010 (UNDP 2012) mainly because of an expansion in the harvested areas (Figure 3), while agricultural productivity itself (cereal yield per hectare) stagnated with only slight growth (Figure 4). This contrasts with Asia, which achieved its green revolution and substantially increased its production mainly on the basis of steady improvements in its agricultural productivity.

Figure 2. Agricultural Growth Rate in Sub-Sahara Africa



Source: World Bank World Development Indicator

Figure 3. Increases in Cereal Production in Sub-Saharan Africa Come More from Expanding Harvested Area than from Boosting Yields, 1961–1963 to 2008–2010



Source: UNDP 2012

Figure 4. Cereal Yields Stagnated for Decades in Sub-Saharan Africa

Source: UNDP 2012

Even though Africa supposedly has room for expansion of land devoted to agriculture on average compared to other regions, uncultivated areas that can be easily cultivated are shrinking and arable land is increasingly marginalized due to pressure from population growth. The cultivated land per agricultural worker has steadily decreased by 59 percent from 1960 to 2009 (World Bank Institute). Less favored land was being cultivated and fallow periods were shortened, causing negative impacts on land productivity since soil fertility was not restored over time.

In other words, although Africa increased its production through expansion of cultivated land in the past, the decrease in per-capita cultivated land due to population pressure and stagnant land productivity resulted in a 13 percent reduction in per-capita cereal production between 1961-1963 and 2008-2010. (During the same period, a 44 % increase in Asia and a 48 % increase in South America were experienced. Thus, Africa will need to swiftly improve its agricultural productivity in order to expand its agricultural production in the years ahead.

The rapid increase in food consumption demand was caused by strong population pressure and economic growth, which resulted in an imbalance between domestic supply and demand. This led to higher dependency on imports as the demand was compensated by quickly

boosting the volume of cereal imports for Africa (Figure 5). This would cause even more serious limitations on foreign currency reserves of African countries. Dependence on imported wheat is at 74 percent and imported rice is 41 percent (2010 statistics; OECD-FAO 2011). Food expenses account for 50 to 70 percent of each household's budget, much higher than that of families in other regions. As a result, some vulnerability to external conditions, such as price hikes and poor weather, can be observed both at the national and household budget levels. Figure 2 above shows volatile fluctuations in agricultural growth rates, indicating instability of agricultural production in Africa.

Figure 5. The Trade Deficit in Cereals Has Widened for Sub-Saharan Africa over the Past Four Decades

Source: UNDP 2012

(2) Challenges

Why has Africa failed to achieve sufficient improvement in its agricultural production? Reasons for the failure include various factors such as: delay in development and dissemination of appropriate technologies; input (seeds, fertilizer, machines, etc.) supplies; lack of irrigation systems; lack of efficient value chains or markets; soil degradation; lack of financial access; limited public and private investments; and capacity problems in government administrations. These challenges will be discussed below.

In Africa, insufficient research and development for improving

agricultural productivity and quality persist due to constraints on budgets, organizations, personnel, and so on. Also the connection between research institutes at the central level and regional organizations is weak, resulting in an insufficient application of research results to conditions of different regions, translating them into technologies usable on site. It is also necessary to widely disseminate appropriate new technologies among farmers via agricultural extension workers and through other channels. However, in Africa, there are issues of budget constraints, the limited number and quality of the extension workers, underdeveloped dissemination systems, and a lack of appropriate curriculum and teaching materials.

Since water sources (precipitation) are regionally concentrated with large seasonal and annual variations and are affected by climate changes, irrigation plays a significant role in enabling stable use of water and improving productivity. However, African agriculture depends largely on rainwater, and only 4 % of its cultivated land is provided with irrigation systems. (A significantly lower level when compared to the Middle East and North Africa with 33 % and Asia with approximately 30 to 40 %). As well, the rate of fertilizer usage is low, with 13 kilograms per hectare, compared to other regions which use between 73 and 190 kilograms. The usage rate of improved varieties of cereal in Africa remains at 24 percent, despite a sign of increase, and is still low in comparison with the rate of 45 to 85 percent in other regions (World Bank 2008).

A series of value chain processes needs to function smoothly and dynamically in agriculture- that is: "input → production → processing (post-harvest handling) → transportation and storage → sale and distribution." Promotion of improved seeds and the use of fertilization in regions other than Africa were accompanied by the development of a value chain, including building irrigation systems, rural roads, sales infrastructure, financial services and markets, leading to the improvement of productivity and increases in production.

In Africa, however, this process is being hampered by various obstacles, such as inadequate infrastructure, enormous losses due to insufficient post-harvest technologies, lack of financial access, undeveloped market facilities and functions, and delays in governmental regulatory reforms.

Take infrastructure as an example; the paved road ratio in Africa is only 18 percent (33 to 59 percent in other regions), and the electrification ratio remains at 33 percent (62 to 93 percent in other regions) (UNDP 2012). Two-thirds of the African rural population is living in areas that have low potential for agriculture, or poor market access, or both, while the corresponding number for South Asia is only 25 % (World Bank 2008).

As a result of the structural adjustments in the 1980s, the system of public agencies providing farmers with access to land, credit, insurance, inputs, and cooperative organizations was dismantled (World Bank 2008). It was expected that once excess government intervention was gone, private-sector-led market mechanisms would become more active and effectively function in place of the previous system. In Africa, however, this was not fully accomplished. Governments should play an important role together with private sectors in agriculture. In this context let us recall that Asian governments allocated 20 percent or more of their public expenditure when promoting the green revolution, whereas Africa spent only 5.6 percent (2005-2009 average) (UNDP 2012). Thus, Africa needs to devote more effort to increasing allocation of its public investment towards agriculture.

2. Recent Topics on Agriculture in Africa

2.1. Agricultural investments

It has been observed that foreign agricultural investments in Africa are on the rise, being stimulated by high food prices in recent years. As more data on land investments is becoming available lately, we will present an overview of agricultural investments in recent years as well as issues relating to them.[1]

Throughout developing countries, it is estimated that land investments covering a total of 70.9 million hectares in 1,155 projects have been approved or were in the process of approval by the governments of those countries over the 10 years from 2000 to 2010. Africa accounts for 48 % of the total investments followed by 40 % in Asia and 9 % in Latin America. Much of the investment in Africa (36 %) comes from Asia.

1. The discussions in the following paragraphs rely on data from the Land Matrix Project, the world's largest scale database of international land transactions. The Project is run by a group of organizations, including the Agricultural Research for Development (CIRAD), a French agricultural research center, the University of Bern, and the International Land Coalition (ILC), with support from the European Union and other parties.

Investments in Africa (based on the area size) can be broken down into the following purposes: 55 % for biofuel, 13 % for food crops, and 6 % for forests; thus agriculture-related investment accounts for 74 % of the entire investment in Africa. The large area-wise share of investment for biofuel can be explained by the interest of developed countries in measures against climate change, and by the fact that these investments tend to employ extensive farming resulting in a large area-per-investment. In comparison, investments for food crops, though perhaps more numerous, tend to have smaller area-per-investment figures.

In terms of investment trends over the past 10 years, investments had been on the rise since 2005, peaked in 2009 triggered by the food price hikes in 2008, and rapidly slowed due to the Lehman shock in 2010. It is expected that investment will continue to rise in the future.

Several factors must be behind the growth of agricultural investments. On the investors' side, the reasons include: concern for food security and the need for an alternative area for biofuel production; the appreciation of the value of African land as an investment target after the financial crisis; and the increasing potential of its forest resources, including that of emissions trading. In this kind of environment, African countries have the opportunity to attract more investments and welcome investors in general.

Agricultural investments can have both advantages and disadvantages. Some important ones can include the following:

(1) Possible Advantages
- ➢ As a result of the introduction of new agricultural technologies, productivity and quality improve. Acquisition of foreign currency, and an increase in tax revenues can be expected.
- ➢ Development of value chains, such as improvement in the agricultural infrastructure as well as social services (construction of schools, clinics, etc.) and improved market access can be expected.

(2) Possible Disadvantages
- ➢ Disputes over land and water resources may occur between investors and local residents. There is a possibility that local residents who originally used the land, etc. may lose their rights due to a weak legal system. In particular, women tend to be

affected negatively.

- ➢ The use of mechanized farming has a low job creation effect; moreover the use of imported inputs has only a limited ripple effect on relevant local industries.
- ➢ Profits generated by investments are not equally distributed.

As an international response to these agricultural investments, the Committee on World Food Security (CFS), a standing committee of the FAO, has compiled the Voluntary Guidelines on the Responsible Governance of Tenure of Land, Fisheries and Forests (VGGT), with a focus on securing the rights of small-scale farmers, endorsed in May 2012. Japan has also led the effort to establish guidelines for promoting responsible international agricultural investments ensuring that no forced displacement takes place, and that the process is transparent. A draft of the Principles for Responsible Agricultural Investment (PRAI) has been prepared while more discussions are held for finalizing the draft proposals.

Principles for Responsible Agricultural Investment (PRAI)

Principle 1: Existing rights to land and associated natural resources are recognized and respected.

Principle 2: Investments do not jeopardize food security but rather strengthen it

Principle 3: Processes relating to investment in agriculture are transparent, monitored, and ensure accountability by all stakeholders, within a proper business, legal, and regulatory environment.

Principle 4: All those materially affected are consulted, and agreements resulting from consultations are recorded and enforced.

Principle 5: Investors ensure that projects respect the rule of law, reflect industry best practice, are economically viable, and result in durable shared value.

Principle 6: Investments generate desirable social and distributional impacts and do not increase vulnerability.

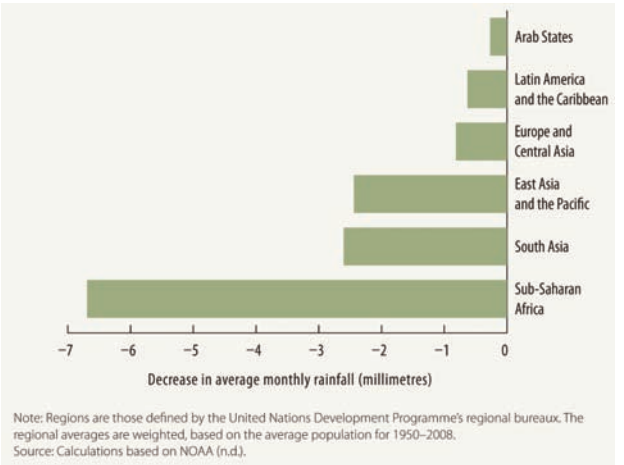
Principle 7: Environmental impacts of projects are quantified and measures are taken to encourage sustainable resource use, while minimizing the risk/magnitude of negative impacts and mitigating them.

The important point is to establish a win-win relationship advantageous to both investing firms/individuals and small farmers through agricultural investments; and it is crucial to incorporate such a mutually benefitting structure into the programs and project designs. Various measures must be taken to assure such development, including that of government regulatory reform, the strengthening of farmer support systems, and continued support from the international community.

2.2. Vulnerability/resilience

From 2010 to 2011, the Horn of Africa region was affected by a serious drought, leaving approximately 10 million people in severe food insecurity. The Sahel region in West Africa still suffers from the impact of drought today. Due to its dependency on rainwater and underdeveloped distribution systems, Africa is traditionally vulnerable to shocks, such as drought and floods. It has periodically suffered a great deal of damage, and the cycle has been more irregular in recent years, while precipitation itself is in decline (Figure 6).

Figure 6. Rainfall Has Declined Most in Sub-Saharan Africa, 1951–1980 to the 2000s



Source: UNDP 2012

The general risks in African agriculture consist of:

① Climate and natural disaster risks
② Biological and environmental risks such as pests and soil degradation
③ Market risks such as high or low food and input prices and seasonal supply and demand variations
④ Logistics and infrastructure risks such as transportation, communication, energy, and sales networks
⑤ Management and technical risks of farmers or firms (cultivation, inputs such as seeds and fertilizer, finance, etc.)
⑥ Policy and system risks in governments
⑦ Political and security risks

To reduce risks or respond to the occurrence of shocks, governments have developed systems with support from donors, and achieved certain positive results. In Ethiopia, for example, an early warning system has been developed. This system, including the Productive Social Safety Net Programme covering 7.8 million people (somewhat less than 10 percent of its population as of September 2011) has been created, and worked well in the serious aforementioned drought in the Horn of Africa.

In addition to such direct and expedient approaches, it is essential over the medium and long terms to build up the society's capability - that is the society's "resilience"- to withstand such shocks and, once they occur, to minimize their damage. Such medium and long term measures may also include increasing production in highly productive areas in order to quickly distribute food to affected areas via a distribution network when shocks occur; securing water at the community level; and the introduction of crops and cultivation methods that are resistant to natural disasters.

Unfortunately, the emergency humanitarian support and medium and long-term approaches tend to be planned and carried out independently of one another by government departments and donors, sometimes with avoidable overlaps. To overcome this tendency, there have been some attempts to coordinate all parties to create efficiency and synergistic effects, such as the Nairobi Declaration from the Summit on the Horn of Africa held in September 2011.

2.3. International frameworks for African agricultural development

Starting with the 2008 G8 Toyako Summit and the 2009 G8 L'Aquila Summit, global leaders expressed alarm at the effects of food price spikes and agreed on taking decisive action for ensuring food security, while recognizing the importance of providing support to Africa, considered to be the most vulnerable region. Various efforts have been made on a global scale since then to promote food security and sustainable agricultural production while taking into account actions primarily for Africa. However, lack of sufficient policy coordination among them still remains a challenge which needs to be strategically addressed. Here are some of the strategies taken by the international community:

(1) The Action Plan on Food Price Volatility and Agriculture from the 2011 G20 Summit in France.

In 2011 several working groups on agricultural and food security were set up within the G20 framework including member countries, international agencies, and governments of developing countries, some from Africa. As a result of their active discussions, a ministerial declaration entitled "The Action Plan on Food Price Volatility and Agriculture," consisting of the following points, was adopted prior to the G8 Summit in Cannes:

① Improve short and long-term agricultural production and

productivity to respond to increasing demands for agricultural commodities
② Improve market information and transparency to respond further to the needs of governments and economic operators
③ Increase confidence in international markets, prevent food market crises more efficiently, and strengthen international policy coordination for responding to the crises
④ Especially in the poorest countries, improve and develop risk management tools to be used by governments, firms, and farmers for establishing the capability to manage and ease risks accompanying food price volatility
⑤ Improve functioning of agricultural commodity derivatives markets

This declaration was a major milestone in the sense that it reviewed all of the existing efforts, and then adjusted them according to their mutual consistency and level of strategy, simultaneously clarifying insufficient points and suggested actions, and identifying monitoring methods and implementing agencies in a comprehensive manner. Many of the specific projects and initiatives supported or suggested in the declaration are currently in progress or under preparation. The importance of rice in Africa and the Coalition for African Rice Development (CARD), supported by Japan (the Japan International Cooperation Agency, JICA), are included in the Action Plan and both are recognized as significant initiatives.

(2) The New Alliance for Food Security and Nutrition from the 2012 G8 held in the United States

In May 2012, the G-8 Action on Food Security and Nutrition was announced at the G8 Camp David Summit held in the United States, and a commitment was made with the announcement of the New Alliance for Food Security and Nutrition in support of Africa. This is a framework aiming to pull 50 million people out of poverty over the next 10 years through promoting private and public investments; advancing technical innovations, risk management, and other tasks; and promoting agricultural development in Africa. Six countries, Tanzania, Ethiopia, Ghana, Mozambique, Cote d'Ivoire, and Burkina Faso were selected as pilot countries.

Since 2011, the Grow Africa Agricultural Investment Forum has been

held (in November 2011 and May 2012) under the leadership of the World Economic Forum (the Davos conference) for the promotion of private investments in agricultural fields as a major pillar of African development. The New Alliance incorporates actions of Grow Africa and is a positive step towards strengthening the promotion of private investments.

It can be said that the New Alliance reinforces the weaker part of actions taken by the Comprehensive Africa Agricultural Development Programme (CAADP), to promote private investment. Cooperation frameworks (agreements) to be created for execution at the level of each country will include government commitments for improving investment environments, prospects for donor funding for relevant fields, and detailed statements of intent from the private sector for investments. As such, it is drawing attention as the first attempt for governments, donors, and the private sector to share cooperative frameworks.

(3) CAADP

The Comprehensive Africa Agricultural Development Programme (CAADP) is an African initiative and framework aimed at revitalizing African agriculture. It is specified as a program to achieve growth in food security, nutrition, and rural income, in the Maputo Declaration adopted at the Assembly of the African Union (AU) held in Maputo in July 2003. The Maputo Declaration consists of goals for African countries to: achieve economic growth, end hunger, reduce poverty, and work on agricultural reforms pertinent to policy and capability issues in African agriculture, targeting an annual average growth rate of 6 % in agricultural fields by 2015. It also includes a decision to allocate 10 % of the national budget in each country to agricultural programs.

Specifically, the goals are to be accomplished by achieving the following four pillars:

① Improve land and water management (expanding the area of farmland under a sustainable land and water resource management system)
② Improve market access (expansion of market access through development of rural infrastructure and improvement in trade and transaction related measures)
③ Fight hunger through expansion of food production (increase

food supplies and reduce hunger by improving productivity of small-scale farmers and improve responses to food crises)

④ Promote agricultural research and dissemination (improve agricultural research systems for disseminating appropriate new technologies and strengthen support enabling farmers to employ the technologies)

The main process entails: holding a roundtable meeting in each country first; signing a strategic agreement called a compact between the government and donors for comprehensive agricultural development; and then creating an investment plan laying out detailed actions and costs. (As of November 2012, 40 countries have been involved in the CAADP process, and 30 of them have signed compacts while 27 of them have developed investment plans.)

In Africa, there have been some attempts at creating agricultural sector programs to be managed within the framework of the Sector Wide Approaches (SWAPS), accomplishing certain positive results. However, some of these did not necessarily match with the actions taken under a government's own budget and had weak ties with investments in related fields such as rural infrastructure development. In view of these experiences, CAADP can be regarded as a comprehensive strategic framework for organizing and integrating existing policies, programs, and cooperation frameworks in each country. Nonetheless, compacts and investment plans that have been already shared tend to look more like shopping lists itemizing necessary policies and actions, without due consideration for such factors as investment environment. To make them truly useful for strategic planning, more work is deemed necessary in order to narrow down the measures, assign priorities, improve the accuracy of cost accumulation, sort out timeframes and steps, and strengthen the collaboration with private investors.

3. Direction of Support in TICAD V

Having looked at the global circumstances surrounding Africa as well as some recent topics in African agriculture, we turn now to a discussion of JICA's support for African agricultural development with an eye towards TICAD V.

3.1 Direction of JICA's support (overview)

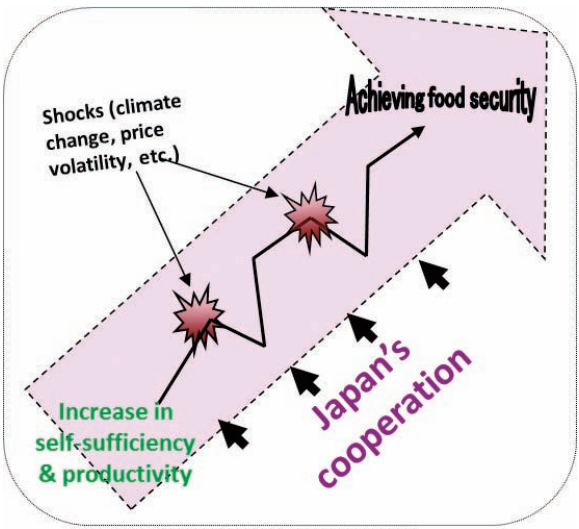
The share of agricultural support in the total amount of official

development assistance by all donors in Africa kept shrinking until 2004 when it was reversed; then the average share was 6 %. Meanwhile, Japan was consistent in its support for African agriculture, devoting an average 11 % of its budget for agriculture during the same period.

As we saw earlier, agriculture still has a strong presence in Africa, where 64 percent of households depend on it and it accounts for 34 percent of Africa's GDP. Agriculturral growth has a high poverty reduction effect by its effects (more than twice as much as that of other sectors (World Bank 2008)) and the continent has a comparative advantage in it. Overall, it can be thought of as an excellent source of increasing wealth and of poverty reduction.

Now that the possibility of production increase by land expansion has become limited, every possible attempt must be made to improve agricultural productivity. As before, JICA will place the improvement of agricultural productivity and support for production expansion at the center of its support program at TICAD V and beyond. Also emphasized in JICA's support is the development of value chains, covering both upstream (such as inputs production) and downstream (such as post-harvest and distribution) activities, for achieving improved productivity and expanded production. JICA will provide support while strengthening its partnerships with private firms as agents. It is also important that small farmers themselves make efforts in marketing and building highly profitable farming systems. Agricultural investments in Africa are on the rise in recent years, and by leveraging this trend, a win-win relationship between firms and small farmers should be developed so that it leads to their production expansion and income improvement.

Figure 7. The direction of JICA's support to agriculture

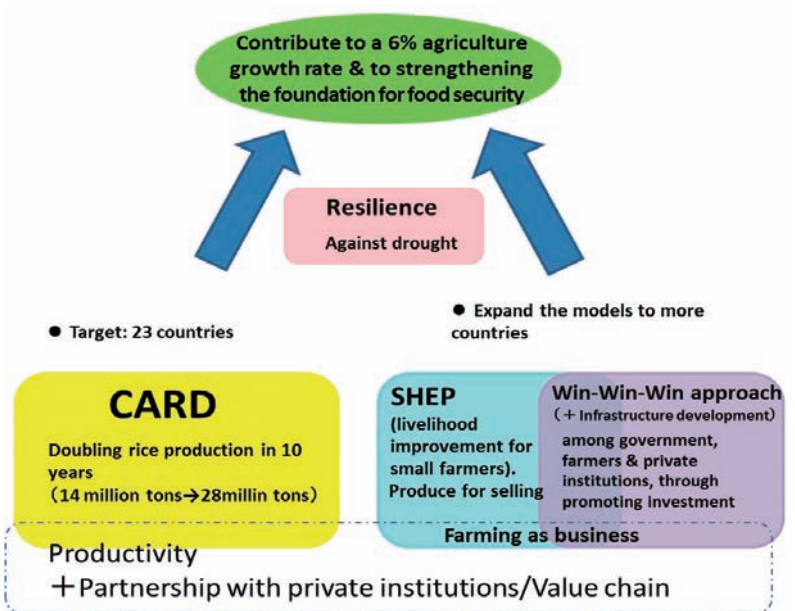


Meanwhile, to deal with negative risks, since African agriculture does depend on rainwater and is vulnerable to shocks including climate change and drought, as well as price fluctuations, it is essential to provide support for strengthening the resilience of African agriculture. In promoting such measures, JICA will take into consideration the mutually reinforcing relationship between productivity improvement and reduction of vulnerability; increased productivity is expected to lead to better resilience, and vice versa. With all of these measures, JICA is determined to contribute to the achievement of the annual agricultural growth rate of 6 % and to help to establish the continent's food security, as agreed to in the Maputo Declaration by the AU in 2003. These are the broader points of discussion regarding the direction of support for Africa, at the core of which is assistance for small farmers.

There are several core approaches towards putting these policies in practice. The first is the support for the expansion of rice production; taking advantage of Japan's strength in rice production, JICA will continue to support CARD (the Coalition for African Rice Development) in terms of commodity-based productivity improvement and production expansion. The CARD initiative aims at doubling rice production by 2018. The second is the promotion of the inclusive

development approach among the government, farmers and private partners by means of the promotion of Responsible Investment for agricultural development. This approach aims to facilitate synergistic effects among the partners, with an aim towards attracting investments from the private sector and improving the production and livelihoods of small farmers. The third approach is named "the Smallholder Horticulture Empowerment Project (SHEP) approach," aimed at achieving a better livelihood for small-farmers through improving their market access. Fourthly, to strengthen the resilience of African agriculture, JICA will attempt to develop irrigation and food reserve systems, and to strengthen the community capacity development from the bottom-up, while exploring the possibility of introducing various innovative schemes such as weather index insurance. It also aspires to making intellectual contributions leading to innovative solutions through, for example, sharing of experiences in Asia in food reserve systems. Figure 8 summarizes these approaches and activities.

Figure 8. Japan's Focus for Agriculture / Food Security under TICAD V



Over the years, JICA has continuously provided support for improving the productivity of small farmers with numerous successful

achievements, and a substantial body of knowledge and know-how has now been accumulated. This emphasis on productivity improvement, JICA's consistently-held principle, seems to be being re-evaluated in the development community; those donors who used to prioritize the development of value chains by leveraging market mechanisms over the support for production, seem to be increasing their support for production and productivity improvement, especially after the food price spike of 2008. Arguably, JICA's approaches and past achievements are gaining renewed recognition.

In the sections that follow, we will have a closer look at the four approaches outlined above.

3.2 Coalition for African rice development (CARD) (doubling rice production)

Rice consumption has rapidly increased in Africa, and its import has risen accordingly, bringing more pressure for foreign currency constraints. (The share of rice in the total amount of cereal imports in 2010 was about 40 percent (OECD-FAO 2011).) Rice is one of the few cereals among major cereals in Africa that have a high potential for expansion of its production in the region. In TICAD IV held in 2008, JICA and the Alliance for a Green Revolution in Africa (AGRA) jointly announced the launch of the Coalition for African Rice Development (CARD), with a goal of doubling rice production in Africa in the 10 years ending in 2018. This is an international platform for promoting rice development, comprising international organizations and donors such as the World Bank and the International Fund for Agricultural Development (IFAD); research institutes such as the International Rice Research Institute (IRRI), the Africa Rice Center (AfricaRice), the Japan International Research Center for Agricultural Sciences (JIRCAS); non-governmental organizations, and South-South cooperation countries (such as Vietnam).[2] CARD countries consist of a total of 23 African countries that are divided into a first group of 12 countries with relatively high importance of rice in the country/region, and a second group of 11 countries catching up with the first.

Within the CARD framework, each country has set up a task force for rice cultivation development and drawn up its National Rice

2. For the discussion of the CARD initiative as an example of South-South cooperation, see Chapter 13.

Development Strategies (NRDS), with relevant agencies providing support on the basis of the NRDS. JICA has mainly provided support for productivity improvement, including dissemination and expansion of appropriate cultivation technologies and seeds (such as the New Rice for Africa (NERICA)) among farmers and dissemination staff; JICA is carrying out about 60 projects as of August 2012 (including training in Japan). Rice production is steadily making progress from a baseline of 14 million tons prior to CARD to 18.41 million tons as of 2010.

JICA plans to steadily cooperate with the first group of participating countries as well as to increase support for the second group, expanding comprehensive support covering the development of value chains, and strengthening cooperation with private firms and other partners (the Unites States, South Korea, the Bill and Melinda Gates Foundation, and BRAC).

3.3 Inclusive development approach among Governments, farmers and private partners through the promotion of responsible investment for agricultural development

The Mozambique agricultural development program of triangular cooperation between Japan, Brazil and Mozambique (ProSAVANA) offers an agricultural development program with an aim of achieving a better livelihood for small farmers and the promotion of agricultural investments by the private sector, and to create their synergistic effects. Along with specific policy suggestions made at a national level in the draft of the Principles for Responsible Agricultural Investment (PRAI) led by Japan, attempts towards realizing synergistic effects of agricultural development and distribution infrastructure development hold unique additional values in Africa.

For increasing the agricultural productivity of small farmers and their earnings, not only the refining of their technologies but also the improving and reforming of value chains both upstream (inputs such as seeds and fertilizer) and downstream (post-harvest handling, distribution, etc.) are essential. Private firms play a great role as main players in this effort, and their investments must be increased. JICA will attempt to expand its approach for similar development in countries with potentials for future agricultural investments.

3.4 Smallholder horticulture empowerment project (SHEP) approach: reform in small farmer's approach from "selling after harvesting" to "harvesting to sell"

Currently, the second phase of SHEP (SHEP UP) is in progress in Kenya with the goal of carrying it out nationwide. It has achieved doubled earnings for farmers by inducing a change in their management model - a change from one based on the mindset of "selling crops after harvesting" to the one based on "harvesting to sell," and has been well-received by the Kenyan government and other donors. This is a market-oriented type approach that encourages small-scale farmers to perform their own market research to select crops to be sold and learn market-competitive cultivation technologies, instead of harvesting crops first and then looking for a place to sell. As a result of promoting women's active involvement in farming with this approach, men and women have worked together to achieve more efficient farming. This case was presented in the meeting of the DAC Network on Gender Equality in 2011, receiving high praise from its participants.

Using this success as a foothold, JICA will seek to further generalize and consolidate the approach to be expanded as a regional program with SHEP in Kenya as a base, supplemented by training in Japan.

3.5 Toward strengthening resilience

In recent years, African agriculture has been exposed to increasing risks, such as climate change and food price hikes, and the resilience of countries and communities, i.e., their response capabilities against these risks must be strengthened. Since the severe drought in the Horn of Africa in 2011, JICA has been administering regional programs, which attempt to resolve the gap between humanitarian support and medium-term development to assure human security of the people. The idea of the programs is to help people to be "independent players in the economy" rather than "subjects of social protection." Specifically, programs are offered to pastoralists and others for strengthening their resilience (response capability) against drought in their communities in Kenya, Ethiopia, and Djibouti. A similar project is underway in West Africa.

JICA hopes to implement similar projects and, at the same time, provide support in building irrigation facilities and develop capacity for operating and maintaining them for the effective management and use

of water. It also hopes to provide more support in establishing networks of small-scale food reserves with high mobility. Furthermore, it may be possible for JICA to contribute to food reserve system development (at the regional level), such as the Economic Community of West African States (ECOWAS) on the basis of experiences in the ASEAN Plus Three Emergency Rice Reserve (APTERR). JICA intends to consider support for innovative systems such as weather index insurances. As stated, JICA will take into consideration the mutually reinforcing relationship between productivity improvement and the reduction of vulnerability. Increased productivity is expected to lead to better resilience, and vice versa.

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Chapter 3:
How Promising Is the Rice Green Revolution in Sub-Saharan Africa?
- Evidence from case studies in Mozambique, Tanzania, Uganda, and Ghana[1]

Keijiro Otsuka

1. Introduction

While the population continues to grow rapidly, the pace of area expansion has slowed down considerably in sub-Saharan Africa (SSA) due to the gradual exhaustion of uncultivated areas. On average, cultivated land per farming population has declined by about 40% since the 1960s and value added per worker now averages around 12% below 1980 levels. Investments in the development of new technologies have declined in recent years even though their adoption rates are low compared to other regions. In order to reduce widespread and persistent rural poverty in SSA, it is imperative to increase food production by increasing the productivity per unit of land.

We believe that what is urgently needed in SSA is a Green Revolution, which has successfully increased rice and wheat yields in tropical Asia over the last several decades. In Asia, small farmers actively adopted new improved technologies (David and Otsuka 1994), and there is no reason to assume that small farmers in SSA will not adopt new profitable technologies (Otsuka 2006; Otsuka and Kijima 2010). Yet the appropriate strategies to realize a Green Revolution in SSA are still unclear. Recent studies edited by Otsuka and Larson (2013), which compare the experience of the Asian Green Revolution with current grain farming in SSA, suggest that lowland rice is the most promising grain. This is

1. This is a result of a research project being conducted at JICA Research Institute to empirically analyze how best the CARD initiative (See Chapter 2, Section 3) can serve to increase rice productivity and reduce poverty. I am heavily indebted to its members, namely Yoko Kijima, Kei Kajisa, Yuko Nakano, and Takeshi Sakurai. I would also like to thank JICA Research Institute for the intellectual and financial support it provided for this project.

essentially because high-yielding rice technology can be directly transferable from tropical Asia to SSA (Estudillo and Otsuka 2012; Nakano et al. 2012).

This is illustrated by Figure 1, which compares changes in grain yields over time in India and SSA and their differences between the two regions. India is chosen for comparison because among Asian countries India is agro-climatically similar to SSA and, hence, cropping patterns are not so different (Tsusaka and Otsuka 2013a, 2013b).[2] Several important observations can be made. Firstly, grain yields were generally similar between India and SSA in the early 1960s before the Green Revolution began, which indicates that the difference in agro-climatic conditions alone cannot explain the large yield difference between the two regions at present. Secondly, the yields of sorghum and millet did not increase much even in India and the yield gap between the two regions is nil, which suggests that the potential of a Green Revolution in these crops is limited in SSA. Thirdly, the current yield gap is substantial in the case of wheat and rice, even though their yields increased appreciably in SSA. Since wheat can be produced primarily in a temperate zone, its potential production area is more limited than rice in SSA due to the dominance of a tropical climate. Thus, rice is likely to be critically important for the expansion of grain production in SSA. Furthermore, rice consumption has been increasing dramatically in this region in the past few decades. Lastly, the yield gap is only modest in maize, even though maize is the most important crop in SSA in both production and consumption. It is likely that the productivity gain in the maize sector in SSA from a technology transfer from Asia will not be large.

Although rice looks a promising crop from the aggregate data, micro-level evidence is needed to substantiate the argument that rice is the most promising crop in SSA. The first purpose of this study is to analyze the potential of a rice Green Revolution in SSA based on recently completed cases studies of rice-growing households in Mozambique,

2. For example, sorghum and millet are grown in many countries in SSA but primarily in India in Asia. Analytically, however, a comparison between tropical Asia as a whole and SSA does not lead to major changes in our discussion (Estudillo and Otsuka 2012).

Tanzania, Uganda, and Ghana.[3] The second purpose is to draw up the implications of an effective strategy for a rice Green Revolution in SSA. We believe that, if successful, a rice Green Revolution can be a role model for Green Revolutions in other grains, particularly in maize production.

2. Is Asian Rice Technology Transferable to SSA?

Asian rice technology. Although the rice yield is still low in SSA, we should not overlook the fact that it has increased from 1.25 tons per hectare in the early 1960s to 1.8 tons per hectare in the late 2000s. In tropical Asia where lowland rice production dominates, the rice yield before the Green Revolution was 1.5 tons per hectare (see Figure 1).[4] Also, note that half of the rice area in SSA is upland, where the yield is substantially lower than in lowland paddy fields (Balasubramanian et al. 2007). Thus, it seems reasonable to assume that if new technology is not introduced and production is carried out under rain-fed conditions, the lowland paddy yield will range from 1.0 to 1.5 tons per hectare. We also hypothesize that the average rice yield has increased in SSA primarily due to the introduction of Asian-type improved rice technology.[5]

We focus on lowland rice, not upland rice, primarily because the prospect for a large improvement of the yield is much greater for lowland rice than upland rice. We also did not encounter upland rice, such as NERICA (new rice for Africa), in our study sites except in Uganda. Kijima et al. (2006, 2008, 2011) found that NERICA is potentially high-yielding but sensitive to rainfall and that the rate of discontinuation of NERICA adoption is also high, indicating that NERICA was grown in unsuitable areas or that sustainable management was not well understood by farmers. Also, the NERICA yield is exceptionally high in Uganda compared with other countries in SSA (Otsuka and Larson 2013). The tentative conclusion of this study is that upland rice is not particularly promising, even though there were great expectations for

3. Senegal is also included in this project but the data collection has been delayed, so its analytical results will be reported later. Note, however, that according to our preliminary survey, the average irrigated rice yield in the Senegal River basin exceeds 5 tons per hectare, which is comparable to the irrigated yields in Asia.

4. Nearly half of the paddy fields were irrigated in Asia but the difference in yield between rain-fed and irrigated areas was not large before the advent of MVs.

5. This is consistent with the results of a review of rice farming in SSA by Balasubramanian et al. (2007).

the impact of NERICA on the upland rice yield.

The Green Revolution in Asia is alternatively called the seed-fertilizer revolution because the engine of growth was the development and diffusion of fertilizer-responsive, high-yielding modern varieties (MVs) of lowland rice (David and Otsuka 1994). It is also important to realize that paddy fields were bunded and leveled almost without exception in Asia when the rice Green Revolution began.[6] Bunding is needed to store water in the paddy fields to reduce weed growth, whereas leveling is necessary for even growth of rice plants and germination of directly broadcasted seeds. In other words, these production practices are essential for water and weed control and healthy growth of lowland rice plants. Draft animals or tractors are usually used for bunding and leveling, but they are often not used in SSA, as will be shown shortly. No less important than these production practices is straight-row transplanting, which provides space for weeding. Instead of transplanting, direct seeding can be adopted without sacrificing yield if paddy fields are bunded and leveled well and if herbicide is used. Herbicide, however, may not be available or may be too expensive, even if available in SSA. In the African setting, direct seeding is not generally recommended and transplanting is the generally preferred option. A major contribution of this study is to establish that these improved production practices are highly complementary to improved seed-fertilizer technology.

The case of Mozambique. Table 1 compares yields and production practices across rain-fed and irrigated areas in Mozambique (Kajisa and Payongayong 2011a, 2011b). Thirty-three villages in 9 districts in Zambezia and Sofara provinces in the Central region are chosen as representative rain-fed areas in this country, whereas the Chokwe irrigation scheme in the southern region is chosen as the irrigated study site. As in other countries in SSA, the irrigated area accounts for a small proportion of paddy area in this country. Furthermore, MVs are seldom adopted, chemical fertilizer is not used, and animal and tractor use is nil in rain-fed areas. Under such conditions, the rice yield is very low and unstable with the average being a mere 1.1 tons per hectare, which is consistent with our expectations. The yield per hectare is not very high

6. There is no clear evidence on the prevalence of bunding and leveling in paddy fields in Asia in the 1960s and 1970s. My argument is based on interviews with rice scientists who worked in Asia in the 1970s.

in the Chokwe irrigation scheme either, mainly because the irrigation facilities are not well maintained. In fact, the top 20% of farmers, who receive adequate water, adopt MVs, and apply fertilizer, achieve a rate as high as 3.9 tons per hectare. Note that popular MVs are old MVs developed in Nigeria (ITA312) in the late 1970s by crossing Asian MVs and African local varieties.[7] This clearly shows that there has been no attempt to transfer new Asian-type varieties to Mozambique. The yield could be higher if more modern improved MVs had been disseminated in Chokwe.

The case of Tanzania. The case of Tanzania is more revealing (Table 2). The three major rice growing districts with distinctly different production environments were chosen for this study. First, the average yield in rain-fed areas ranges from 1.6 tons per hectare in the Shinyanga region to 2.0 tons per hectare in the Morogoro region, which is much higher than in rain-fed areas in Mozambique. This relatively high yield in rain-fed areas in Tanzania can be attributed, at least partly, to some adoption of MVs, some chemical fertilizer application, and the adoption of some improved production practices. Second, the yields are considerably higher in irrigated areas. The adoption rate of MVs is very high in the Morogoro region, whereas chemical fertilizer use is high in the Morogoro and Mbeya regions. Note that there is no tradition of rice production in Tanzania, so even "traditional varieties" are imported improved varieties from abroad. This would explain why the yield is as high as 4.6 tons per hectare under irrigated conditions in the Shinyanga region, even though the adoption rate of MVs is very low. Third, the adoption rates of bunding and leveling are close to 100% in irrigated areas, which seems to help explain the considerably high yields in irrigated areas in Tanzania. Thus, it is clear that a combination of improved seeds, improved production practices, and irrigation leads to significantly high yields, resulting in a "mini" Green Revolution in this country.

The case of Uganda. The importance of improved production practices can also be clearly seen from the case study of basically rain-fed areas in the Eastern Region in Uganda (see Table 3), as reported by Kijima, Ito, and Otsuka (2011, 2012). Note that Bugiri and Mayuge were sites of a participatory rice training program offered by JICA, whereas no such

7. To our surprise, C4, which was developed in the early 1960s by the University of the Philippines, Los Banos, was adopted in 22% of the paddy fields in Chokwe.

training was offered in Bukedea and Pallisa. Also note that the demonstration of a simple irrigation scheme was implemented only in Bugiri. Roughly speaking, the difference between Bugiri and Mayuge is due primarily to the presence of irrigation in the former, whereas a major part of the difference between Burigi-cum-Mayuge and Bekedea-cum-Palissa is due mainly to the implementation of a rice training program in the former areas, even though some yield differences can be attributed to differences in agro-climate. In Bugiri, where Asian-type MVs are adopted in more than 40% of paddy fields, the yield and the number of improved production practices adopted are positively correlated, indicating that MVs and improved production practices are complementary. Considering that chemical fertilizer is not applied in Uganda, the yield of more than 4 tons per hectare is impressively high, indicating the high potential of rice yields in this country due to relatively high precipitation and fertile soil. It is likely, however, that such high yield is unsustainable, unless fertilizer is applied to maintain soil fertility.[8] The yield in Mayuge is reasonably high if all four improved production practices are adopted. In contrast, the yields are much lower and variable regardless of the adoption of improved practices in Bekedea and Palissa. Even if improved production practices are adopted, whether they are adopted properly can be questioned, as these areas were not covered by the training program. The average yield in these two sites is 1.8 tons per hectare, which is not low compared with other rain-fed areas in SSA. A critically important finding of the Uganda case study is that the rice training program encouraged the adoption of improved production practices and improved the profitability of rice farming (Kijima, Ito, and Otsuka 2012).

It must be pointed out that the rain-fed area in Uganda is located at the bottom of a valley. Although it is rain-fed, its production environment is favorable for lowland rice production, because the soil is fertile and moist. In my observations, such production environments are abundant in SSA, and most have been unused until recently. Probably for rice production such rain-fed area is more favorable than rain-fed areas in Asia, most of which are located in flat areas. The Northern Region in Ghana is another example of a rain-fed area at the bottom of a valley with mild slopes, which has huge potential to increase rice production.

8. In the Doho irrigation scheme located in the Easter Region, the rice yield is about 3 tons per hectare, even though double cropping of rice has been practiced for a few decades without chemical fertilizer (Nakano and Otsuka 2011).

The case of Ghana. The case study in Northern Ghana is unique in that it compares the rice farming performance between villages where the Lowland Rice Development Project (LRDP) was implemented and villages where no such project was implemented (deGraft-Johnson et al. 2012). Twenty project villages and 40 non-project villages were selected randomly for this study and in each village 20 rice-farming households were surveyed.[9] Out of 40 non-project villages, 20 are located within a 20-kilometer radius of any of the project villages and the other 20 are located beyond the 20-kilometer radius. The former are called "nearby villages" and the latter "remote villages." The LRDP, which was implemented from 1998 to 2003, was designed to promote the dissemination of MVs, chemical fertilizer use, bunding, leveling, and dibbling.[10] Aside from the practice of dibbling, the four technologies are essential components of Asian Green Revolution technology. Thus, in a sense, the purpose of LRDP was to transfer Asian Green Revolution technology to SSA. Transplanting was not recommended because this area suffers from floods and seedlings cannot survive under submerged conditions.

According to Figure 2, improved technologies were seldom adopted before the implementation of the LRDP. During the LRDP implementation period they were adopted primarily in the project villages, whereas they were diffused to nearby villages after the LRDP period, suggesting technology spillovers from the project to other villages. The adoption rates of new technologies are generally low in remote villages.[11] It is clear that the adoption rates of both MVs and chemical fertilizer are equally high, which indicates the strong complementarity between fertilizer-responsive MVs and fertilizer. Leveling is adopted by about half of the sample farmers at present, whereas bunding and dibbling are not widely adopted. Another important observation is that the rate of dis-adoption, i.e., adoption in the past but discontinuation later, is high for dibbling. According to our respondents, dibbling is highly labor-intensive, and this is the major reason for dis-adoption. Thus, we suspect that dibbling may not be appropriate technology in this region.

9. Reliable data were obtained from 545 households.

10. Dibbling is a crop establishment method in which seeds are planted in holes created by sticks. Dibbling is not needed, if paddy fields are well bunded and leveled so that broadcasted seeds are germinated well.

11. Socio-economic conditions are very similar between the project and nearby villages, whereas the remote villages are far from the capital city and endowed with large land areas.

Table 4 summarizes the technology adoption, paddy yield, labor use, and the factor share of labor. It is clear that the rice yield is lowest among non-adopters of new technology, which is 1.5 tons per hectare and falls in the expected range under rain-fed conditions without new technologies. The yield becomes higher as larger amounts of new technologies are adopted. It is interesting to observe that an average yield of 2.6 tons per hectare among full-package technology adopters is almost identical to the average lowland rice yield under rain-fed conditions in Asia in the late 1980s reported by David and Otsuka (1994). This indicates that the yield potential under rain-fed condition in SSA is not inferior to that in tropical Asia. While it is true that labor use per hectare becomes larger with increases in the adoption of new technologies, the factor share of labor tends to decline, which indicates that new technologies are not labor-using.

In sum, our case studies demonstrate large potentials to increase rice yields in SSA by disseminating Asian Green Revolution technology. Although we did not discuss in detail in this article, our case studies indicate that new technologies are not only productive but also profitable. In short, Asian rice Green Revolution technology is directly transferable to SSA.

3. Key Questions

Before recommending further dissemination of new technologies, we must ask a few key questions. The first question is whether the benefit of new technologies accrues to small farmers. If these new technologies are adopted primarily by large farmers, their contribution to poverty reduction is limited, because it is small farmers who suffer from poverty (Yamano, Otsuka, and Place 2011). The second question is what the major constraints are on the adoption of new technologies. In order to disseminate new technologies to wide areas, we have to remove such constraints.

Commonly our case studies do not find any significantly positive effect of farm size on technology adoption. In the case of Ghana, it has a negative and significant effect on the adoption of dibbling, which is highly labor-intensive. In both irrigated and rain-fed areas in Mozambique (Kajisa and Payongayong 2011a, 2011b) and Uganda

(Kijima, Ito, and Otsuka 2011), the effects of farm size on paddy yields are found to be negative, implying that the yield per hectare is higher on smaller farms. These findings are consistent with the negative correlation between farm size and yield widely observed in SSA recently (Larson et al. 2012), which can be explained by the higher intensity of family labor on smaller farms.[12] While the effect of farm size on rice income per hectare is negative and significant in Tanzania (Nakano and Kajisa 2012), no effect on profit is found in Uganda and Ghana (Kijima, Ito, and Otsuka 2012; deGraft-Johnson et al. 2012). Thus, there is no evidence that new rice technologies particularly favor large farms. On the contrary, they seem to be conducive to equitable distribution of income in rural communities in SSA by offering expanded work opportunities for family labor, which is a major resource of poor small farmers. This is consistent with the observations in Asia that the impacts of the rice Green Revolution technology are neutral with respect to farm size (David and Otsuka 1994).

While irrigation is found to be an important determinant of rice yield, there is no evidence that it is necessary for the adoption of new technology. Considering that rain-fed areas dominate in SSA, a critically significant finding of this study is that the improved rice technologies have significant impacts on the rice yields under rain-fed conditions. Judging from the results of studies in the rain-fed areas of Uganda and Ghana (Tables 3 and 4), it seems possible to increase rice yield by 50 to 100% by adopting the improved technologies. In order to increase the rice yield much further, irrigation is needed. Whether irrigation investment pays is an important issue to be examined carefully.

The finding that training activities with demonstration plots are effective in the dissemination of the new rice technologies in Uganda and Ghana suggests that a major constraint on the wider adoption of the new technologies is the farmers' lack of knowledge on new technologies. According to the case study in Ghana (deGraft-Johnson et al. 2012), the spillover effects of new technology adoption in the project villages on the adoption in non-project villages are significant in the case of bunding and leveling but not in the case of MVs and fertilizer applications. The authors argue that this is due to the fact that while the bunding and

12. Monitoring of hired labor in a spatially wide environment in agriculture is costly, so that the endowment of family labor relative to farm size is the critical determinant of crop yield (Hayami and Otsuka 1993).

leveling are visible and imitable, the know-how on appropriate cultivation of MVs with fertilizer cannot be easily copied. If this is true, it may be a good idea to set up a relatively small number of demonstration plots compared with the number of locations where training programs are offered.

Kijima et al. (2011) find that the dis-adoption rate of NERICA is very high (i.e., in the vicinity of 50%). This is either because NERICA was disseminated to unsuitable areas for production or because sustainable management was not well understood by farmers. Indeed, there is the indication that yields of NERICA decline over time due to the deterioration of self-produced seeds or soil quality. In either case, the major problem is that appropriate production knowledge of NERICA was not disseminated to rice farmers.

It is clear that the absence of an effective extension system is a major constraint on the rice Green Revolution in SSA. In Ghana, even though the LRDP was an effective program, similar programs have not been implemented for nearly 10 years. In Uganda, the geographical coverage of the training program is very small. It is worse in Mozambique where no extension program for rice farming has been carried out. Actually, there are a very small number of agricultural extension workers in SSA. Furthermore, only a few of them are knowledgeable about rice farming. Unless we invest in the capacity building of extension workers, the target of CARD (Coalition for African Rice Development), that is the doubling of rice production in ten years from 2008, may not be achieved.

Another possible constraint on technology adoption is the lack of credit. Kajisa and Payongayong (2011) argue that the lack of credit access leads to the insufficient application of chemical fertilizer as well as hired labor use in the Chokwe irrigation scheme in Mozambique. Similarly, Nakano and Kajisa (2011) report that the access to formal credit is an important determinant of fertilizer use, but not MV adoption in Tanzania. MV seeds can be self-produced and, hence, credit access is unlikely to be important in MV adoption. While improving access to credit is likely to be important to increase fertilizer application, it is also remarkable to realize that considerably high rice yields are achieved without functioning credit markets in our four study sites. Therefore, it seems fair to conclude that improved credit access is desirable but not essential for the improvement of rice yields in SSA. Furthermore, according to our

ongoing research in the Mwea irrigation scheme in Kenya, which is a large irrigation scheme consisting of 12,000 hectares with well-maintained facilities, rice yields are as high as 5 to 7 tons per hectare and credits are supplied not only by agricultural cooperatives but also by rice traders, as in many rice growing areas in Asia. It may well be that large demand for fertilizer induces the development of informal credit markets, where standing crops serve as the role of credit.

4. Concluding Remarks

The four case studies we have reviewed in this article clearly demonstrate that in order to realize the rice Green Revolution in SSA, high-yielding MV seeds, application of fertilizer, and the adoption of bunding and leveling are essential. We found that very high yields are realized in some irrigated areas in Tanzania and Uganda and reasonably high yields are achieved in some rain-fed areas in Tanzania, Uganda, and Ghana. Commonly in these areas, Asian type-MVs as well as bunding and leveling practices are adopted. These findings indicate that Asian rice technology can be *directly* transferable to SSA.[13] On the other hand, there are many areas in SSA where unimproved varieties are adopted, chemical fertilizer is not used, and paddy fields are not bunded and leveled. In such areas, the rice yield is low and ranges from 1.0 to 1.5 tons per hectare, which is close to rice yields in Asia before the Green Revolution. These observations strongly indicate that a strategic priority on the capacity building of extension specialists on rice and strengthening extension activities for rice production will be warranted, in order to realize a rice Green Revolution in SSA.

So far, however, inadequate resources have been allocated to the capacity building and extension. Unless more resources are allocated to these activities, the efforts to realize a rice Green Revolution in SSA are bound to fail.

Since MVs are fertilizer-responsive, once they are adopted, demand for fertilizer will increase, which, in turn, will increase the demand for credit. Similarly, since MVs are more productive under irrigated conditions, adoption of MVs will increase the demand for irrigation

13. Asian varieties, however, are susceptible to yellow mottle virus, which is unique to SSA. Thus, MVs tolerant to this virus must be developed urgently (Balasubramanian et al. 2007).

water. Thus, the benefit and cost of credit programs and irrigation projects must be carefully reassessed, while considering the large expected gains in productivity and profitability of rice farming in SSA.

We have been conducting research on lowland rice production partly because it is the most promising crop and partly because the success of the developing rice sector in SSA can provide a model for a successful Green Revolution in SSA. According to Otsuka and Larson (2013), profitable and productive maize technology is yet to be established. Indeed, although maize is the single most important crop in SSA, we seldom observed impressively high maize yields anywhere in SSA. It seems to us that the prerequisite for a maize Green Revolution is the development of truly profitable and productive maize seeds and farming practices for this crop. Once such technology is developed, it will trigger the change towards the maize Green Revolution in SSA. It is our hope that successful development of the rice sector can be a role model of the Green Revolution in other crops in this region.

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Table 1. Paddy yields and production practices in Mozambique

	Chokwe irrigation scheme	Rain-fed areas in central region		
		Bottom 1/3	Middle 1/3	Top 1/3
Yield per ha (tons)	2.1	0.3	0.8	2.2
Use of MVs (%)	92	0.0	0.0	3.0
Fertilizer use (%)	52	0.0	0.0	0.0
Plots with bund (%)	100	52	41	43
Animal use (%)	48	0	2	5
Tractor use (%)	55	2	5	2
No. of sample households	176	66	66	65

Table 2. Rice yields, the use of modern inputs and improved production practices by region and irrigation status in Tanzania

	Morogoro		Mbeya		Shinyanga	
	Rain-fed	Irrigated	Rain-fed	Irrigated	Rain-fed	Irrigated
Paddy yields (t/ha)	2.0	3.8	1.6	3.5	1.7	4.6
Modern inputs use						
Share of modern varieties (%)	17.8	87.5	0.0	2.1	1.9	13.1
Chemical fertilizer use (kg/ha)	11.7	40.4	10.7	31.7	0.9	0.0
Improved practices						
Share of bunded plots (%)	8.2	84.8	16.3	89.6	95.3	100.0
Share of leveled plots (%)	22.0	69.6	38.5	78.1	87.6	100.0
Share of straight row transplanting plots	4.4	47.8	3.8	22.9	6.4	0.0
No. of sample households	182	46	104	96	234	10

Table 3. Rice yields (ton/ha) according to the cultivation practices adopted in September 2008 – August 2009 in Uganda [a]

	All	Bugiri	Mayuge	Bukedea	Pallisa
4 practices	4.13	4.47	2.89	1.22	0.37
3 practices	3.20	4.15	1.89	---	1.54
2 practices	2.25	3.07	2.00	3.95	2.26
1 practice	1.81	2.30	1.91	1.89	1.38
Non-adopters	1.33	---	0.79 [b]	1.42	0.66 [c]
Fertilizer use	7.55c	7.55 [d]	---	---	---
Adoption of MVs (%)	19.6	43.8	40.0	5.0	1.6
No. of sample households	300	75	75	75	75

a. The numbers show the means for the rice yield in tons per hectare. The adoption of 4 practices means bunding, leveling, proper timing of transplanting, and straight-row planting.
b. Only 1 observation.
c. Only 3 observations.
d. Only 4 observations.

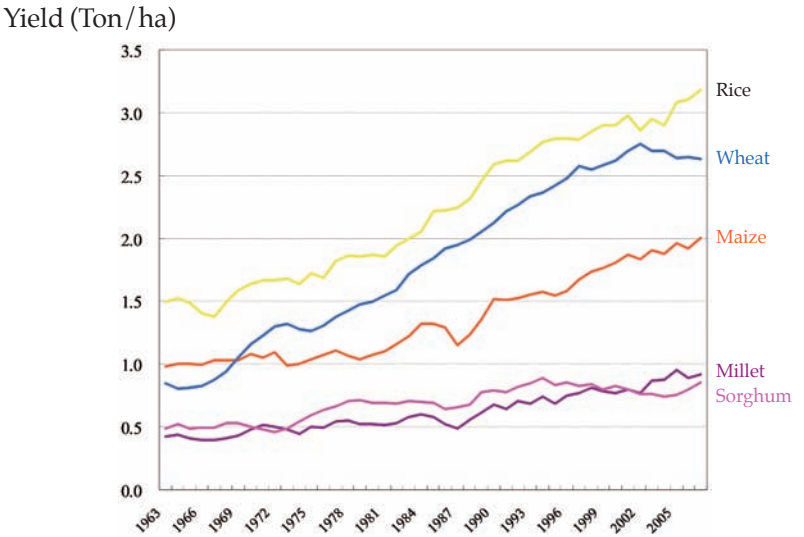
Table 4. Technology adoption, paddy yields, labor inputs, and factor share of labor in Northern Ghana

	No adoption	Partial adoption				Full adoption
		Modern inputs onlya	Some modern inputs	Modern inputs, bunding, and leveling	Some modern inputs, bunding and leveling	
No. of households (%)	63 (11.6)	78 (14.3)	349 (64.0)	37 (6.8)	84 (15.4)	47 (8.6)
Yield (ton/ha)	1.46	1.70	1.95	1.98	2.33	2.59
Labor (days/ha)	102	152	187	204	238	264
Factor share of labor (%)	61.5	62.6	54.6	52.8	49.5	47.6

a. Modern inputs refer to the adoption of MVs and chemical fertilizer application.
b. Factor share of labor is the total cost of labor divided by the total value of production.

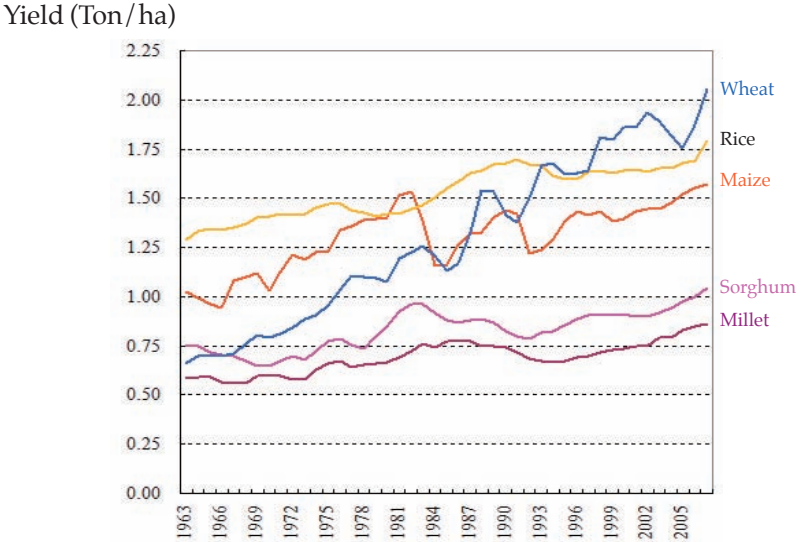
Figure 1. Grain yields in India and SSA, 3-year moving averages.

Figure 1a. India



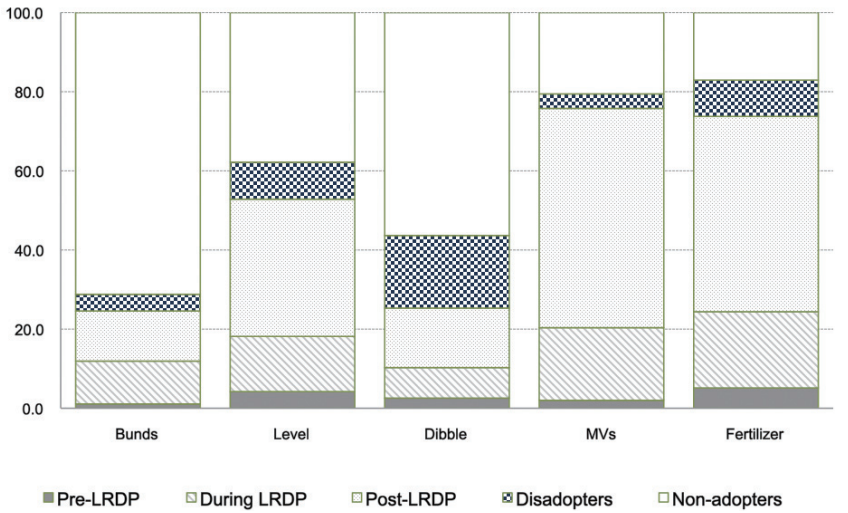
Source: FAOSTAT

Figure 1b. SSA



Source: FAOSTAT

Figure 2. Adoption of new technologies before, during, and after the Lowland Rice Development Project (LRDP) in Northern Ghana.



Chapter 4:
The Inclusive Development Approach among Farmers, Private Partners and Government through the Promotion of Responsible Investment for Agricultural Development

Koji Makino

1. Investment in Agriculture by the Private Sector

1.1 The role of the private sector in agriculture

For robust development, the agricultural sector needs to have well functioning value chain systems consisting of input (seed, fertilizer, machinery, etc.) → production → processing and shipment → transportation and storage → sales and distribution. Such value chain development has been behind the development of agriculture in Asia and other areas, where the widespread use of improved seeds and fertilizers was subsequently accompanied by the development of value chains stretching from production to distribution, resulting in productivity improvement and production expansion. Such systems, however, are seriously underdeveloped in Africa.

For example, the use of improved seeds and fertilizers as input goods is not widespread among many of the small scale farmers in Africa because they are either too expensive or simply unavailable locally and also fertilizer responding seeds have not yet been well developed except for rice and wheat. Low productivity persists due at least partly to lagging mechanization, although the dependence on family labor does contribute to employment. The post-harvest processing of agricultural produce also poses a problem. A significant amount of crops is lost or wasted, for example, in rice production, due to farmers' poor grain threshing and drying techniques as well to the poor techniques of rice millers, who in many cases are equipped with inadequate milling machines.

Another problem is distribution. Some farmers are placed in a weak position as sellers of their own products. Though they do have a desire

to market their products at the highest possible price, without adequate storage facilities, they have difficulty to adjust the timing of the sales, nor do they have marketing channels to rely on other than a small number of brokers or intermediaries that come to them to buy up their produce. It is observed in fields, thus, they sometimes end up selling the products to brokers at less than optimal prices.

In developing such value chains, the private sector could play a critical role in Africa, as in many other areas. While the government could facilitate the process by providing incentives through subsidies and by developing financial systems, it is primarily the role of the private sector to supply improved seeds and fertilizers, and to provide post-harvest processing and distribution services. One cannot overemphasize the importance of the roles of the private sector in the reduction of poverty by means of productivity improvement and livelihood betterment of farmers, including small scale farmers.

1.2 Investments in agriculture

The promotion of private sector activities in agriculture requires investment, and for that, investment both by the private sector as well as by farmers needs to be encouraged. Investment in agriculture could have a high socio-economic spillover effect, as growth in agriculture is said to have a poverty reduction effect twice that of other sectors (World Bank 2008).

The government will continue to play an important role in fulfilling functions that the private sector or the market cannot fully provide. These include, for example, development of improved seeds and dissemination of agricultural technologies, development of infrastructure, and the development of an enabling environment for investment, as well as the promotion of land reform. When a 'green revolution' was achieved in Asia, the governments in Asia allocated more than 20 % of government spending to agriculture (UNDP2012). In Africa, however, the allocation to agriculture is only 5.6 % (average between 2005 and 2009) and it is only about half of the targeted 10 % of the CAADP (Comprehensive Africa Agriculture Development Programme). In this context the need for efforts to promote private investment is apparent, along with more efforts to increase government spending on African agriculture.

Despite its importance, however, agricultural investment must be promoted with caution. Particularly those investments in the productive sectors such as crop production, fuel crop production or forestry development often require the acquisition of extensive farmlands, and such acquisition of land can lead to conflicts over land and water resources between private companies and local inhabitants. In extreme cases, situations (often dubbed as 'land grabbing') arise where small farmers are removed from the lands they traditionally owned. There are many reports of such cases: in one case, an area of land stretching over tens of thousands of hectares was leased to a private company for growing plants and planting trees for biofuels without local people's prior knowledge, who, according to the plan, were to be obliged to relocate. In other reported cases, land lease contracts have become effective with an authorization by the government, but the land has been left unused for a long period of time without actual development.

This is indeed a difficult issue, but the author is of the view that it is not an all or nothing type of question on which there are only two alternatives, i.e., whether private investment in agriculture in Africa is to be promoted or not. Rather, what is important is to promote appropriate investment and restrain inappropriate investments in line with the Voluntary Guidelines on the Responsible Governance of Tenure of Land, Fisheries and Forests in the Context of National Food Security and the Principles of Responsible Agricultural Investment (PRAI) both of which are touched on later. This middle ground approach must be pursued because, as mentioned earlier, the private sector plays the primary role in providing input goods and post-harvest processing as well as distribution.

Interviews conducted recently with government officials of African countries generally indicate that they believe they must promote those investments that will benefit local communities and agricultural growth, while excluding inappropriate ones. They also say that for this purpose, they are prepared to make efforts for the establishment and registration of ownership of farmers' lands and for the improvement in land management capacity. If that is the African governments' policy, donors should actively help governments in pursuing their efforts to improve their capacity for agricultural investment administration, land management, and agricultural investment programs formulation, as well as for system and/or regulatory reforms.

In promoting private sector participation in agriculture, one interesting business model is what is called the "Inclusive business model" (FAO 2012). It has been drawing attention in the agricultural production sector, where private companies become engaged in production by actively involving small farmers, while providing them with various services and inputs; these are meant to improve the productivity and livelihood of the contracted small farmers, while increasing production and corporate profits. One example is the case of a company that operates a chicken farm where the company makes a contract with farmers and provides them with well-bred chicks, gauges (cages for rearing) and feed, in addition to providing training on breeding technology. Another example is a case where beer factories (companies) commission groups of farmers to produce raw materials such as barley and corn and at the same time provide them with various services and supports: input goods such as seeds and fertilizers, extension services by their staff, and the installation of small-scale warehouses. These cases illustrate that this kind of partnership between private firms and farmers can not only help farmers to improve productivity and obtain benefits (surplus) even when the input cost is deducted from the sales, but also help the company to increase production and profits. In the future, this and other kinds of business models that involve farmers' participation in an inclusive manner will be worth supporting.

1.3 Formulation of international rules on investments in agriculture

(1) Voluntary Guidelines on the Responsible Governance of Land, Fisheries and Forests

Countries with weak land governance tend to be targeted for global land investment, and in such countries the rights to land and livelihood of local residents are likely to be threatened. The need for the establishment of an international guideline for supporting governance of natural resources of each country, including lands, has been voiced and the Committee on World Food Security (CFS), a standing committee of the FAO, has led the formulation of Voluntary Guidelines on the Responsible Governance of Tenure of Land, Fisheries and Forests in the Context of National Food Security (hereinafter guidelines).

These guidelines are positioned as a practical and comprehensive guide for the governance of land and other natural resources, to be used by governments, communities and the private sector for complementing similar existing international or regional initiatives and policies of each

government. The work to develop the guidelines started in 2009, and they were officially approved in May 2012. The contents of these guidelines are as follows:

Contents of Voluntary Guidelines on the Responsible Governance of Tenure of Land, Fisheries and Forests in the Context of National Food Security

Part 1: Preliminary
1. Objectives
2. Nature and scope
Part 2: General Matters
3. Guiding principles of responsible tenure governance
4. Rights and responsibilities related to tenure
5. Policy, legal and organizational frameworks related to tenure
6. Delivery of services
Part 3: Legal Recognition and Allocation of Tenure Rights and Duties
7. Safeguards
8. Public land, fisheries and forests
9. Indigenous peoples and other communities with customary tenure systems
10. Informal tenure
Part 4: Transfers and Other Changes to Tenure Rights and Duties
11. Markets
12. Investments
13. Land consolidation and other readjustment approaches
14. Restitution
15. Redistributive reforms
16. Expropriation and compensation
Part 5: Administration of Tenure
17. Records of tenure rights
18. Valuation
19. Taxation
20. Regulated spatial planning
21. Resolution of disputes over tenure rights
22. Transboundary matters
Part 6: Responses to Climate Change and Emergencies
23. Climate change
24. Natural disasters
25. Conflicts in respect to tenure of land, fisheries and forests
Part 7: Promotion, Implementation, Monitoring and Evaluation

(2) Principles of Responsible Agricultural Investment (PRAI)

At the G8 L'Aquila Summit in July 2009, Japan proposed the establishment of a platform for discussing the development of a guideline to promote transparent and responsible international investment in agriculture that does not involve land confiscation. In order to develop a joint proposal on principles and best practices for international agricultural investment, the summit declaration contained the commitment by the G8 countries to address the issue with each partner country and world organization.

Based on the senior officials meeting (roundtable) on the promotion of responsible international investment in agriculture, which was organized as a side event to the United Nations General Assembly by Japan and co-sponsored by the World Bank, FAO, IFAD and UNCTAD in September 2009, the World Bank, FAO, IFAD and UNCTAD jointly announced the draft of "Principles of Responsible Agricultural Investment (PRAI)" (refer to the box in Chapter 2 for the draft contents of Principles) in February 2010. Currently, discussions are under way to approve the draft in the Committee on World Food Security (CFS). At the same time, a pilot project to substantiate the draft is being implemented through Japan's funding to the World Bank.

1.4 The inclusive development approach among farmers, private partners and government through the promotion of responsible investment for agricultural development

1.4.1 Direction of the Approach

JICA considers it important to help promote responsible investments and restrain inappropriate investments in line with the Voluntary Guidelines on the Responsible Governance of Tenure of Land, Fisheries and Forests in the Context of National Food Security and the Principles of Responsible Agricultural Investment (PRAI). The following are concrete measures that JICA is prepared to promote, which can be taken as a single intervention or in combination.

(1) Support for the formulation of agricultural development programs and institutional reforms aiming at benefiting both farmers and private companies and which protect the interests of small farmers

Support for the formulation of agricultural development programs targeted at specific areas. Such programs will, as a matter of course, be based on the analysis of both the natural environment and the economic potential of the area, but at the same time will aim at nurturing core

farmers, increasing employment of small scale farmers and introducing appropriate sustainable technologies. Typically such programs will include recommendations of crops to be cultivated in the area and agronomical technologies to be introduced, the details of which will be planned through dialogue with farmers' organizations and NGOs. JICA will also provide support at the policy level for the improvement of the land tenure system and of the administration's capacity to manage investment and land. JICA will also support governments with such policy measures as deregulation of investment and protection of intellectual property.

(2) Support for the development of technology infrastructure in target areas

Technical support including the introduction of appropriate seeds and the development and diffusion of cultivation and soil conservation technologies based on the careful analysis of the natural environment, social and economic situation and administrative systems of target areas. This will allow farmers and companies to enhance productivity and reduce risks in technology adoption and investment. These supports should also be designed to help improve the administrative capacity of the public sector and regulatory systems to enhance the environment for productivity improvement.

(3) Support for the promotion of investments by agriculture related companies (such as suppliers of seeds, fertilizers, agricultural machinery, and distributors, etc.) for the development of value chains.

Support for potential investors - both local and foreign companies - in obtaining information regarding the agricultural potential and agriculture related investment opportunities in the country through workshops and other means. When an investment plan prepared by any interested company is judged as having potential benefit such as for poverty reduction of farmers, it will be supported with research and project cost subsidies. Further, if judged useful, support will be provided for value-chain-related research on specific agricultural products and/or agriculture related industries, the findings of which will be published for reference by a wide range of potential investors.

(4) Development of infrastructure for transportation and distribution

Support for the development of transportation and distribution networks to smoothly and efficiently distribute agricultural products from producers to consumers or between markets. These include, for transportation: trunk roads, rural roads, ports, etc., and for distribution: facilities of wholesale and retail markets, storage and refrigeration and product delivery/collection facilities. This support could also include the development of a system of agriculture-related information - such as market information – accessible to farmers. Support in the operation and maintenance of these infrastructures may also be included.

(5) Demonstration and application of inclusive models that will benefit both farmers and companies

Support for the demonstration and application of "win-win" business models that will contribute both to an increase in farmers' income and in private firms' corporate income. This support can take a variety of forms, in which farmers can collaborate with companies either on their own or as a group. Specifically, support for this purpose could include the provision of input goods such as improved seed varieties and fertilizers as well as technical support and diffusion services using pilot farms. With these, the support aims at the improvement of farmers' productivity and an increase in corporate production. This support can be accompanied by assistance of the government in developing regulatory frameworks on the incentive (or penalty) system, and contract formats for promoting the inclusive business model.

1.4.2 Points to Consider in the Implementation of the Approach

Below is a summary of various points to be considered in the implementation of the above approach, including those mentioned earlier.

- For livelihood improvement in and poverty reduction among farmers in Africa, and particularly small scale farmers, the role of the private sector and private investment is indispensable. The problem, however, is that there are actually cases of inappropriate investments, to which reality we must not turn a blind eye. Thus, the course of action for Africa is to promote responsible investment and restrain inappropriate investment in conformity with principles such as the PRAI.

- It is essential to have a dialogue with the local people and the civil society in the target areas who know their areas and their own needs, and to reflect their needs in the project design and its implementation. The government, for its part, has an important role to play with respect to research and development, system reforms, and development of infrastructure. With these in mind, the farmers, residents of the area, and civil society and the government must sit together for a balanced discussion.
- Infrastructure development is essential for the development of value chains. Its physical development must be accompanied by the institutional and management capacity development needed to support it, which tends to lag behind. Thus, efforts to synchronize these components are important.
- Investment in agriculture in developing countries tends to fluctuate: it has increased rapidly, pushed by a sharp rise in food prices; dropped temporarily following the Lehman shock in 2008, and now it is coming back. In view of this volatility, some measures for its stabilization should be considered, such as through public finance systems for mid- and long-term investment stability.
- While it is important to invite investments of international private companies, what is more important is to foster the local private sector, including small and medium sized companies.
- As a prerequisite for effective program implementation, it is essential to develop human resources both in the public and private sectors, which are in short supply in Africa.
- Agricultural development, especially that which is supported by the inclusive development approach, can help to reduce poverty and improve the health of mothers and children; and hence contribute to the gender issues. It is important and useful to incorporate such points of view and components in order to address such needs.

2. The Triangular Cooperation Program for Tropical Savannah Agricultural Development among Japan, Brazil and Mozambique (ProSAVANA-JBM)

This section discusses the ProSAVANA-JBM program in Mozambique as a concrete example of the inclusive development approach among

farmers, private partners and government through the promotion of responsible investment for agricultural development.

2.1 Background of the program

The Nacala Corridor situated in the northern part of Mozambique originates from the port of Nacala on the Indian Ocean coast and traverses from east to west leading to Kuanba and Mandimba in the province of Niassa via Nampula, the capital of the province with the same name. The corridor is connected with inland Malawi and Zambia. In recent years, the corridor has been positioned as one of the region's most important development corridors by the Government of Mozambique, the Southern African Development Community (SADC) and the New Partnership for Africa's Development (NEPAD) of the African Union.

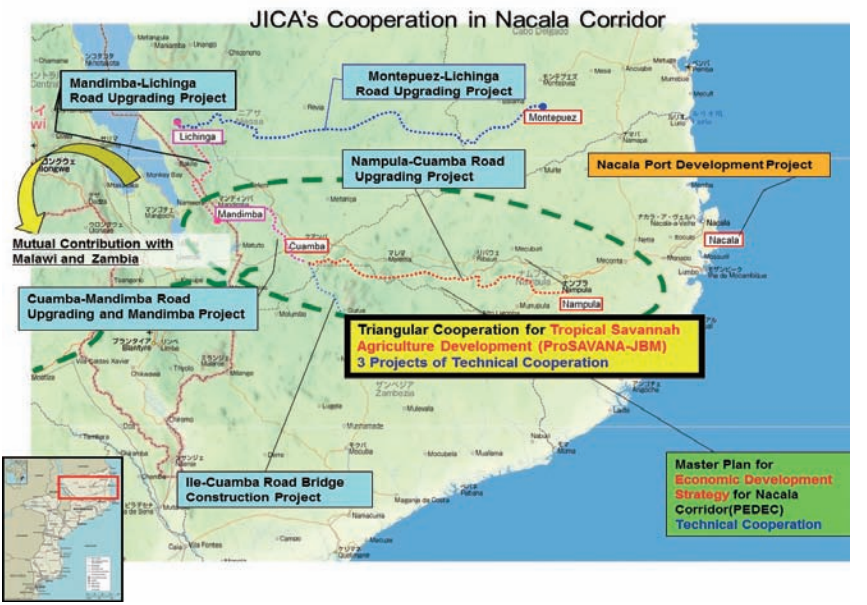
The tropical savanna zone that spreads through this corridor receives a certain amount of rainfall and has extensive arable land for agriculture. Its potential for increasing agricultural production, therefore, is very high. Approximately 720,000 farming families (2.56 million people), who account for about one quarter of all the farmers in the country, are distributed throughout the area. The average land area per household in the tropical savanna zone, however, is 1.0 hectare, which is below the national average of 1.3 hectares, and the poverty rate is higher than other areas. The number of small farmers who own less than 1.0 hectare of land accounts for about 60 percent of all the farmers in the area and those who own less than 2.0 hectares of land account for about 90 %.

Many farmers engage in traditional farming methods, which result in poor productivity both for subsistence and commercial crop production. Even for medium to large scale farmers, their agricultural technologies are not advanced and productivity is not high. Naturally, the question arises as to why the area, which is said to have such high potential, cannot sufficiently realize this potential. As a matter of fact, there are numerous and diverse problems in agriculture in the area, which are also common to other areas in the country and other countries in Africa. The summary of these problems is as follows:

1 There is no comprehensive agricultural program covering the whole of the Nacala Corridor and there is no strategic coordination among individual development programs, which

results in inefficiency.

2 There is a lack of modern farming technology.
3 Land area per household is too small and farming largely depends on rainwater.
4 Markets and distribution systems (infrastructure and systems) are underdeveloped.
5 Access to input goods such as fertilizers, improved seeds, agricultural machinery, etc., is difficult.
6 Agricultural diversity and the agricultural processing industry are underdeveloped.
7 Farmers are poorly organized or not organized.
8 Finance and insurance systems are underdeveloped, resulting in a lack of access to funds for farmers, which further increases their vulnerability.
9 There are land related issues. Only 20 to 30 % of land is registered. Customary law and modern law are not integrated. The administrative capacity for land management is low.
10 Systems of agricultural extension services are underdeveloped.



In an area where such a variety of problems need to be urgently addressed, it is essential that a comprehensive and strategic agricultural development program is planned and promoted. It is also an urgent matter to develop adequate agricultural technologies and spread them among the farmers, promote adequate private investment for the enhancement of agriculture related industries, and to improve agricultural productivity and increase production through the development of value chains. Against such a backdrop, the triangular cooperation program ProSAVANA-JBM has been agreed on and is being implemented.

2.2 Partnership between Japan and Brazil

The Government of Japan and the Government of Brazil started triangular cooperation in 1985 and concluded the Japan Brazil Partnership Program (JBPP) in 2000 in order to launch a new initiative for promoting a new form of triangular cooperation. A series of technical cooperation projects (triangular cooperation projects) between Japan and Brazil and involving a final beneficiary country in Africa was started in 2007, covering such global issues as food security, infectious disease control, and countermeasures against climate change.

Japan, through JICA, supported agricultural development in the

Cerrado (region) of Brazil for over 20 years from the late 1970s and contributed to the transformation of the area once called a "barren land" into one of the world's leading agricultural areas. The basic cooperation framework for ProSAVANA-JBM, targeted at the Nacala Corridor, was agreed upon by JICA, the Brazilian Agency for International Cooperation (ABC) and the Ministry of Agriculture of Mozambique in September 2009, taking advantage of the experience and knowledge regarding agricultural development in tropical savanna acquired in the development of the Cerrado of Brazil.

There are some similarities in terms of agronomy between the savannah zone of Mozambique and the Cerrado of Brazil. For this reason, some individual technologies and know-how acquired in the Cerrado, such as tropical varieties of major temperate grains and cultivation systems, are considered applicable in Mozambique. As another possibility, the technology developed to improve acidic soils in Brazil could also be effective for the improvement of the salt (crop nutrients) leached soils in some parts of Nacala. Other helpful experiences acquired in the Cerrado include: the process of technological innovations at the initial stages of development; organizational reforms; development of value chains; and environmental conservation measures.

Notwithstanding all these, it is impossible to simple-mindedly apply the agricultural development model of the Cerrado as it was developed in Brazil to the Mozambican savannah zone; there are many differences in the natural environment, such as water, geography, soils, and vegetation, and the social, economic and administrative systems. The project does not in any way attempt such mechanical transfer of technology or experiences.

Rather, under these circumstances, what is attempted is to build a new development model for the Nacala Corridor of Mozambique utilizing the know-how and technologies of Brazilian people and organizations that have experienced many trials and errors in the development of the Cerrado, and Japan's many years of experience gained in supporting the process. In the process, the project will certainly take advantage of a number of individual technologies developed in the Cerrado, exemplified above.

In fact the project has abundant resources of technologies and

experiences at its disposal: EMBRAPA (Brazilian Agricultural Research Corporation), one of the world's leading agricultural research institutes; JIRCAS (Japan International Research Center for Agricultural Sciences), which has supported the Cerrado process over many years; FGV (Getulio Vargas Foundation), a world-renowned think tank; MDA (the Ministry of Agricultural Development) and EMATER (the Institute of Technical Assistance and rural Extension of Brazil) with ample experience in program coordination for the promotion of family farming and farmer participatory systems; the SENAR (National Service of Rural Learning) with abundant resources in vocational training modules and teaching methods in farming villages; and JICA with the accumulated experience and know-how of support to Africa over many years, that can also mobilize technologies and the international expertise of Japanese development consultants.

2.3 Objectives and characteristics of the program

The objectives of the ProSAVANA-JBM are to contribute to the poverty reduction of farmers, improve food security, and enhance economic development. This consists of promoting agricultural development by improving productivity and developing value chains through the promotion of adequate private investment in the Nacala Corridor, which is making poor development progress despite its high potential for development and increased agricultural production. The target area is situated from 13 degrees to 17 degrees latitude south in the northern part of Mozambique. At present, 19 districts in the three provinces of Nampula, Niassa and Zambezia in the Nacala Corridor are considered as target areas for development.

For successful agricultural development in the area, well-functioning value chains must be in place, including supplies of input goods, post-harvest processing, and distribution both on the upstream and downstream of production, which, in itself, must be upgraded through the improvement of farmers' technology and farming methods. For this purpose, JICA will support the introduction of crop varieties suitable to the Nacala Corridor, as well as the development and diffusion of cultivation and soil conservation technologies. At the same time, it will support the Government of Mozambique in developing a comprehensive master plan for agricultural development focused on the development of a value chain including adequate investment planning and land use as well as system reforms targeted at the whole of the

Nacala Corridor. It is the aim of the master plan to propose system reforms to promote responsible investment and restrain inappropriate investment.

The "Nacala Corridor Development Program" is the key Japanese aid program in Mozambique. In combination with support for building an agricultural development model through ProSAVANA-JBM, Japan provides technological and financial support that will contribute to the development of infrastructure such as trunk roads for distribution and ports for export and import. At the same time, with a view to achieving inclusive growth, the development of educational infrastructure and health infrastructure, as well as improvement in water access will be supported. In other words, the "Nacala Corridor Development Program" and ProSAVANA-JBM are characterized by (1) triangular cooperation between Japan, Brazil and Mozambique based on accumulated past experience, (2) comprehensive support for the whole of the value chain including not only production but also distribution, (3) cross sectoral support including agriculture and infrastructure, and (4) a synergistic WIN-WIN effect among farmers and companies. These characteristics correspond to all the issues included in the inclusive development approach among farmers, private partners and government through the promotion of responsible investment for agricultural development referred to in Section 1.4. In addition, the programs will be able to deal with many of the agriculture problems in the Nacala Corridor mentioned in Section 2.1.

As mentioned earlier, this program presupposes the participation of private investment in the future and, bearing this in mind, many activities have already been carried out such as international seminars and public and private joint missions comprising members from Japan, Brazil and Mozambique. With these activities, the program expects to work out more specific and realistic development programs beyond a simple blueprint plan.

2.4 Description of the projects

In its first stage, ProSAVANA-JBM aims to consolidate the technologies and administrative capacity bases for the whole program. This stage will comprise three main technological cooperation projects: Improving Research and Technology Transfer Capacity for Nacala Corridor Agriculture Development, Support for Agricultural Development

Master Plan for the Nacala Corridor, and Establishment of a Development Model at the Community Level through Nacala Corridor Agricultural Development.

In its second stage, the program's aim shifts to the implementation of the technologies, development models and/or projects that have been developed, demonstrated and/or proposed in the first stage in cooperation with the private sector. Financial assistance is also envisaged at this stage. This second stage will be initiated even before the completion of the first stage. Activities for the development of infrastructure, such as the construction of trunk roads, will be carried out throughout the two stages. As a matter of fact, the term "stage" simply indicates the gradual shifts of focus of activities, and individual work will be performed flexibly. The ProSAVANA-JBM program will be put into practice with full coordination among the government, farmers, private sector, NGOs and other parties involved in the development, as well as international development organizations.

A summary of individual projects is outlined below:

- **First stage**

  [Improving Research and Technology Transfer Capacity for Nacala Corridor Agriculture Development] – Period of cooperation: 2011-2016 (5 years)

  This project aims to build a technical foundation. It aims at strengthening research systems at the agricultural experiment station for the northeast in the province of Nampula, and that of the northwest in the province of Niassa. It is also aimed at transferring to the pilot farmers around the stations adequate soil improvement as well as cultivation technologies that will have been developed based on prior investigations and evaluation of the natural resources and social and economic situation of the Corridor.

  [Support for Agricultural Development Master Plan for Nacala Corridor] – Period of cooperation: 2012-2013 (1.5 years)

  This is a project aimed at formulating a master plan for agricultural development that will contribute to social and economic development in the Nacala Corridor area with a view to promoting a sustainable agricultural production system (value chain) and reducing the poverty of small scale farmers. In a context where a number of foreign and domestic companies have already expressed

interest in investing in agriculture in the area, the project allows the planning of an adequate development project based on the Principles of Responsible Agricultural Investment (PRAI) and takes the initiative in institutional reforms for land use and social environment consideration, which will eventually restrain inappropriate investment. It is the aim of the project to urge the private sector, government and donors to swiftly invest in projects with high social and economic effects.

[Establishment of a Development Model at the Community Level through Nacala Corridor Agricultural Development] – Period of cooperation: 2013 – 2018 (6 years)

This is a project aimed at establishing an inclusive agricultural development model according to the various scales of farming. It also aims at helping such farmers and farmers' organizations that have adopted the inclusive model to actually increase production through the intensification of the agricultural extension service. It is the aim of the project not only to help the government improve the currently inadequate agricultural extension service, but also to foster core farmers, and to demonstrate and disseminate business models with high social benefits led by companies and farmers' groups.

- **Second stage**

  The second stage is basically the application and expansion stage of the developed technologies, verified development models, or proposed development programs in cooperation with farmers' groups, the private sector (promotion of investment) and the government, with enhanced capacity to manage and support the programs. JICA will provide support for the scaling up of funds and support for capacity building for project coordination.

- Common projects between the first stage and second stage (development of infrastructure)
  - Support Project for the Formulation of an Economic Development Strategy for the Nacala Corridor
  - Nampula-Cuamba Road Upgrading Project
  - Montepuez-Lichinga Road Upgrading Project
  - Cuamba-Lichinga Road Upgrading Project
  - Ile-Cuamba Road Bridge Construction Project
  - Urgent Rehabilitation Project of Nacala Port

- Nacala Port Development Project
- Construction of Secondary Schools in the Nampula Monapo Primary Teachers Training School Project
- Construction of the Nacala Health Science Institute

2.5 Points to consider

As mentioned earlier, though there are many similarities in terms of agronomy between the savannah zone of Mozambique and the Cerrado of Brazil, there are a lot of differences in the natural environments and social, economic and administrative systems. This makes it impossible to simply transfer the agricultural development model of the Cerrado as it was developed in Brazil to the Nacala Corridor area. What needs to be achieved is to provide support for the building up of a new agricultural development model that will meet the needs of Nacala under the ownership of the government and the farmers and for this, the capacity and individual technologies acquired in the development of the Cerrado can be taken advantage of. In implementing the program, it is very important to maintain sufficient dialogue with local farmers who know best about their land and at the same time are the biggest beneficiaries of ProSAVANA-JBM, in order to reflect their views and opinions in the project implementation.

Another point of caution is that support for agricultural development programs like the one in the Nacala Corridor must be placed in the perspective of national policy, for there are institutional and policy matters that affect individual projects. A simple example is that land tenancy of up to 1,000 hectares is granted by the provincial governor, but if the area is larger than that up to 10,000 hectares, the grant must be made by the Minister of Agriculture, and beyond that, the grant must be made by the Council of Ministers. Thus, the central government must be appropriately involved.

The New Alliance for Food Security and Nutrition, which was agreed upon at the G8 meeting in the US in May 2012, is a framework whereby agricultural development in Africa is enhanced through the promotion of private investment in compliance with the principles of responsible agricultural investment and voluntary guidelines, and Mozambique is one of the six target countries. The cooperation framework created for the execution of this New Alliance (agreement) includes land policy, institutional reforms on investment, and considerations for small

farmers. Acting as a co-chair with the US, Japan has supported the formulation of this cooperation framework; JICA is prepared to be continuously involved in supporting such reforms at the central government level.

3. Conclusion

This chapter has argued for the usefulness of the inclusive development approach among farmers, private partners and government through the promotion of responsible investment for agricultural development, based on the discussion in Section 1, which stressed the importance of the private sector and its investment in agriculture. Section 2 discussed the ProSAVANA-JBM program in Mozambique as a concrete case of this approach including a detailed explanation, meaning and points to consider.

In recent years, JICA has been accumulating a wide range of experience in similar cases such as in the Philippines where stakeholders, including distributors, formed a banana industry cluster around a core groups of farmers; a case in Pakistan where a project aimed to improve the productivity of small livestock farmers and include them in a value chain; cases in Nigeria and Uganda where projects aimed to improve the post-harvest processing of rice millers; and a case in Burkina Faso where a project aimed to formulate a market oriented agricultural master plan. As mentioned in section 1.4, the inclusive development approach can encompass a wide range of variations, and they could be applied to different needs flexibly, either as a single intervention measure or used in combination, and drawing on actual experiences accumulated in many countries. .

Recently in the international arena, research and discussions related to the problems and effectiveness of investment in agricultural development, and in particular, related to inclusive models (often called win-win business models), are becoming active, and a number of practical projects have come to be conducted. To contribute to such intellectual exercises, Japan has provided funding to the World Bank and is supporting empirical studies on the usefulness of the principles of responsible agricultural investment. JICA must learn from the findings of this and other research and cases for its own support projects in the

future. JICA must also contribute to policy development and system reforms by actively participating in international initiatives such as the New Alliance for Food Security and Nutrition and Grow Africa while learning from the knowledge and experience of its international partners.

The discussions so far have been focused on the field of agriculture. If we look at international cooperation in a broader perspective, the relative presence of ODA (Official Development Assistance) has declined over the years as a result of a rapid expansion of overseas direct investment and flows of private funds such as from the Bill & Melinda Gates Foundation, or aid other than ODA provided by emerging countries such as China and Brazil (Kharas, Makino and Jung 2011). So, what is the role to be played by ODA? The answer may be that it could play the role of a catalyst, going beyond simple aid, towards bringing together diverse players and developing countries and actively urging the players to get involved in these countries in an appropriate manner.

Consistent with this orientation, there have been operational and organizational changes within JICA to promote collaboration with the private sector; for example, JICA now has the Private Sector Partnership and Finance Department, which provides support for research expenses for overseas investment and investment promotion. JICA is also deepening cooperation with emerging countries such as China, Brazil and Indonesia. Given these movements, perhaps the business model and project we have been discussing- the inclusive development approach and the ProSAVANA-JBM project – must be understood in that larger perspective.

Finally, I would like to reiterate the critical role of the private sector in agricultural development as an engine for economic growth and reducing poverty, through the improvement of productivity and betterment of the farmers' (and especially small farmers') livelihood. For it to happen, I have argued that private investment in agriculture must be promoted. True, private investment in the agricultural sector can take a variety of forms, and some of them can cause negative impacts on local residents and farmers. Under such circumstances, the appropriate and realistic course of action for African governments must be to promote responsible investments and restrain inappropriate investments in line with the Voluntary Guidelines on the Responsible Governance of Tenure

of Land, Fisheries and Forests in the Context of National Food Security and the Principles of Responsible Agricultural Investment (PRAI). They could employ a variety of policies to achieve an improvement in investment quality; for example, they could adopt measures such as the provision of incentives such as tax cuts and credits. Putting into practice these steps is an urgent matter for African countries, and their international partners, including bilateral donors like Japan, and international organizations, should provide adequate support. The challenge is enormous, and while fully recognizing the difficulty of the tasks at hand, we, Africa's partners, must listen carefully to the voices of African governments and local farmers, and proceed with our support activities in an open manner.

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Chapter 5:
Initiatives of SHEP and SHEP UP

- Capacity development of small-scale farmers[1] for increased responsiveness to market needs

Jiro Aikawa[2]

1. Background Leading to A Market-oriented Approach

According to the World Development Report 2008, the poverty rate among farmers is affected by access to market, along with other factors such as climate. The Report features improvement in market access and promotion of market participation by small-scale farmers as important poverty reduction measures. To realize these, the Report called for measures to improve farming techniques, sustained water and soil management, improvement in public extension services, capacity development of human resources, and infrastructure development.

Governments and development partners are realizing that group marketing, rather than individual marketing by small-scale farmers, encourages market participation. A hurdle discouraging farmers' participation in the market is the information gap between the marketers and farmers. These market players have abundant information about product supply and demand – information many small-scale farmers don't have access to.

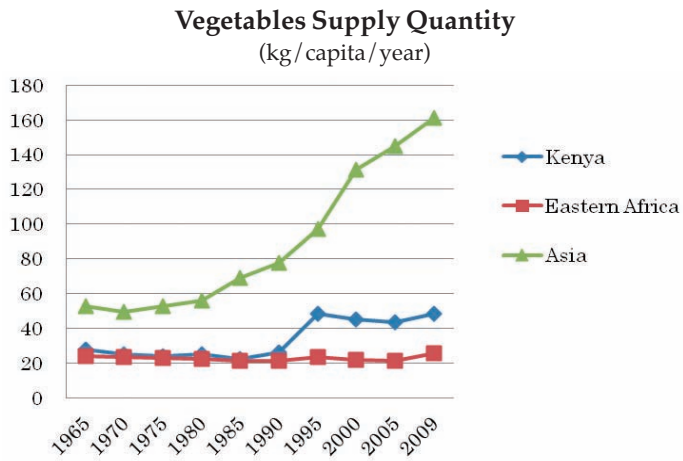
Supply of and demand for horticultural products tend to increase with economic growth. Kenya's GDP has grown more than other African

1. The term "small-scale farmers" as used in this chapter refers to farmers with a farmland ownership of less than 2 hectares following the term's usage in Kenya. In the projects that will be discussed in the chapter, the average area of farmland owned by the target small-scale farmers and dedicated exclusively to horticultural crops was less than 0.4 hectares.

2. I would like to thank Ms. Etsuko Ikeda and Ms. Fumie Saijo of OPC as well as Ms. Hiromi Ikeda of HANDS for the data for the tables and figures for this report. Mr. Naoki Hashimoto, Ms. Harue Kitajima and Mr. Mitsuhiro Kato, JICA experts of the SHEP UP, contributed to the paper by providing the author with a variety of information. I would like to take this opportunity to thank them.

countries, and likewise the supply of vegetables has grown more rapidly than in other East African countries, a trend comparable to the vegetable supply trend in Asia since the 1990s (see Figure 1). The recent increase in demand for horticultural products in Africa seems to have been due to the diversification of food consumption brought about by the economic growth and increasing middle-income consumers.

Figure 1. Change in supply of vegetables in Asia, Eastern Africa, and Kenya



However, farmers have certain problems: compared to grain production, horticulture is labor-intensive, requiring finer techniques and bigger inputs, e.g., seed, fertilizer and pesticides, though its land profitability is high if properly managed. The selling prices of horticultural products are affected by market fluctuations because of low storability. On the other hand, horticulture is important not only as a means of developing cash crops, but also as a means to improve people's nutritional condition.

Thus, some African countries stress the need for converting from the subsistence- oriented approach into more commercially oriented agriculture. For example, Kenya has formulated a policy for "modern and competitive agriculture based on innovation and commercial thinking" in its "Agricultural Sector Development Strategy (ASDS) (2010-2020)", aimed to "strengthen competitiveness of agricultural products and business, improve productivity and promote commercialization." In addition, the policy of the Ministry of

Agriculture of Kenya advocates "Farming as Business".
Among the various challenges in improving small-scale farmers' market access, their *capacity development* (discussed in the subsequent sections) is an important factor.

2. Overview of SHEP and SHEP UP

Background for the implementation of the projects

Horticulture is a promising sub-sector of Kenya because of the country's favorable environment. According to data from the Horticultural Crops Development Authority in Kenya, the sector has achieved an average annual growth rate of 20% since the 2000s.

However, the producers, and particularly small-scale farmers, who produce more than 60% of horticultural products traded in the country, are facing problems: weak organizations, low production, limited marketing channels, unstable selling prices, and underdeveloped production infrastructure, so their income remains low (Dolan 2010).

In order to improve the situation, the Kenyan Government conceived the idea of a project to address these challenges, and requested the Government of Japan to implement a technical cooperation project aimed at strengthening the organizational management capacity of small-scale farmers. Thus, the "Smallholder Horticulture Empowerment Project" (SHEP) was launched in November 2006.

Overall, the SHEP has been successful, doubling the income of targeted small-scale farmers through activities such as market surveys by farmers, strategic selection of crops to plant, development of action plans by farmers' groups, and technical assistance.

Encouraged by the effectiveness of the project's model, the Kenyan Ministry of Agriculture set up the "Smallholder Horticulture Empowerment and Promotion Unit" (SHEP Unit). The objective was to support small-scale horticulture farmers using the SHEP project model. In support, Japan, through JICA, has been implementing a five-year technical cooperation project: "Smallholder Horticulture Empowerment and Promotion Unit Project" (known as SHEP UP[3]), since 2010. This

3. The initiatives and outcome of the SHEP and SHEP UP were presented in the Camp David Accountability Report of the G8 held at Camp David in 2012.

project aims at the organizational development and capacity development of the SHEP Unit.

Activities of SHEP

The SHEP project was implemented for three years from November 2006 and covered areas from the western and central part of Kenya: the counties of Bungoma (Western Province), Kisii (Nyanza Province), Nyandarua (Central Province) and Trans-Nzoia (Rift Valley Province), chosen because of the widespread poverty therein despite their high potential for horticulture cultivation. The Kenyan organizations responsible for the project were the Horticulture Division under the Ministry of Agriculture, and the Horticultural Crops Development Authority.

The project aimed at developing the capacity of smallholder horticulture farmer groups and verify if it actually brought about the net income increase of the members of the smallholder horticulture farmer groups supported by the project.

The initial step of the project was to sensitize the stakeholders to the project's idea and familiarize them with the market-oriented approach (the SHEP approach). To do so, the project organized "Sensitization Workshops," where briefings were given to the participants, including ministerial officials, provincial, district and divisional staff, extension officers, and targeted farmers.

Next was to survey the condition of the horticultural production of the area as well as the farmers' capacities. The survey collected data on horticultural crop production,[4] production techniques,[5] and the farmers' groups' capacity as an organization.[6] This survey provided data for the project and an opportunity for the farmers to be better acquainted with their own farming and for the groups to understand their current status. Secondly, the project organized opportunities where the model farmers' groups and stakeholders related to horticulture could meet in the "FABLIST Forum: Farm Business Linkage Stakeholder Forum." The

4. Such as on cultivation area, yields, production costs, sales prices, and income by crop planted in the previous year.

5. This covered various aspects of production techniques being used by the farmers.

6. This measured the current level of organizations, using Group Empowerment Indicators (GEIs), which allows the evaluation of organizational capacity in terms of leadership, cooperation among members, and gender structure.

stakeholder participants included suppliers (seed, fertilizer and agro-chemical and agricultural equipment companies), agro-processing companies, financial institutions, agricultural research institutes, retail lenders, government agencies and NGOs. Each of them displayed products and provided information. The farmers' group representatives and extension officers visited the booths to hold business talks and understand the horticulture market environment. Stakeholders were provided with profiles of the participating farmers' groups[7] and vice versa. This was intended to facilitate exchange and interaction among the participants.

After the forum, the project held a "Joint Extension Staff and Farmers Dual (2) Gender Training" (JEF2G Training) targeted at the representatives from model farmers' groups and extension officers. Since women were responsible for about 70% of the farming activities, the same number of men and women were to be invited from the model farmers' groups. The program mainly focused on training comprising modules such as market survey, crop selection, problem analysis and gender awareness training.
After the training, "Group Exercises" were held to put into practice the lessons learned. These group exercises consisted of performing a market survey led by the farmers' representatives who had taken part in the training with the assistance of an extension officer. Based on the survey results, the participants selected what crops to produce, and formulated an action plan for marketing them at reasonable, profitable prices.
Subsequently, the project organized the "Facilitators' Training for Farmers' Demand-Driven Extension" to provide extension officers with the knowledge and techniques needed to support the model farmers' groups in putting into practice the action plans.
The training even contained modules on road maintenance using sand bag technology: it was included because the participators had to know how to maintain roads, which often deteriorate during the rainy season. Implementation of road maintenance was positioned as part of the project outcome, and thus it was encouraged as a village-wide activity involving local communities led by the model farmers' groups.
In this manner, capacity building of extension officers was performed through demand-driven technical training to meet the needs of the farmers' groups.

7. The data included the name of the group, location, number of farmer members, contact information, cultivation items, yields, income, all collected from the Baseline Survey.

After the training, the trained extension officers began teaching the techniques learnt to the model farmers' groups to help them materialize their action plans. This was done through "In-field Training," allowing the farmers to acquire the knowledge and techniques needed for the production of the crops selected.

Taking nearly a year, the activities were implemented in two periods, dividing the farmers' groups in the 4 target counties into two groups of 42 and 80. The number of farmers of each group ranged between 15 and 50, with the average being 24. The project monitored the status of production and cultivation technique of horticultural crops of the model farmers' groups in a manner similar to the baseline survey.

Activities of SHEP UP

The SHEP Unit supports small-scale horticulture farmers through activities developed in the SHEP. JICA has been supporting the SHEP Unit since its establishment with a project called SHEP UP.

Activities developed in the SHEP are now being implemented in the country's 8 provinces in 4 cycles, with 2 provinces being covered per year. In each province, the activities cover 10 districts. These districts were selected based on the scores they got on the submitted proposals. Each district had five target farmers' groups.[8] To promote the replication of the SHEP approach, the project envisaged that the district staff would implement activities on their own, using the resources of the district and provide support for other farmers' groups, and by working together with the SHEP Unit.

Two new practices have been introduced since the implementation of the SHEP UP. One had to do with the selection of the target districts. Before, they were selected by the central government on certain criteria without involving district staff. Since the SHEP UP, however, a new system was introduced whereby interested districts must submit a proposal to the Provincial Director of Agriculture. The proposals were evaluated by the SHEP UP in accordance with criteria including the interest and motivation of district staff, depth of understanding of the SHEP approach, and the district's horticultural cultivation potential. The final

8. This seemingly small number of farmer's groups per district is due to the size of each district being reduced through the country's administrative reform.

selection decision was made by the Selection Committee in the Provincial Agricultural Office.

The second new practice was the "Organizers' Training on the Basic SHEP Approach," aimed at the staff of the selected districts. It is mainly intended to provide training on the SHEP Approach planning and implementation of the activities, and the development of a work plan and budget for the continuous implementation of the activities. As part of the training, district staff visited high-performing model farmers' groups. On the final day of training, the participants took the "Examination on the Basic SHEP Approach."

While there has been no fundamental change in the structure of activities developed by the SHEP, the contents have been revised on-site. By the end of 2012, around 460 farmers' groups have taken part in the project in 60 districts and 6 provinces.

The table below shows a summary of the SHEP and SHEP UP.

Table 1. Smallholder Horticulture Empowerment Project (SHEP) and Smallholder Horticulture Empowerment and Promotion Unit Project (SHEP UP)

	SHEP	SHEP UP
Period	November 2006 ~ November 2009 (3 years + a follow-up period of 4 months)	March 2010 ~ May 2015 (five years)
Target area	22 districts (4 provinces), mainly in Western Kenya	80 districts across Kenya (basically 10 districts each from 8 provinces)
Target farmers	About 2,500 (122 groups)	About 20,000 (640~800 groups)
Implementation institutions	SHEP team composed of 6 dedicated staff assigned from the Ministry of Agriculture and the Horticultural Crops Development Authority	SHEP UNIT (12 dedicated staff assigned by the Ministry of Agriculture and the Horticultural Crops Development Authority) of Horticulture Division, Directorate of Crops Management of the Ministry of Agriculture
Overall goal	Improved livelihoods of smallholder horticulture farmers in the target districts	Livelihood of horticulture smallholders in implementing districts is improved.
Project goal	Developed capacity of the smallholder horticulture farmers' groups supported by the Projects.	Effective support system for horticulture smallholders nationwide is established.
Outcome	1. Target groups (smallholder horticulture farmers' groups) gain bargaining power in marketing their produce. 2. Target groups increase the production of better quality crops. 3. Target groups develop capacity to improve rural infrastructure for production and transportation.	1. The SHEP Approach is adopted by the Unit and become ready for implementation. 2. Farmers' groups' income from horticulture produce is improved. 3. The SHEP Approach is properly replicated by the implementing districts based on the Outcome 2. 4. Information Management System for the SHEP Approach is established.
Characteristics	Development and implementation of a series of approaches from organizing to productivity improvement for improving horticultural-related income of small-scale farmers.	Provision of support to the SHEP UNIT established by the Ministry of Agriculture of Kenya to spread the SHEP approach across the country.

3. Survey on Income from Horticulture in the SHEP

1) Method (baseline survey and periodical monitoring)

The project started with a baseline survey targeted at 3,623[9] individual farmers belonging to 154 farmers' groups in the target counties. It was conducted in May and June 2007, 7 months after the launch of the project. The survey was intended to obtain data on a sampling basis to understand the current condition of the areas at the beginning of the project, where most of the farmers were engaged in horticulture as their primary farming activity. The survey items included cultivation area, yield, selling prices and costs of horticultural products grown in the previous year as well as income from them. The survey was conducted by the district staff in the target areas and they were assisted by their project counterparts.

The final monitoring was carried out in October 2009 just before the termination of the SHEP project period. The survey covered a total of 2,177 individual small-scale farmers belonging to 114 of the 122 model farmers' groups from which data could be obtained in a similar manner to the baseline survey. About 80% of the 114 farmers' groups, that is, just over 70% of the 2,177 farmers, had been covered in the baseline survey.[10]

2) Results

As shown in Table 2, the average per group horticulture-related net income of the 154 organizations that took part in the baseline survey was 536,257 Ksh, and the average per farmer net income of those who belonged to these groups was 22,642 Ksh. In October 2009, the average per group horticulture-related net income of the 114 organizations was 900,030 Ksh, showing a 67% increase over the baseline survey; while the average per-farmer net income was 47,131 Ksh, showing a 106% increase over the baseline survey. While income increased for both men and women, the gap between them fell from 31% at the time of the baseline survey to 15%[11] at final monitoring.[12]

9. In the Baseline Survey, farmers not belonging to the groups or farmers with poor activity results also took part. So, there is a difference in the total number of farmers before and after the survey. That is, the Baseline Survey data is an average including members of the model farmers' groups and non-model farmers' groups.

10. As some names were illegible, the number is approximate.

11. Husbands and wives cultivated and owned different farmland. Generally, husbands cultivated crops with high cashability and wives grew crops for subsistence.

12. A gender survey conducted after the start of the project revealed that many farmers had a separate household budget according to gender.

Table 2. Horticulture-related net income:
per farmers' group and per farmer (men and women) (Ksh[*1])

	Farmers' Groups	Farming households	Men	Women
Baseline Survey (May and June 2007)	536,257 (154)*2	22,794 (3,623)	26,642 (1,940)	18,359 (1,683)
Final Monitoring (October 2009)	900,030 (114)	47,131 (2,177)	50,221 (1,111)	42,711 (1,066)

[*1] Exchange rate as of January 2013 (1USD = 84.5Ksh)
[*2] The numbers in parentheses shows the number of farmers' groups and that of farming households

4. Essence of Success of the SHEP

Though incomplete in the absence of control groups, the simple analysis above indicates the likelihood that the SHEP has been useful in improving the net income of farmers who participated in the project. Based on that assumption, the following sections will try to identify the factors that may have been behind the performance of the farmers practicing the SHEP approach; they are: the introduction of market-oriented agriculture, improvement of farming efficiency, introduction of appropriate techniques, and the utilization of existing administrative structures.

1) Introduction of market-oriented agriculture

First and foremost, it was the introduction of market-oriented agriculture that seems to have been very effective in improving the net income of the farmers. The most fundamental change was observed in the farmers' mindset. With the project, the farmers' attitude toward marketing was transformed from passive to more positive, or from the one based on the mindset of "harvest (crops) first and then sell", to the one based on the mindset of "harvest (strategically) to sell." To nurture such attitudes, the project encouraged the farmers to conduct market surveys and problem analysis as well as to create action plans by themselves. To that end, the project encouraged the farmers, for example, to consult on their own such materials as "A Market Facilitator's Guide to Participatory Agro-enterprise Development"

(Ferris, et al. 2006) of the CIAT (The International Centre for Tropical Agriculture), rather than directly feeding them with periodical market information.

Especially, the market survey was found quite instrumental in helping the farmers. According to the final evaluation report prepared at the end of the SHEP, 56% of 276 farmers and 70% of 40 extension staff responded that they found the market survey important as a technique to help increase income (JICA 2012). Actually, the market survey received the highest evaluation score among the 15 training contents evaluated by the respondents. The market survey enabled the target farmers to know what crops are selling best, how prices fluctuate by season and how much of their products of what quality can be marketed at what timing. Through market surveys, farmers also became acquainted with multiple buyers to deal with. Based on such knowledge, farmers started to select crops that they believed would yield greater profits and to decide when to produce them. In other words, they were now able to visualize potential buyers and expected profits when they start sowing. Being able to negotiate with multiple buyers, their position in relation to them also strengthened, and they became more organized, once they realized that collective marketing works to their advantage. There were cases where some groups of farmers, though unsuccessful at their initial attempts, eventually succeeded in increasing income through market surveys and cultivation of adequate crops. All this indicates that the introduction of market-oriented agriculture played a significant role in increasing the farmers' income.

2) Improvement in farming efficiency: an effective approach to gender and use

The SHEP emphasized gender-related activities, and at its initial stage, the project devised plans for gender-related activities.[13] The project not only provided training opportunities to women who were responsible for more than 70% of horticultural work, but also encouraged men (husbands) who still had the upper hand in the household to understand the role of women in farming. That is, explanations with illustrations were provided to men about gender consideration and code of conduct that would benefit all the family members. In both the SHEP and SHEP UP, as part of gender-related activities, the project performed a series of awareness-enhancing exercises that included the introduction of a daily

13. This job was facilitated by Japanese short-term gender experts.

activity calendar and a list of gender–based division of labor in horticulture, and an analysis of access to and control of resources by gender. In order to overcome gender-related obstacles for increasing income, the project also encouraged the farmers' groups to develop their gender action plans. By providing training on family budgeting, the project also emphasized the importance for the husbands and wives to have talks about domestic finance. This helped the farmers to save money necessary for the next season such as fertilizer and seeds, and contributed significantly to their horticulture production.

According to the evaluation at the end of the SHEP, 40% of 276 farmers who responded to the questionnaire found gender-related activities as having contributed to the increase in production and income, giving it third place among the 15 training contents in terms of importance. The gender-related activities encouraged husbands, who used to be farm managers, and wives, who used to be laborers, to become management partners, and contributed to a fairer division of household labor among them leading to efficient farming (JICA 2012).

3) Introduction of appropriate techniques

Various techniques were introduced in the project. They were simple and applicable, using materials easily available to the farmers. In fact, in Kenya, a country where they have reached a certain level of technological know-how at the research station, the issue was not how to develop new technologies, but how to validate existing technologies from the farmers' perspective and put them to practical use. Based on this understanding, the project focused on the introduction of techniques that were "immediately usable the moment they were learned," such as the technique for correct planting using twine. The guidance on these techniques was provided jointly by Kenyan experts with abundant experience in horticulture-related guidance and Japanese experts who could provide advice from an outsider's point of view. Even when introducing technologies quite new to the farmers, the project made sure that they would be applicable with the materials and techniques already existing locally; such technologies included road maintenance using sand bags ("*Do-no*,"), fermented organic manure ("*BOKASHI*"), and easy-to-handle weeding tools.

In both projects, the policy was never to force the use of specific techniques from outside but to inspire the farmers to be motivated into

introducing new techniques before they are taught about the technologies. With this policy, the project saw steady introduction of new techniques by the motivated farmers, which resulted in the increase of crop yield. As shown in Tables 3 and 4, the yield of horticultural crops increased; for example, tomatoes in Bungoma County registered a 396% increase, and onions in Kisii County a 596% increase. The crop yield increased in other areas as well (Kitajima et al. 2011). These increases in yield significantly contributed to income increases for farmers.

Table 3 Change in yield by unit area in three key crops in Bungoma County

Item	April 2007 (kg/10a)	October 2009 (kg/10a)	Rate of Increase	(No. farmers' groups/total no. of farmers' groups)[*3]
Tomato	1,157.1 (±53.7)[*4]	4,577.0 (±429.9)	296%	17/30
Kale	876.1 (±16.5)	3,212.9 (±256.9)	267%	11/30
Onion	671.0 (±19.0)	799.9 (±170.0)	19%	9/30

[*3] Number of farmers' groups that selected the above items as priority crops after the market survey.
[*4] Mean ± standard error

Table 4 Change in yield by unit area in three key crops in Kisii County

Item	April 2007 (kg/10a)	October 2009 (kg/10a)	Rate of Increase	(No. of farmers' groups/total no. of farmers' groups)
Tomato	1,451.2 (±32.0)[*6]	4,250.0 (±333.7)	193%	16/31
Traditional Vegetable[*5]	607.6 (±2.8)	1,716.1 (±135.2)	183%	8/31
Onion	418.7 (±13.1)	2,189.5 (±380.1)	424%	6/31

[*5] Leafy vegetable called Black Nightshade.
[*6] Mean ± standard error

4) Utilization of existing administrative structure (establishment of SHEP Unit)

Both projects were designed to fully take advantage of the country's existing administrative structure for extension services. This project's

architecture was chosen on the obvious assumption that the activities introduced by the projects would continue after the end of the project. By adding nothing new and complicated to the existing routines, this structure helped local administrators to continue pursuing their activities. At the time of the start of SHEP (2006), the flow of extension services consisted, from top to bottom, of the Ministry of Agriculture, Provincial Office of Agriculture, District Agricultural Office, Divisional Agricultural Office and frontline extension officers. The roles of each of these actors in the project were determined so that the project activities may not deviate from their respective day-to-day responsibilities.

In the SHEP, however, the project team was established as a special unit for the project made up of Japanese experts and full-time staff assigned from the Ministry of Agriculture. Just before the completion of the SHEP, the "SHEP Unit" or the "Smallholder Horticulture Empowerment and Promotion Unit" was established at the Ministry of Agriculture of Kenya. The mandate of the Unit is to support small-scale farmers across the country using the SHEP approach. The Unit will continue the project after the end of JICA's involvement.

5. Philosophy behind the SHEP Approach

Use and application of the motivation theory

The basic concept behind the SHEP approach is the motivation theory. By applying it, the projects introduced a mechanism in which the roles and responsibilities of the different actors (from the Ministry of Agriculture at the top down to the farmers) are clarified, and to allow each of the actors to spontaneously undertake actions. This mechanism is consistent with the discussion going on in the international arena in recent years about ownership and capacity development.

The structure of the project activities has been based on the motivation theory of Deci et al. (1995) in order to guarantee that the project activities will continue and expand with increasing creativity, moving toward the achievement of the ultimate goal. Deci classified motivation into intrinsic motivation and extrinsic motivation and concluded that intrinsically motivated activities are sustainable. Amabile (1996) argued that while extrinsic motivation deprives people of creativity, intrinsic motivation leads to creativity.

In projects like SHEP, external actors like project staff and Japanese experts have no choice but to start by providing the people they work with with extrinsic motivation. Thus, assuming the arguments of Deci and Amable to be correct, the critical question was how to start with the provision of extrinsic motivation and shift to a situation where the targeted actors become intrinsically motivated and keep up their own creativity. To that end, the projects incorporated a variety of measures for each activity to encourage the smooth transition to intrinsic motivation. In the process, the following motivating factors were used: (1) self-determination: self-determination easily encourages subsequent development of ownership; (2) affinity motivation: creation of a mutual relationship encourages positive actions; (3) sense of achievement and feeling of competence: the sense of achievement that one feels after spontaneously solving a problem, and the feeling of competence that one feels when recognized by others when contributing to the continuation and further development of actions. It often happens that when an intrinsically motivated person receives an excessive reward from outside, the reward becomes his/her objective and the intrinsic motivation decreases (this is called the undermining effect). The project carefully planned its activities in such a way that the participants' intrinsic motivation would not be adversely affected; for example, material inputs were limited only to those cases where they were absolutely needed, like in the demonstration of technologies.

In this manner, the project's approach is based on the motivation theory and it was intended and designed so that an activity causes changes in a stakeholder's mind and behavior, and a chain of such changes will eventually make him/her intrinsically motivated. This transition of stakeholders from being extrinsically motivated to intrinsically motivated does not only contribute to the attainment of the project goal, but also to the securing of the sustainability of activities after the end of the project. Intrinsically motivated stakeholders, including the farmers and those who support them, will be able to tap their potential to the fullest, and to pursue their activities with creativity.

Design of activities in logical sequences

Having the motivation theory as its conceptual base, the project's activities were designed such that the individual activities form a clear and firmly connected chain of achievements and subsequent steps; in other words, the activities are sequenced so that once a participant

completes an activity, he/she is expected to have reached a certain level, based on which he/she will be facing a next activity step. Broadly, this consists of two steps. In the first step, a project participant is provided with an opportunity to raise his/her awareness. Such opportunities included, for farmers, for example, a match-making forum for stakeholders involved in the horticulture industry; the opportunity of conducting a market survey by farmers' groups itself constituted an opportunity to enhance their awareness of the outside world; and activities related to different gender-based roles in the household mentioned above also provided an opportunity.

The second step was for the participants to work out, based on enhanced awareness, a plan of action for improving the current situation and implement the plan. The project participants got assistance from the project in their plan-making and implementation of such plans. Through this series of events, including awareness building, planning of actions and their implementation, participants' capabilities were gradually strengthened (JICA 2012).

To make sure that this kind of sequence happens, SHEP and SHEP UP projects instituted a detailed work procedure that leaves no logical gaps between the individual activities or outcomes. For example, a farmer is presented with a visible goal such as an increase in his/her profit through the sale of horticultural crops. He/she will then be encouraged to steadily go forward by taking the steps to achieve the goal. Further, they were enabled to envision how, when and where their own crops will be traded through the match-making forum and market surveys. The project visibly displayed the steps to follow for achieving such goals, and provided the farmers with the necessary skills in taking such steps.

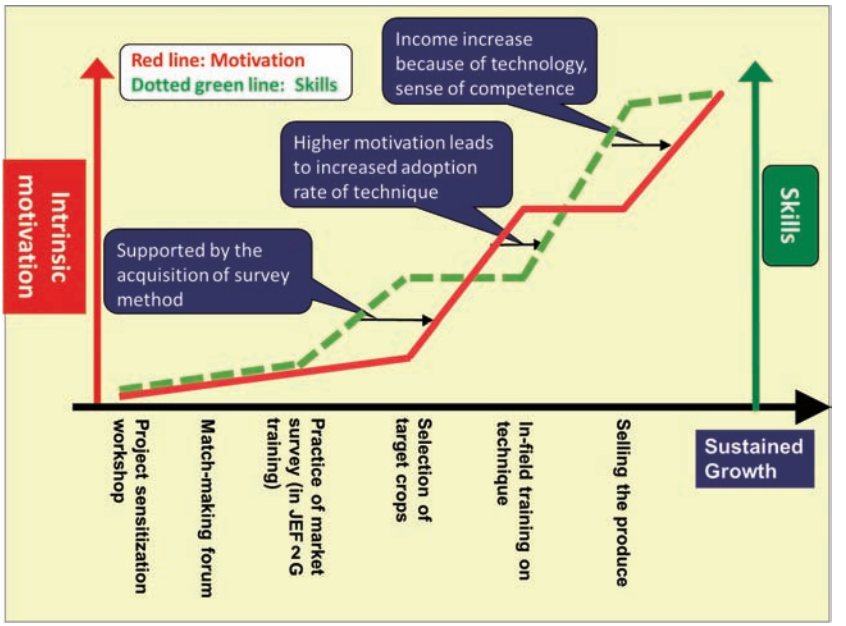
Using this kind of mechanism, overall, the projects provided the farmers both with the motivation and necessary skills to realize their targets. And that kind of steady support for farmers through the project was made possible by designing the activities in a sequence where the steps are logically connected with one another, as will be explained in the next section.

6. Internal and Behavioral Changes in Activities of the SHEP and SHEP UP

This section will look at how the individual activities of the projects helped, step by step, the cycle mentioned above: enhancing awareness and motivation, and acquiring skills to realize the goals. Detailed information is shown in the Appendix.

Figure 2 is a diagrammatic illustration of the development of farmers' intrinsic motivation and skills. The thick red line shows the enhanced intrinsic motivation formed in farmers by the series of activities described in the table in the Appendix, and the green dotted line, the change in their skills level. Initially, the progress of both the levels of intrinsic motivation and improvement in skills was slow, in the period from the Sensitization Workshop through FABLIST Forum (match-making) to the market survey practice in the JEF2G Training. Then, farmers' skills improve significantly when they conducted the market survey. Subsequently, farmers' intrinsic motivation was significantly enhanced when they determined, on their own, the target crops to produce based on the result of the market survey they had conducted. This, in turn, increased awareness and motivated the farmers to more thoroughly learn techniques in the In-field Training. When the farmers succeed in marketing their products, this successful experience further promoted their sense of competence, leading to even more enhanced intrinsic motivation. Thus, the whole process can be described as an interaction between enhanced intrinsic motivation and increased skills levels complementing and reinforcing each other, leading to sustained growth.

Figure 2. Relationship between farmers' motivation and skills in the SHEP Approach



7. The enabling Conditions for the SHEP Approach and Future Challenges

There are several conditions that enabled the SHEP approach to produce encouraging results.

First, the role of the Ministry of Agriculture of Kenya was significant in the success of the SHEP and the effective promotion of the SHEP UP activities. The Ministry of Agriculture of Kenya understood, up-front, that the key to success was the improvement of the abilities of the farmers and the staff of the Ministry. It was fully aware that it takes a certain amount of time for people's capacity to develop, including intrinsic motivation, and that any hasty and/or excessive provision of material incentives such as agricultural materials and equipment may actually hamper such intrinsic motivation/capacity development.

One lesson from this experience is that it is necessary for the government

to distinguish what to do or not to do. The government must have a clear vision on the roles to be played by the administration and farmers (private sector), to achieve long-term sustainable development. After all, agricultural support is a form of industrial support. For it to be effective, the administration must have a deep understanding how commercial agriculture works.

The SHEP approach, which has been successful so far in Kenya, may not always be successful in other conditions. Several factors seem to have worked behind the SHEP's performance. In the first place, in terms of natural conditions, the target areas were suitable for horticultural cultivation with respect to rainfall, sunshine, temperature and soil conditions (Figure 3 and Figure 4). Obviously, this approach would not have achieved the same results in more adverse conditions.

Figure 3. Precipitation in Africa and SHEP target areas

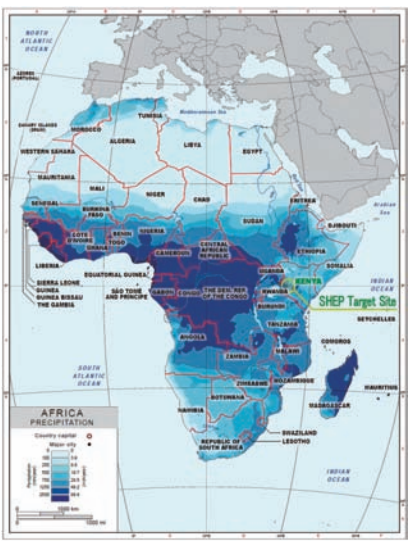
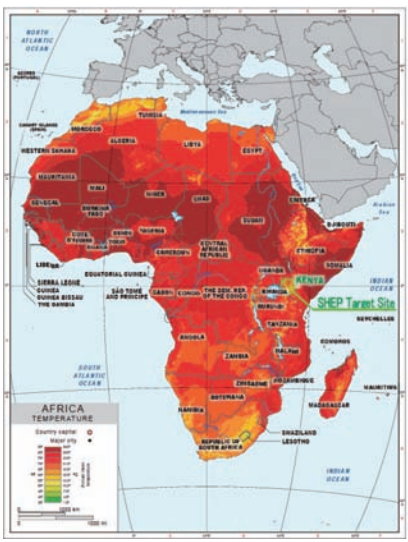


Figure 4. Temperature in Africa and SHEP target areas



Socio-economically, the target area had a high population density compared with other parts of Kenya or other African countries (Figure 5 and Table 5). A high population density means high intra-regional consumption, providing the buyers, brokers and processors with an advantage. It also made public extension services efficient. High population density allowed buyers, brokers and processors to purchase

products in bulk, and the administration to efficiently provide training opportunities to a large number of farmers. The number and quality of existing horticulture-related private enterprises, including brokers, is also an important factor to help drive the approach. In Kenya, which has a long horticultural industry history and high potential, private enterprises are conducting business to varying degrees, and that has helped the SHEP approach achieve its objectives.

Figure 5. Population density in Africa and the SHEP target areas

Table 5. Population density of Kenya and the SHEP target areas

	Population Density
Target areas of SHEP	367.9
Kenya	66.4

Kenya National Bureau of Statistics (August 2010) '2009 Kenya Population and Housing Census'

Any project intending to develop horticulture using the activities similar to those of the SHEP must consider the external conditions mentioned above and adjust the activities in accordance with the situation of the target country / region.

Although it is important to take into consideration the varieties of external conditions under which projects are implemented, it is possible to apply the gist of the SHEP approach to any project, not necessarily on horticulture but on other crops and for other purposes like irrigation management; the series of activities shown above or a part of them and the underlying philosophy are applicable to a wide range of projects. For example, in a small-scale irrigation project, the project might select target

counties for small-scale development, using the proposal system used for the selection of districts implementing the SHEP UP. This process would ensure that the selected counties will be willing to manage the facility voluntarily after their initial development.

There are a number of examples of actual agricultural development that support the validity of the SHEP approach. In Japan, for example, the role of advanced farmers and agricultural cooperatives was significant in developing clusters of producers to meet the market needs. And generally, it seems that for a business to succeed there should be a proper relationship between the state and the private sector including farmers. Such cases of productive collaboration between the state and the private sector could be used as a reference for the implementation of the SHEP.
The SHEP UP activities are currently being scaled-up across the country. They are also expanding across national boundaries: the personnel who have been trained and qualified in the SHEP and SHEP UP would assist other African countries as experts. In addition, interested parties in African countries could be invited to Kenya for field visits and training.

8. Summary and Conclusion

The SHEP and SHEP UP are good cases highlighting the importance of capacity development of stakeholders, including small-scale farmers, in improving the market access of small-scale farmers in Africa. The projects helped the farmers to improve their situation by encouraging them to do various activities including their own market survey. The projects also bridged the gap between market-related personnel and farmers, which brought about benefits to both parties: market-related personnel became able to buy products that met their standards at an appropriate time, and farmers to obtain profits by supplying such products. In the process, farmers were supported by the administration.
Overall, the project was an attempt to comprehensively address the issues facing horticultural farmers in Kenya. The project helped the farmers acquire the habit of securing the marketability of the products before starting to grow a crop, which was a necessary undertaking for them in view of the low storability of horticultural crops. The project also introduced gender-related activities, which also significantly contributed to the improvement in their farming methods.
The SHEP and SHEP UP started with the premise that horticultural

farming is an *industry,* no matter how small the scale of the market as a whole or the farming of individual farmers. Based on that premise, the projects developed a series of activities to encourage the farmers to develop behavior to respond to the needs of the market, using it both as the starting point of their strategy as well as their ultimate goal.

As mentioned earlier, many African countries are encouraging their farmers to transform their current subsistence-oriented agriculture into a more commercially-oriented venture. However, small-scale farmers in Africa did not know how to achieve it, though they had been conducting farming as a business unit based on rational decision making. The project filled this gap. A remark by the District Agricultural Officer in the SHEP UP accurately describes the characteristics and effects of the initiatives of the project: "Although the philosophy of 'Farming as Business' had been repeatedly stated by the Ministry, we did not know what we could do about it. The SHEP UP, however, has taught us how to implement it at the field level."

Since the 1990s, many donors have been providing support for value chain development. Their support had tended to focus on the downstream part of the supply chain from production through to sales, or the portion close to post-harvest processing and sales. By contrast, the SHEP and SHEP UP provided support to small-scale farmers with every step from production through to sales, covering various aspects of the activities in ways that are adoptable by the farmers.

In doing so, the project always put the farmers at the center in designing its activities and refining its methods. "Does it move the people?" – this was the question that was repeatedly asked all through the project. From this perspective, and referring to the motivation theory, the project designed its activities in sequences of steps firmly connected with one another by causal relations and logic. This "people-centered" perspective has been applied to all activities. For example, when choosing a technology to recommend to farmers, the project thoroughly examined its desirability from the farmers' point of view: in terms of their merits, contribution to income gains, and technical sustainability.[14]

14. One reason why this perspective could be uncompromisingly applied may have been the business model of JICA's technical cooperation that emphasizes interaction and joint work among people. In this case, it was the interaction among farmers, Kenyan administrators and Japanese experts that made the "people-centered" approach possible.

However, one may say that in essence there is nothing new in the activities and approaches established in the SHEP and SHEP UP: for example, the importance of capacity development through enhanced motivation had long been emphasized as an essential component of technical cooperation; logically coherent project structure is an ABC of development project design. It was perhaps the combination of these basics that made the SHEP successful in helping small-scale horticultural farmers to double their income, and the SHEP UP be adopted as an authorized administrative mechanism.

A combination of existing knowledge can sometimes create something new. Take, for example, the "iPhone" and "iPod" of Apple Inc. It is said that the materials and technologies used in these new gadgets were not newly invented by Apple Inc. or Steve Jobs (Kitani 2012). They have, however, achieved great success by combining existing materials and technologies, and anticipating the needs of the times. In an interview, Steve Jobs said that an innovation does not necessarily mean inventing a new thing or new technology, but it comes about by transforming a combination of existing technologies and ideas into a new technology, a product or a service (Gallo 2011). In the same vein, probably, the secret of the success of the SHEP and SHEP UP lies in the fact that it combined the concept of capacity development, which is the basic premise of Japanese technical cooperation, with careful planning of activities based on the firm logical sequence of activities and the motivation theory.

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Appendix (See Section 6)
Internal Change and Behavioral Change in each activity of SHEP and SHEP UP

	Activity	Internal change	Behavioral change
1) Project Sensitization Workshop	The first of the activities in the project was called "Project Sensitization Workshops." Its aim was to make sure that stakeholders at all levels, from governmental officials to farmers, understand the ideas of the project, its activities, and their responsibilities. This workshop brought forth changes of various sorts in the participants (stakeholders) of the project,	The stakeholders (participants) of the project came to feel close to the project, and their sense of commitment to the project activities was elevated because they were able to understand what actions they have to take, and to envision the road ahead to success. People in administration, on their part, understood that the project was not a separate enterprise unrelated to the Ministry's normal activity. The farmers' group representatives were proud of having been selected as the groups' representatives.	By learning the necessary skills for the project, such as for drafting a proposal, governmental officials became ready to implement their job (activities) with a sense of ownership and skill. Extension officers and farmers' group representatives shared the information obtained in the Sensitization Workshop with other farmer members of the model farmers' groups.
2) Selection of implementing district	For the selection of districts to be covered in the project, a system was introduced to select the implementing districts based on a set of criteria: the level of the understanding of their roles and responsibilities as well as their motivation to carry out the SHEP Approach and activities. In the process, the agricultural potential of the districts was also taken into consideration.	The Provincial Directors of Agriculture (PDA) came to feel a stronger sense of responsibility for the project, by taking the role of selecting the implementing districts. The District Agricultural Officers (DAOs) of the selected districts felt proud of their district having been selected for the project, and their motivation regarding activities was enhanced.	The Provincial Offices of Agriculture became more active in providing support for district-level activities. The District Agricultural Officers also became more active in engaging themselves in various activities such as the determination of model farmers' groups.
3) Organizers' Training of the Basic SHEP Approach	Training was given to district staff on the concept of the SHEP Approach and on the series of activities from preparation to implementation.	District staff came to feel more confident in their ability to implement the project activities, as they deepened their understanding of the training content. They also became more motivated toward the project activities. When they passed the examination and received the certificate of completion, they had a stronger sense of self-competence.	District staff understood their roles and acquired the techniques to allow them to smoothly implement the activities.

4) Baseline Survey	A survey was conducted to assess the current status of the model farmers' groups and their individual members.	Extension officers became aware of the needs for the implementation of the Baseline Survey. Model farmers' groups and farmer members became aware of the farming status and current problems facing their groups.	Extension officers acquired the ability to collect exact data and put the data into practical use. Farmer members acquired the skills to keep a written record about their farming. Model farmers' groups made efforts to improve their group in accordance with the Group Empowerment Indicators (GEIs).
5) Match-making Forum (Farm-Business Linkage Stakeholder Forum)	An opportunity to exchange business information was provided. The participants were: representatives of model farmers' groups (two males and two females), extension officers in charge of the model farmers' groups, and stakeholders related to the area's horticultural industry.	The farmers' representatives were proud of having been selected. Participating farmers and extension officers became aware that agriculture, and especially horticulture, is a business with a lot of potential, and came to have more positive prospects about their future.	The model farmers' group representatives shared the information obtained in the forum with other members of the groups. The model farmers' groups started to get in contact with businesses and they became able to obtain more market information. They acquired bargaining power by gaining a greater understanding of the buyers' services and the products handled by them. Their business opportunities expanded by having more buyers to deal with.
6) Joint Extension Staff and Farmers Dual (2) Gender Training	This was training focused on market survey and action plan making. Participants were one male and one female representative of each model farmers' group as well as an extension officer in charge of the group.	The model farmers' group representatives were proud of having been selected. The farmers and extension officers had an opportunity to get to know one another by receiving training together, while feeling peer-pressures from other farmers' groups and districts. Through exercises during the training, they became aware of the challenges they were facing and felt confident of their abilities to overcome them.	Participants acquired skills for a number of activities, especially skills for the implementation of market surveys and action plan making. The model farmers' group representatives and extension officers taught the skills acquired during the training to other members of the model farmers' groups. Extension officers actively visited and provided guidance to model farmers' groups.
7) Gender-related training	This comprised of training focused on the awareness enhancement of such issues as the gender-based division of labor, access to and control of resources, and roles in daily activities by gender, done in a workshop style. Also, a gender action plan was developed for solving gender-related problems for increasing income from horticulture. And household financial management training was conducted in order for husbands and wives to jointly manage household earnings.	Farmers became aware of gender disparities in households through enlightenment training and understood that they were being an obstacle for the increase in horticulture income. In addition, they became conscious of the importance of the concept of household budgeting and management. Extension officers recognized the importance of gender-related training.	Farmers implemented their gender action plan aimed at improving horticulture income. Also, farmers started to manage their household budget through collaboration of husband and wife. Extension officers became aware of the importance of gender-related training and imparted such skills onto other farmers' groups.

8) Market surveys and action plan making by farmers' groups	After completion of the JEF2G Training of 6), each model farmers' group undertook a market survey, selected target crops and made action plans with support from an extension officer.	Model farmers' groups felt enhanced motivation by having determined the target crops by themselves. The sense of ownership was heightened by having developed their own action plan. They came to have a clearer image of achieving an income increase by envisioning the goal of marketing their crops at an appropriate price. Extension officers recognized the usefulness of this method by having observed the farmers practice the series of activities.	Model farmers' groups acquired the ability to implement a series of actions and implement activities in accordance with the action plan. Extension officers also provided support in accordance with the action plan.
9) Training of extension officers (Facilitators' Training for Farmers' Demand-Driven Extension)	Based on the action plan prepared by model farmers' groups, training was provided to extension officers focused on the techniques to produce target crops that satisfy market needs, and specific techniques required by model farmers' groups. Readily usable extension materials (*"KAMISHIBAI"*) were distributed on site.	Extension officers became confident in providing support to farmers and their sense of competence was enhanced.	Extension officers acquired the basic techniques for horticultural production as well as specific techniques and knowledge that were needed by farmers. Moreover, they trained model farmers' groups using the distributed extension materials. In addition, they actively undertook in-field training sessions for model farmers' groups.
10) In-field Training	Extension officers provided guidance to model farmers' groups on the techniques they acquired in 9) in line with the action plan.	Farmers, having learned techniques to solve the problems they were facing, felt their needs were satisfied. In addition, farmers came to have a stronger sense of trust toward the extension officers. Extension officers had a sense of competence through being appreciated by the farmers who participated in the training.	Farmers learned techniques to solve their problems and put them into practice. Extension officers became more active in implementing their extension work, using the abilities they have acquired to lead training.
11) Selling the produce	Farmers, either individually or collectively through their farmers' groups, sold their products using the sales channels they had become acquainted with.	Farmers felt satisfied at having been able to sell their products at a reasonable price, and their sense of self-competence increased, leading to further enhancement of motivation. Even those who could not earn as much income as they wanted took the result as a challenge that could be overcome because they had developed decision making skills and a sense of ownership.	Model farmers' groups that achieved successful results continued to practice with similar activities while constantly improving them. Less successful model farmers' groups, too, continued their activities, learning from their experiences.