Scaling Up South-South and Triangular Cooperation

Japan International Cooperation Agency
November 2012









Conference Volume Prepared for
the Global South-South Development Expo 2012

JICA Research Institute

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Preface

With the Busan High Level Forum behind us and with just two years ahead of us until the 2015 MDG target year, all around we see examples of South-South Cooperation (SSC) and Triangular Cooperation (TrC) attracting ever-mounting levels of global attention. Indeed, that increasing attention on SSC/TrC seems quite justified. The global landscape is rapidly changing with the appearance of numerous new and diverse actors on the one hand and the enormous challenges that we must collectively face in the decades to come on the other. Faced with these “tectonic” changes, obviously, we definitely need to devise new and better modes of international cooperation. And SSC/TrC must be one of our very promising assets upon which we can develop tomorrow’s international cooperation.

This volume has been compiled by a study group on SSC/TrC formed at JICA Research Institute, comprising researchers at JICA-RI as well as JICA staff with experience and interest in SSC/TrC. The team embarked on a project expecting that it would be a fairly straightforward job, given our ample experience in and vast information on SSC and TrC. The work turned out, however, to be much more challenging than we first thought: we found that statistics on SSC/TrC are not collected in a very systematic manner, perhaps, in part, due to SSC/TrC’s broad definition; we found that SSC/TrC projects tend to receive diverse valuations from different people, who, depending on where they are, view them from a different perspective; given the large number of stakeholders inevitably involved in an SSC/TrC project, it was sometimes difficult to have a unified view upon even a small project; efforts to evaluate their impacts are still underway. And importantly, given SSC/TrC’s broad scope, we should have taken up a wider variety of cases including, for example, cases of financial arrangements and those involving the private sector, which remained untouched.

So, much remains to be done, but this has been a very useful exercise for us, and we would welcome any feedback from the readers; we are determined to continue our work to shed light to the various aspects of SSC and also invite any interested parties to join us in deepening our analytic inquiry into the possibilities of SSC/TrC.

In concluding, on behalf of the study team, I would like graciously acknowledge the support, information and comments that we received from many of our colleagues, both within and outside JICA. While we did our best to incorporate such information and comments, the individual authors are responsible for the views expressed therein as well as for any errors and omissions that may remain.

On behalf of the SSC/TrC Study Team,

Tokyo, November 2012
Hiroshi Kato
Senior Special Advisor
JICA

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Contents

APPENDIX

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PART I

International Development Cooperation in the 21st Century and South-South/Triangular Cooperation

Akihiko Tanaka

The Changing World System

During the period of more than 60 years since development cooperation as we know it emerged in the aftermath of WWII, the world system has gone through a significant change. Economically, the era of overwhelming U.S. dominance or American hegemony began wavering as early as in the 1970s, giving way to the trend of multi-polarization of economies with recoveries in Japan and Europe. With the end of the Cold War, which largely determined international politics after the Second World War, the world system entered the post-Cold War era. The wave of globalization accelerated from around that time. Today, with the first decade of the 21st century behind us, the world system seems to be in a state of change that can happen only once in several centuries.

Placed in an era of this tectonic change of the world system, international development cooperation, which hitherto has been characterized mainly as the flow of resources from advanced countries ("North") to developing countries ("South"), is also at a major crossroads. While developed countries such as European countries, the US and Japan are experiencing ever-increasing difficulties, emerging economies are strengthening their presence rapidly. Countries traditionally categorized as "developing countries" are no longer homogeneous. On the one hand, there are a fair number of developing countries likely to achieve many of their Millennium Development Goals (MDGs) while on the other hand, there remain groups of countries, some of which are called "fragile," which are lagging far behind. An increasing number of developing countries and

particularly, rapidly emerging economies, are starting to act as cooperation providers, thereby expanding the possibilities of South-South cooperation. And, with more international assistance providers in the field, notions on international cooperation are taking on more diverse forms. Along with the world system, development cooperation, too, is at a crossroads.

It is difficult to characterize today's changes in the world system in simple terms. I once mentioned that we may be at the start of an era that I call "the New Middle Ages," since the world today resembles the Middle Ages in that sovereign states and other non-state actors (businesses, NGOs, IGOs, INGOs, terrorist groups) interact intricately amidst a trend of globalization and mutual economic dependence.[1] No matter whether this metaphor is appropriate or not, it has become ever more difficult today to view the current world system merely through the concept of the sovereign state systems. Moreover, the overwhelming economic dominance of the United States and Europe—countries that led the establishment of today's sovereign state system—is coming to an end. If, as numerous projections predict, the economic scales of countries move proportionally to their populations, this trend toward diversification is likely to continue.[2]

These major changes in the world system are not taking place uniformly across the globe. Some parts are achieving rapid economic growth, while others stagnate. Thus, the dichotomy of advanced and developing countries is no longer appropriate. In the same vein the concept of "developing countries" is becoming obsolete; evidently it is inappropriate to lump quite heterogeneous groups of countries together simply as "developing countries."

Changing World System Calls for New Development Cooperation

These major changes in the world system call for a fundamental review of the concept of development cooperation.[3] Whereas development cooperation has been defined chiefly as transfers of sophisticated

[1] *Akihiko Tanaka, The New Middle Ages* (Tokyo: Nihon Keizai Shimbun, 1996)

[2] Tanaka, op. cit., sought to somehow include the "fragile states" of today into the analyses, and thus divided the global system into three spheres: the Neo-Medieval, Modern, and Chaotic. The countries in the Chaotic sphere are now referred to as fragile states.

[3] Whereas the 2005 Paris Declaration of OECD-DAC uses the terms "aid" and "donors," the 2011 Busan Declaration uses the terms "development co-operation" and "providers." This appears to reflect the changes I identify to a certain extent.

hardware and software originating in advanced countries to underdeveloped countries, development cooperation in the 21st century may take a different shape. This is because the knowledge and technologies needed in the decades to come will be quite diverse and different from those that have been built up in today's developed countries. For example, at least partly, it was knowledge and technologies developed only recently in the 21st century that drove the recent rapid growth of emerging economies, rather than the knowledge accumulated during the 19th or 20th century by today's North. Countries with lower income will look to the experiences of such emerging countries rather than to developed countries of the 20th century. Further yet, the next group of emerging economies may even pursue a different growth path from today's emerging economies.

These countries, too, will face enormous challenges in their ways forward, irrespective of their current stage of development. And for many of these challenges, unfortunately, no easy answers have been found, even by today's developed countries. Take, for instance, medical and pension systems that will likely be an issue in many countries as their economies mature. Tomorrow's developed countries will not be able to cope with this challenge simply by importing systems from today's advanced countries, whose systems have proved to be faulty. Thus, in a world faced with multitudes of tasks with no ready-made solutions, development cooperation must take the form of mutual learning and joint solution discovery.

The same applies to the realm of peace and state-building. The fact that the concept of "fragile states" has gradually made its way into the development community is worthy of appreciation as a sign of deepening pragmatism in development cooperation. This concept has helped realize the need for various measures to secure human security as well as the importance of institutions—in particular, functioning states—to sustain peace and order. Such measures include those for poverty reduction and improvement of health, as well as institutions that enable such measures to be sustained over the long term. Also required in a post-conflict society are efforts to re-establish peace, particularly those leading to reconciliation. All in all, whatever measures they may require, post-conflict or fragile states need human resources to implement such measures and to run the institutions. They also need a social infrastructure to keep the state system functioning. In a nutshell,

they need to rebuild the state as a comprehensive system. Here again, the experiences of today's advanced countries are of little help; today's post-conflict countries must search for their own state-building paths in today's environment where a wide variety of non-state actors interact. This process, too, will inevitably be one of mutual learning and joint discovery.

Tomorrow's Development Cooperation

Then, how should Official Development Assistance (ODA) or, more broadly, development cooperation in general, change in the times to come? In a nutshell, it must adapt to the fundamental changes in the world system, as outlined above. In other words, innovative modes of development cooperation must be looked for, so that emerging countries are assisted to grow into advanced nations while achieving harmonious growth without serious political or social tensions. Development cooperation in the 21st century must also help the next group of countries learn from the experiences of their forerunners and to become the next-generation "emerging" countries. It will also have to help those countries enduring difficult conditions today to overcome their fragility and establish a foundation for social and economic development. And, to achieve this end, tomorrow's development cooperation must be centered on mutual learning and joint solution discovery among various stakeholders, from every country, both from the north and the south.

Specifically, I consider the following three dimensions to be of utmost importance.

The first is development cooperation from the regional, cross-border perspective, i.e., cooperation that serves to boost the emerging economies' energy, thereby activating the economies of neighboring countries as well as that of other parts of the world. What I envisage in Asia, for example, is a development cooperation that aims to further promote the dynamism of nations such as Indonesia, Malaysia, Thailand and Vietnam, and along the way, to activate economies in the whole of Southeast Asia and Asia at large. Similar ideas seem also very promising for many parts of Africa, the Middle-East, and Latin America. This perspective of regional, cross-border perspective development may call for a different approach in cooperation. In infrastructure development, for example, emphasis should be placed more on

resolving regional bottlenecks beyond national borders.

The second is to enhance development cooperation for mutual learning and joint solution discovery. The conventional wisdom has been that "experts," usually foreign experts, visit developing countries to provide their expertise. However, cooperation could perhaps be more effective when an expert from outside and local experts work together, exchange ideas, and discover innovative solutions. This process could be particularly effective if both of the experts have had similar experiences of their own. The importance of this cannot be overemphasized given the nature of the tasks we are facing, as I mentioned earlier. Actually, this is what we at JICA have learned through our long experience: examples abound, such as the development of a new biological species (e.g., soybeans in Brazil), a new method of aquaculture (e.g., salmon culture in Chile), or a new technology to reduce the risks of volcanic and seismological disasters (e.g., landslide prevention technology in Indonesia). Such mutual learning and joint solution discovery must prove useful in tackling global or universal issues such as climate change and urbanization, and other important issues. Such a process of mutual learning and joint discovery could accelerate the growth of the world knowledge base, if it is appropriately facilitated by international development cooperation.

And the third is to strengthen cooperation between various stakeholders in development cooperation. As noted at the beginning, a major characteristic of today's world system is the emergence of various non-state actors, and they are endowed with rich resources and have important roles to play in the development cooperation of today and tomorrow. These actors include, obviously, non-governmental organizations (NGOs) and private businesses, but also various players such as universities, research institutions, hospitals, schools/teachers, unions, and community leaders as well as many others.

South-South Cooperation and Triangular Cooperation

In these contexts, South-South and triangular cooperation will have ever-increasingly important roles to play in the coming decades, given their obvious advantages with respect to the agendas outlined above: they are very suited to regional cooperation; they can offer perfect space for mutual learning and joint solution discovery; and they are effective in mobilizing resources of various professions, backgrounds

and experiences from around the world, which otherwise would not be participating in development cooperation.

Japan prides itself in having been a strong proponent of South-South and triangular cooperation since the mid-1970s, and is happy to share its ample experience with its partners, which is the purpose of this booklet. I hope this booklet will be widely read, and be used as a reference that will foster further cooperation among us.

The contemporary world system demands changes in our way of thinking about development cooperation. Development cooperation must be *co*-operation in the true sense of the word: working together. Extending this idea will enable us to adapt to the modern world system, and South-South and triangular cooperation is one important and promising means to that end. We intend to make every effort and work together with our partners around the world to establish a new form of development cooperation.

Chapter 1

Shaping International Cooperation into the Future

Hiroshi Kato

1. A Changing World System and the Need for a New Paradigm for International Cooperation

The significance of South-South Cooperation (SSC) is becoming even greater as we live in the post Busan High Level Forum era. The outcome document of the conference highlighted, even more strongly than ever, the significance of SSC and called for concerted efforts of the international community toward its strengthening. On the other hand, as the 2015 target year of the MDG is approaching, we need to rethink the kind of global community we intend to create as we march towards the 2020s, 2030s and beyond.

These two profound challenges in the global development landscape compel us to reconsider our fundamental perception of SSC; SSC is not only growing in its importance but also is changing its meaning in this post Busan and pre-2015 era, where, as clearly stated in the Introduction, we no longer think of the world system as comprising a developed north and developing south.

2. The purpose of this volume

This volume has been compiled to contribute to the conference's threefold purpose: (1) to showcase sustainable and scalable solutions, (2) provide opportunities to learn and share development successes, and (3) to explore new avenues for collaboration.

Analytically, we would like to pursue two objectives in this volume. The first is to *explore the meaning and possibility of SSC/TrC as a means of mutual learning and joint solution discovery* in a rapidly changing world

system, as clearly stated in the Introduction. The second is to *explore ways to scale up* such meaningful knowledge exchange. Scaling up development efforts and their impacts has been one of the central themes that the JICA Research Institute has been pursuing.[1]

The chapters that follow are attempts toward that end using different cases and analytical frameworks. Specifically, the following two chapters will deal with thematic issues, i.e., global issues such as climate change and disaster prevention (Chapter 2), and agricultural and food security (Chapter 3). In doing so, these two chapters will also look at analytical issues such as knowledge creation, institutional arrangements, capacity development, and scalability. In contrast, the subsequent Chapter 4 will dwell more on analytic issues, i.e., knowledge, institution and capacity; drawing on several case studies, it will look for key factors that facilitate scaling up of SSC as a means of knowledge creation.

Following these chapters are narrative case analyses, each offering somewhat detailed descriptions of selected SSC/Triangular cooperation projects supported by JICA. Finally, some facts and figures of Japan's SSC/Triangular cooperation are appended.

3. Outline of the Volume

Chapter 2: Climate Change, Disaster Risk Management and South-South/Triangular Cooperation (Hosono, Akio)

This chapter attempts to explore the roles that SSC/TrC can play in dealing with disaster prevention. Addressing the risk of disasters is of particular urgency and critical importance in developing countries, which, with their financial, technical and social constraints, are more vulnerable to disasters than developed countries. SSC/TrC could play a particularly important role in this area; it can mobilize knowledge and wisdom of both foreign and local experts for the development of technically and socially appropriate technologies and systems for disaster prevention.

Starting with the reflection on the experience of the East Japan Great Earthquake and Tsunami as well as the flood that hit Thailand in 2011, the author presents three levels of capacity needed to deal with

[1] JICA Research Institute has been conducting a joint research with the Brookings Institution on scaling up, the result of which is forthcoming as Chandy, Laurence, Akio Hosono, Homi Kharas and Johannes Linn, eds. (forthcoming).

possible disasters. Then, the chapter will look at how an SSC/TrC project has worked in alleviating such gaps, taking cases from Central America. The descriptions vividly illustrate how the project succeeded in mobilizing local knowledge and people's wisdom, resulting, for example, in a highly ingenious way of flood prevention, using locally available materials. Other impressive and tangible achievements include a case where possible loss of life was avoided in the case of a powerful hurricane event. SSC's regional coordinating functions are also highlighted.

Chapter 3: South-South/Triangular Cooperation and Capacity Development (Hosono, Akio)

This chapter looks at a case that deals with agricultural development in the tropical region, i.e., in Latin America and Africa. The case is called the ProSAVANA project, a triangular cooperation project between Mozambique, Brazil, and Japan. It aims at the development of a huge savanna area stretching on the Mozambican soil. This project intends to capitalize on the body of knowledge accumulated in Brazil through the Cerrado development. The Cerrado development is an achievement, sometimes called "historic," made possible by Brazil-Japan cooperation, in that it created a new body of knowledge on tropical agriculture on the savanna, which was available nowhere else until then. The chapter, therefore, goes on to look deeper into the process of knowledge creation – both technological and institutional – and this kind of interaction is what the ProSAVANA project intends to realize in Mozambique.

The chapter also looks at some institutional arrangements that have facilitated various cooperative activities of Japan with a number of countries. The examples of partner countries presented in the chapter include Mexico, El Salvador, and Chile.

Chapter 4: Scaling Up of South-South Cooperation (Kato, Hiroshi)

This chapter starts with the affirmation of the message contained in the Introduction of the book: the challenges that the global community faces in the 21st century call for a new architecture of development cooperation, and tomorrow's international cooperation will increasingly have to be a process of horizontal "mutual learning" and "joint solution discovery." It then argues that while SSC as we know it today is already leading us in that direction, the remaining challenge is how to scale up

SSC in such a way that it will evolve into the system that we aspire to have in the future. Viewing SSC essentially as a process of knowledge creation, and paying particular attention to institutional arrangements and capacity development aspects, this chapter attempts to draw practical lessons for effective scaling up of SSC from Japan's experiences.

The argument goes that SSCs can be particularly effective when they deal with the right kind of knowledge that is unavailable elsewhere and when it is strongly needed by the beneficiaries. It then argues the importance of having a knowledge base and continuous support, for both of which, it is argued that having "centers of excellence" (COEs) could be instrumental. The importance of encouraging interactive knowledge creation process is highlighted, for which there are a variety of possible approaches. Finally, using the Indonesian case as an example, the chapter looks into the process of capacity development of today's southern countries. It ends with a call for consistent and continuous support from the international community, since the process will inevitably be a time-consuming exercise.

Part II: Cases:

This volume contains nine case reports concerning projects and programs as well as processes and mechanisms of capacity development and/or institution development for SSC/TrC.

The first three cases deal with the projects going on in Africa in education, health, and investment. Case 1 and 2 feature projects with extensive networks, involving 34 and 15 countries, respectively. The third case is a Zambia-Malaysia-Japan triangular cooperation on investment promotion.

Case 4 looks at the process of Indonesia's steady efforts in recent years toward becoming a very robust SSC/TrC performer.
Latin American countries have been very active in SSC/TrC cooperation and JICA, like many other players, has had a lot of SSC/TrC activities on that continent. Here we have included 5 reports related to this area. Cases 5, 6 and 7 are on individual projects: Case 5 looks at a triangular cooperation involving El Salvador and Mexico, a case also briefly referred to in Chapter 2. Case 6 is about a project for Haiti. Case 7 is a

South-American sub-regional project on animal health. The remaining two cases deal with Brazil: Case 8 on the country's capacity development for tropical rain forest preservation, and Case 9 provides a concise description of a cooperation framework called Japan-Brazil Partnership Program.

1. Network-type Cooperation: Strengthening of Mathematics and Science Education in Western, Eastern, Central, and Southern Africa (SMASE-WECSA) Network
2. Inspired by Sri-Lankan Practice: Scaling-up 5S-KAIZEN-TQM for Improving African Hospital Service
3. The Triangle of Hope: Promoting Investment in Zambia through Malaysian Experiences
4. Flexible Cooperation for Indonesia's Multi-dimensional Challenges for South-South Cooperation under a Shared Vision
5. The *Taishin* Triangular Initiative in Central America: Co-creating Quake-resistant Construction Methods for Popular Low-cost Housing
6. Sharing Sustainable Agricultural Methods between "the Sister Countries of Española Island" in the Caribbean
7. Tackling Regional Challenge of Livestock Hygiene in South America through the Development of Professional Network
8. Japan-Brazil Partnership Program : A New Framework for Triangular Cooperation
9. Towards Sustainable Rainforest Conservation in the World: International Coourse on Rainforest Monitoring"

Reference

Chandy, Laurence, Akio Hosono, Homi Kharas and Johannes Linn, eds. (forthcoming). *Getting to Scale: How to transform the lives of millions of the world's poorest people.* The Brookings Institution Press.

Chapter 2

Climate Change, Disaster Risk Management and South-South/Triangular Cooperation

Akio Hosono

1. Introduction

The potential of South-South cooperation (SSC)/Triangular cooperation (TrC) in sharing knowledge and mutual learning is high. Not only has the South accumulated valuable experience in identifying and implementing development solutions, overcoming difficulties and constraints, the South and the North can collaborate to effectively manage the process of knowledge creation, knowledge exchange, capacity development and institution building to implement development solutions at scale. In particular, there are experiences that relate to managing new challenges of climate change adaptation and mitigation as well as prevention of natural disasters, and areas where the South and North are learning together to arrive at appropriate solutions.

Climate change adaptation and more effective prevention of natural disasters are new challenges for both the North and the South. However, the challenge for the South could be much greater, because the South has different constraints which are not necessarily found in the North such as availability of financial resources, appropriate technology and technical know-how, specialized professionals and trained personnel for disaster risk management (DRM), etc. For example, seismo-resilient transport infrastructure and houses are expensive. In developing countries, innovative solutions are needed to provide low-cost houses made of locally-available construction materials, which are affordable for low-income families. Similarly, these countries have to find ways and means to construct an infrastructure which is resilient to floods, landslides, earthquakes, tsunamis and other disasters, but at the same time affordable, with attention to the budget

constraints of these countries' local and central governments.

From this point of view, SSC among developing countries prone to natural disasters could be an effective vehicle for mutual learning and co-creation of innovative solutions. Countries of the North could also cooperate with the South through triangular cooperation providing their own experiences of climate change adaptation and natural disaster prevention taking into account developing countries' local context.

This Chapter discusses the possibility of SSC/TrC in the area of climate change adaptation and disaster risk management (DRM). First, lessons from the Great East Japan Earthquakes and Tsunami and Thai flood that occurred in 2011 with be discussed (Section 1). Then, from the perspective of these lessons, the case of DRM in one of the most natural-disaster prone regions of the world, Central America, will be discussed (Section 2). The experiences of SSC/TrC based on the regional cooperation model of this region will then be analyzed (Section 3). New initiatives for more comprehensive climate change adaptation and disaster prevention will be discussed (Section 4). Finally, some conclusions will be presented.

2. Lessons from the Great East Japan Earthquakes and Tsunami and the Thai Flood[1]

The Japanese government considers it important that "Japan shares with the world lessons that have been learned based on the experience and knowledge gained from the Great East Japan Earthquake."[2] The recommendation of the Reconstruction Design Council in Response to the Great East Japan Earthquake issued in June 2011 entitled "Towards Reconstruction: Hope Beyond the Disaster," establish four pillars for recovery, one of which is "open reconstruction," referring to the belief that "our nation must strengthen its bond with the international community, and aim for reconstruction that is open to the world, rather than inward-looking." In that context, "it is necessary to share lessons Japan has learned from this experience with other countries, making them international public property. Japan has a duty to proactively contribute to the international community in the areas of disaster prevention and reduction in this manner in the future. Japan should

[1] This section draws partly on the presentation made by Mr. Shinya Ejima, the Global Environment Department of JICA, in the occasion of Inter-American Development Bank (IDB) Meeting in March 2012. Errors and omissions are those of the author.

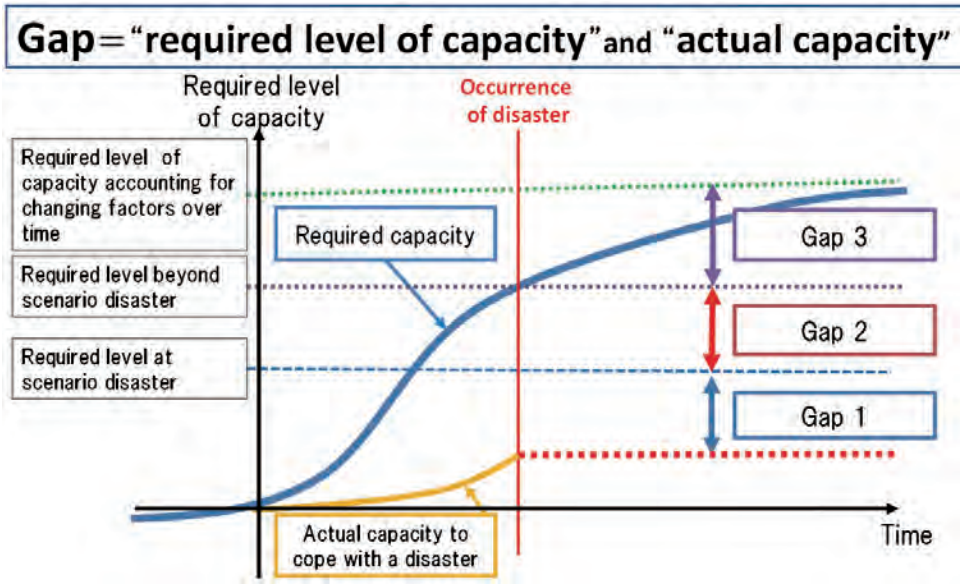
[2] Ministry of Foreign Affairs (Japan) (2011), p.16

utilize the lessons learned during the recovery and reconstruction process, and proactively promote international cooperation that values the bonds between people, through activities such as the development of human resources in developing countries in Asia and other regions."[3]

One of the most important lessons learned from the Great East Japan Earthquakes and Tsunami and the Thai flood was the realization of the big gap between the required capacity of the country, society and people to cope with the disaster and actual capacity. The magnitude of this gap determined the damage caused by disasters.

What factors caused the gap? Based on case studies, we assume that there exist three kinds of required capacities to be considered depending on the severity of the disasters we face. The first one is the capacity for a scenario disaster. A "scenario disaster" refers to a disaster which is of a predicted magnitude and for which prevention measures had been taken in advance. However the capacity that a society actually has can sometimes be smaller than what is required to cope with this kind of predicted "scenario disasters." This gap is called Type 1 Gap. The second one, called Type 2 Gap, is the gap between the actual capacity a society has and the required capacity to cope with a disaster whose magnitude happens to exceed the foreseen "scenario

Figure 1: Three Types of Gaps between Required Capacity and Actual Capacity



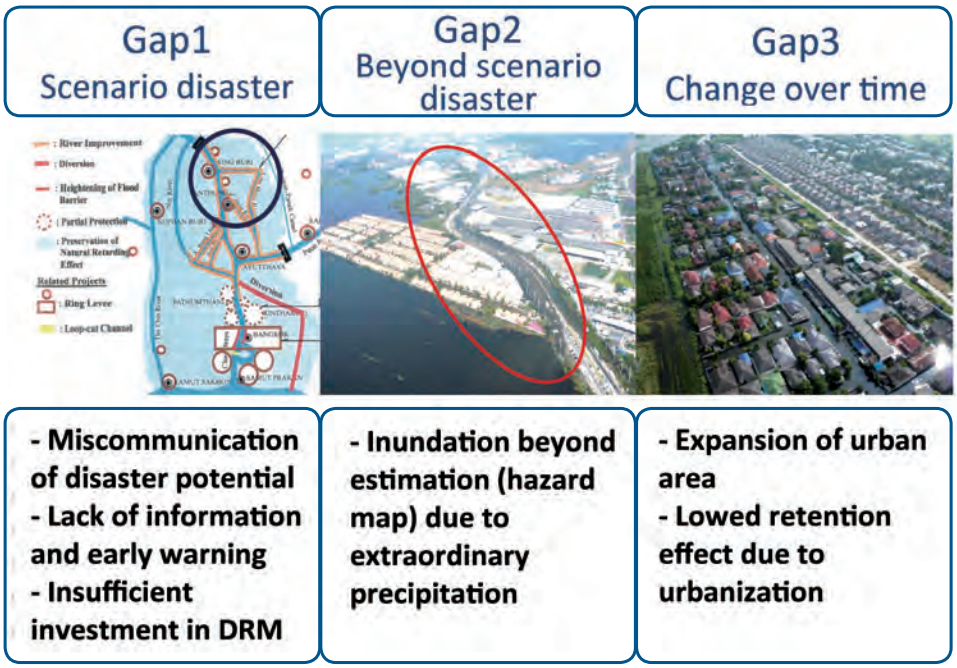
Source: Based on Ejima, Shinya (2012)

[3] Ibid. p.16

disasters." The last Type 3 Gap is the gap between the actual capacity a society has and the capacity level that has to be enhanced over time, to deal with the long-term changes that happen due to factors such as climate change, urbanization, population growth, etc.

These three gaps could be illustrated with the case of The Thai flood of 2011. As for the first gap, in spite of the scenario flood announced by the Thai government, some industrial estates are located in high-risk areas because owners and/or builders didn't understand the degree of damage possible and did not invest enough in disaster risk management for the potential severity of a flood. This was the Type 1 Gap.

Figure 2: Three Types of Gaps in the Case of Thai Flood in 2011



Note: Economic losses due to the flood in Thailand in 2011 are estimated to be 12.5 percent of the country's GDP.
Source: Ejima, Shinya (2012)

In terms of the Type 2 Gap, the flood happening in 2011 was much bigger than the prepared flood scenario. That is why some industrial estates which were outside the inundation area foreseen by a hazard map based on the scenario were affected by the flood. Here, we observe the gap between an extraordinary disaster scale and a scenario scale.

The Type 3 Gap is the gap developed over time. JICA supported Thailand to prepare a Master Plan for disaster risk management in the

late 90's. However, Bangkok has very rapidly developed and urbanized during recent years. Therefore, it is necessary to take into account those changing factors in order to up-date the Master Plan. The Type 3 Gap is realized when changes over time are taken into account.

Based on the analysis of cases in which the three types of gaps occurred, the following measures taken appeared to be most appropriate to cope with each of them. Against the Type 1 Gap, which is the difference between recognition and reality, strengthening "Risk Literacy" should be effective. In many cases, people make judgments on their own and do not make efforts to evacuate. It is important to establish adequate communication at various levels in order to minimize the gaps between recognition and understanding risks. For instance, it is necessary to understand the limitation of structural and non-structural measures. In the Great East Japan Earthquake, there were cases where even municipalities that had issued a declaration (certificate) of safety suffered damage themselves. While one of the important roles of the public administration is to make residents feel safe, it is also important to make them aware of the limitations so that they can properly anticipate the risk of disaster. Communication is essential to ensure this awareness.

There are cases seen frequently around the world where the sense of crisis suddenly disappears, especially after the construction of a large-sized structure. However, there is a limitation to any kind of measure. It is essential to improve the disaster-reaction capacity by spreading this kind of information throughout the community.

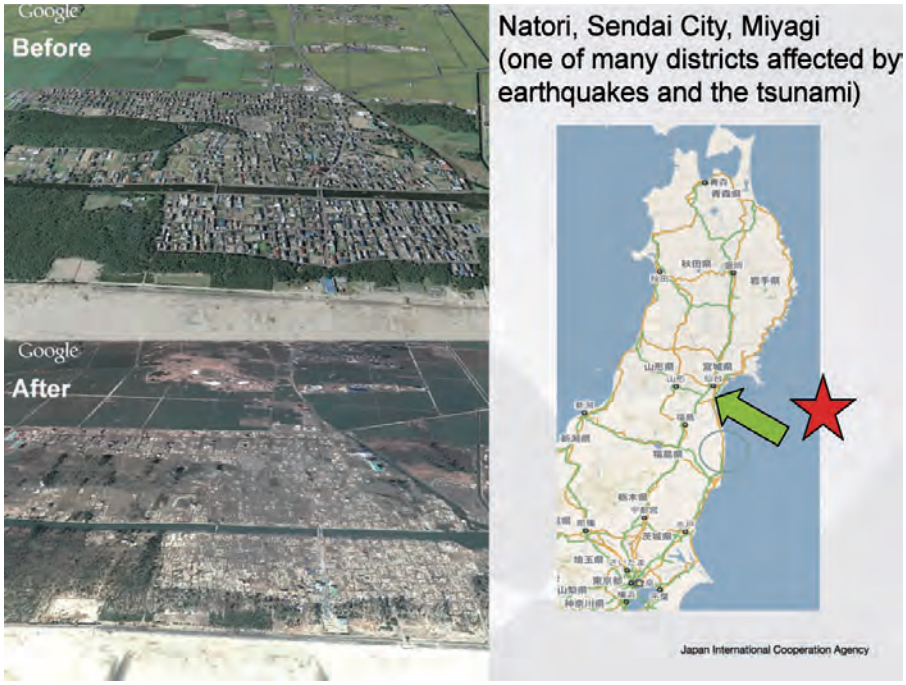
The Type 2 Gap is caused because anticipating risk always involves uncertainty. This shows the importance of "Redundancy," such as building a multi-layered or combined capability for reacting to disasters. In various regions throughout the world, including Japan, people may feel a sense of excessive safety, with the introduction of a system based on leading-edge technology. However, we must also be aware of the limitations of such systems. When the Great East Japan Earthquake occurred, there were cases where information could not be transmitted because of a blackout. We must not forget that there are many kinds of potential risks, and sometimes redundant preventive measures may become necessary. In addition, it is also effective to establish multi-purpose measures by adding the aspect of disaster prevention to

projects in different areas that are not originally aimed at disaster prevention.

We should not forget about redundant measures and operations for the future disaster risk management due to Type 2 Gap. Year 2011 had some extraordinary disaster events such as East Japan Earthquakes and Tsunami and Thai flood. In learning from these experiences, we should be better prepared with as many alternatives as possible by designing and operating preventative measures. To do so, we had better consider the importance of multi-functional and multi-sector disaster risk management. We can call this approach “Redundancy.”

Victims of the Great East Japan Earthquake and Tsunami totaled 14,508 persons killed, 11,452 persons missing and 130,145 evacuees. It occurred at 14:46 on March 11, 2011. The magnitude of the earthquake was 9.0. It is estimated that the economic loss caused by the earthquake and tsunami was about 4% of Japanese GDP.

Figure 3: Natori, Sendai City, before and after the Tsunami of March 11, 2011



Source: Ejima, Shinya (2012)

Lastly, regarding the Type 3 Gap, we need to recognize that even if we finish measures based upon an expected situation, such measures don't provide a permanent solution. Circumstances change daily. For example, the international community has been discussing climate change and its impact lately. So we need to continue reviewing various counter-measures, taking into account changing factors such as climate change, urbanization and social factors. In order to address this type of gap, an effective measure could include efforts toward continuous improvement or "*Kaizen*".

Various kinds of disaster prevention measures have been taken in many countries, and promoted under the Hyogo Framework for Action (HFA). However, disasters such as the Great East Japan Earthquake and the Thai flood are revealing the fact that various countermeasures may not necessarily work as expected, and may not result in reducing risks.

In order to fill the various gaps explained so far, and to implement better Disaster Risk Management, we believe that it has become important to have the guidelines based on lessons learned from the recent great disasters in Japan and Thailand combining the three perspectives, namely "Risk Literacy," "Redundancy" and "*kaizen*," keeping in mind the comprehensive disaster risk management strategy.

3. South-South and Triangular Cooperation for Disaster Risk Management in Central America

Central America is a disaster prone region, and the countries of the region have been making concerted efforts to reduce disaster risks through a regional cooperation mechanism of the Center of Coordination for the Prevention of Natural Disasters in Central America (CEPREDENAC). One of the projects based on the above-mentioned approaches discussed in the Section 1 is the Project on Capacity Development for Disaster Risk Management in Central America, or the "BOSAI Project." In this project, JICA supports capacity development to promote community-based disaster risk management in six countries in Central America with the framework of region-wide cooperation under the CEPREDENAC, which is one of the specialized regional cooperation mechanisms under the auspices of Integration System of Central America (SICA)

The overall framework for this region-wide cooperation initiative was established by the Tokyo Declaration of Japan-SICA Summit in 2005. It included a region-wide cooperative effort for the fight against Chagas disease, better mathematics education, natural-disaster prevention, improved re-productive health, quality and productivity improvements, and other initiatives. Governments of Costa Rica, Honduras, Guatemala, El Salvador and Panama submitted official requests to Japan for technical cooperation with regard to local disaster risk management in 2006. Based on this initiative, management authorities of the above five countries, CEPREDENAC and JICA launched “BOSAI Project” in 2007. Nicaragua joined the Project in 2008.

Figure 4: Location of Communities of BOSAI Project

Source: Arakida, Masaru (2009)

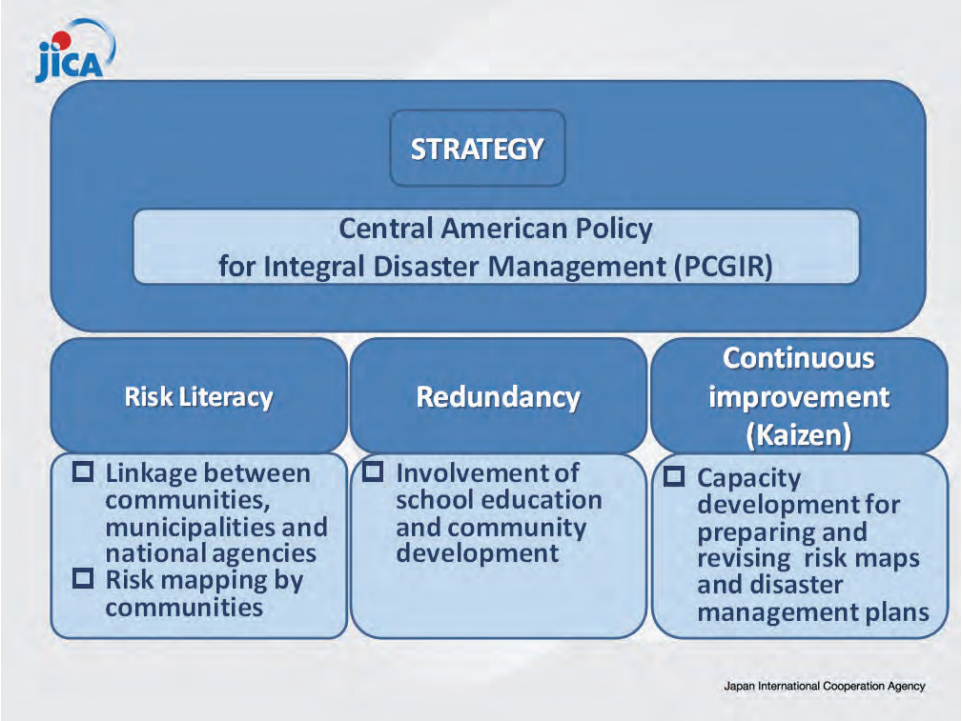
The heads of states of member countries of the Central America Integration System (SICA) adopted, on October 30, 2010, the Central American Policy of Integrated Disaster Risk Management (PCGIR), in order to respond to the need to update the regional commitments designed to reduce and prevent the disaster risk and thereby contribute to an integrated vision of development and security in Central America. The PCGIR highlights the importance of developing local capacity to reduce risk and to respond to disasters by strengthening the autonomy and resilience of communities. BOSAI has constituted an important pillar in the implementation of the PCGIR.

The regional progress report of the Hyogo Framework of Action (HFA) on Central America, updated April 2011, referenced two indicators for HFA priorities in relation to the local disaster risk management: “Sub/regional early warning systems exist” and “Sub/regional information and knowledge sharing mechanism is available.” One of the aspects which should be highlighted among the achievements of BOSAI is its contribution to the progress towards achieving these regional indicators of HFA.[4]

As for Risk Literacy, BOSAI focuses on helping the residents fully understand the risks of their own community and take actions on their own by maintaining reliable communication between the communities, municipalities and national agencies, and at the same time by letting the communities implement risk mapping through repeated discussions and site inspections.

From the perspective of redundancy, the project also approaches other sectors through activities to promote the awareness on disaster prevention by means of school education, and by incorporating collaboration with the development committees of the community.

Figure 5: Project on Capacity Development for Disaster Risk Management in Central America (BOSAI Project)



Source: Ejima, Shinya (2012)

[4] Bosai Terminal Evaluation Team (2012) p.9

From the perspective of *kaizen*, capacity development aims to let the community prepare risk maps and disaster management plans, and improve them on its own. Capacity development, both at community and local government levels, strengthened their ability to effectively respond to various disasters including earthquakes, flooding and landslides and to take concrete action such as the development of hazard maps, early warning systems, disaster prevention plans, and innovative practices to prevent landslides, flooding, etc.

4. Mutual Learning and Co-creation of Innovative Solutions in the Capacity Development Process for the Prevention of Natural Disasters

Since commencing in 2007, the BOSAI Project was implemented according to its Master Plan and Annual Plans of Operation (APOs). While the Master Plan is common to all participating countries, APOs are prepared by each participating country in accordance with the master plan. The Project Design Matrix, which is the framework for project implementation and evaluation tool, was also prepared based on the master plan. There are three indicators set in the Project Design Matrix to be used to evaluate the level of attainment at the project purpose level: (1) The first indicator is the reduction of vulnerability to disasters in target communities; (2) The second indicator is the strengthening of disaster risk management in the target municipalities; (3) The third indicator is the improvement of knowledge and ownership regarding local disaster risk management of CEPREDENAC member national institutions. According to the Terminal Evaluation Report of BOSAI, the targets of the first and second indicators were achieved 68% and 90% respectively. As regards the third indicator, the target was achieved fully in 3 national institutions and significant advances were attained in 3 other institutions.[5]

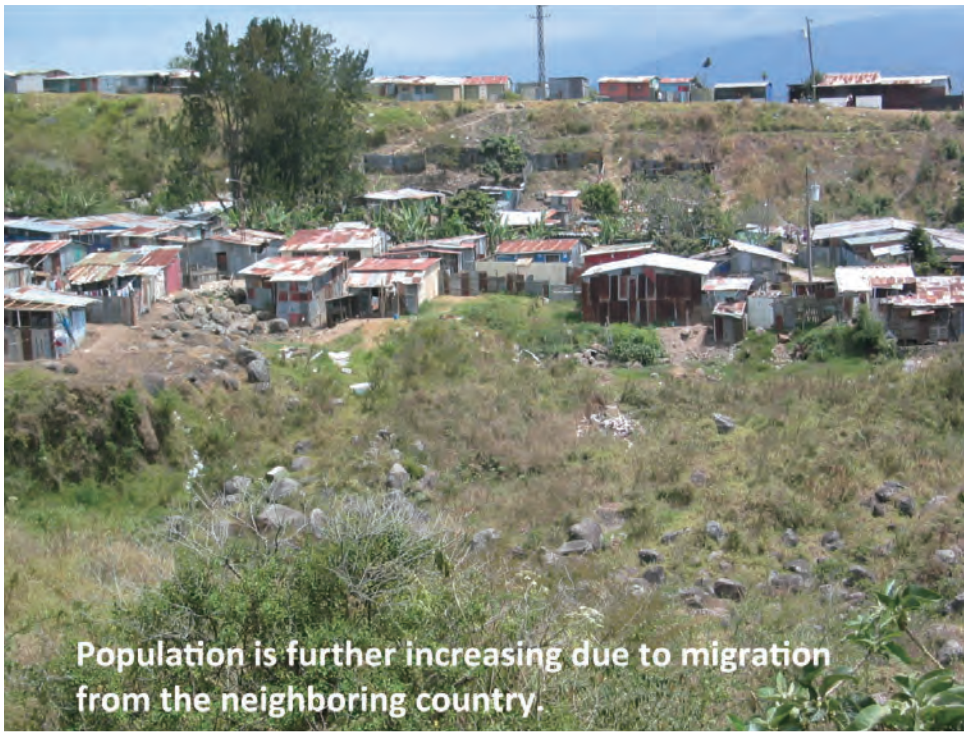
The first target is related directly to the communities' capacity development (CD). Major achievements at the community level include the development of organizations, risk maps, evacuation routes, early warning systems and emergency response plans. Some communities in Panama, Costa Rica, Honduras and El Salvador constructed small mitigation works such as used-tire dykes and retaining walls as well as attaining remarkable involvement and commitment in voluntary labor. Although there have been many important cases of successful

[5] Ibid. pp.10-11

capacity development in which effective mutual learning and co-creation of innovative solutions have taken place, one of the most outstanding cases could be that of used-tire dykes. We will therefore focus on this case.

In a rural community called Barrio Hotel near the city of Cañas, Costa Rica, community members developed a hazard map related to the flood of the Cañas River and, based on the map, established an early warning system (SAT) consisting of rain gauges and warning sirens, before starting the pilot project of a used-tire dyke.

Figure 6: Target Area of Community Flood Warning in Costa Rica



Source: Oi, Hidetomi (2006)

After exchanging ideas among community members and JICA, represented by Mr. Horigome, a civil engineering specialist, they started to explore the possibility of utilizing used tires from a sugar cane plantation nearby for the construction of dyke to reduce the risk of flood of the Cañas River. Many of the community members were workers on this plantation and were aware that the company had difficulties in disposing of used tires. They thought these tires could be used for construction of dykes, but lacked the technical know-how. JICA specialists provided information regarding successful experiences in

a country where used tires were utilized to strengthen river bank protection. Community members, the CNE (Comisión Nacional de Prevención de Riesgos y Atención de Emergencias) project manager and Mr. Horigome made a careful study on where dykes should be constructed.

We can recognize clearly that through this process of capacity development, effective mutual learning and the co-creation of innovative solutions among stakeholders was achieved. As the construction of new dykes with used tires is practically the first experience in history, a very careful approach was adopted. It was decided to first carry out a pilot project in order to establish the proper methods of design and construction. Community members were to participate in the construction work in shifts. These decisions were made by community members. They also negotiated with the sugar cane plantation company to provide used tires. The City of Cañas and the BOSAI project provided other construction materials. The construction of the pilot dyke was 23 meters in length, 2.1 meters in width and 90 centimeters high. It was started on April 27 and finished June 12, 2009.

Figure 7: Construction of Used-tire Dyke in Costa Rica

Source: Kawahigashi, Eiji (2011)

Based on the experience of the pilot dyke, a plan to expand it was proposed by Professor Yamamoto of Hiroshima University sent by JICA as a disaster prevention specialist in January 2010. A dyke of 116 meters, which constitutes the first part of the plan, was constructed by community members with the collaboration of CNE and the City of Cañas in February and March 2011. A technical check of this new dyke was made by Professor Yamamoto.

Similar projects were implemented in other parts of Central America.

Figure 8: Construction of a Used-tire Retaining Wall to Avoid Land Slides in Honduras

Source: Kawahigashi, Eiji (2011)

In the BOSAI Project, there have been several other cases of the co-creation of innovative low-cost solutions to reduce the vulnerability to disasters in the target communities and to strengthen their disaster preparedness. Installation of rainfall equipment (rain gauge, fluviometer) with the alarm unit for community-operated flood warning and water glass (water level monitor) with automatic warning systems are some of examples.

Figure 9: Water Glass (Water Level Monitor) with Automatic Warning System in Guatemala

Source: Oi, Hidetomi (2008)

5. Achievements at the National Level and Regional Scaling-Up through South-South and Triangular Cooperation with Regional Support

According to the evaluation related to the strengthening of the mechanisms for disaster risk management, based on interviews conducted in 50 communities out of the target 62 communities of the BOSAI project, 96% established a disaster risk management organization, 88% prepared a risk map, 66% set-up the communication systems, and 88% developed a disaster response plan. Regarding the promotion of knowledge or awareness on disaster risk management in target communities, 66% held workshops or events in communities and 60% conducted evacuation drills.

Based on the experiences of the targeted communities, national scale-up processes have taken place in each country. The installation of rain gauges for early flood warning extended beyond the targeted communities in El Salvador. A plan to set up warning sirens in more than 150 communities is in force in Tegucigalpa, Honduras. The Frog Caravan is one of the successful activities of the BOSAI Project in that

the practice extends well beyond the target communities[6]. The Frog Caravan was also conducted by other donors, and in Guatemala it is now planned to incorporate the Caravan into a school curriculum. A plan to extend the Frog Caravan nationwide has been implemented in Guatemala and Panama.

The impact of the BOSAI project has been recognized in some natural disaster events. When Hurricane Ida slammed into El Salvador in November 2009, it triggered massive flooding and landslides and more than 300 persons were killed or went missing. However, in the coastal village of Las Hojas there were no deaths and an investigation attributed this at least partly to the fact that a disaster early warning system had been installed there by JICA. In the very early morning of November 8, the disaster committee of San Pedro Mashuat received the information of extraordinary rainfall with water levels beginning to rise dangerously from the upstream communities of Jiboa River.

Figure 10: An Early Warning Siren in the Las Hojas Community, El Salvador

(Above)
House destroyed by Hurricane Ida in Las Ojas community in November 2009

(Below)
One of the nine flood early warning sirens in the Las Hojas community

Source: JICA El Salvador Office

[6] Frog Caravan (Caravana de Rana) is an innovative training system to learn about natural disaster prevention developed by a Japanese NPO, Plus Arts (+Arts), in 2005. In Japan the frog is considered a friendly symbol promoting good feelings and Frog Caravans tour schools, involving local officials, teachers and schoolchildren, and introduce for example games for teaching children how to extinguish fires or rescue people trapped under rubble in the wake of an earthquake.

Figure 11: Las Hojas Community after the Hurricane Ida

Note: Red circle indicates one of the early warning sirens
Source: JICA El Salvador Office

This information was transmitted to the village disaster prevention committee of Las Hojas via a JICA donated wireless system. Nine alarm sirens were sounded throughout the village two hours before the flood allowing local residents to quickly flee before floodwater could engulf them. The establishment of disaster prevention committees and the installation of wireless transmission systems and nine alarm sirens were part of the BOSAI project. The survey conducted in 2010 discovered that 50 percent of 94 families of the community evacuated when they heard the siren and that 37 percent knew about the BOSAI Project.

During tropical depression 12E in October 2011, there were no casualties in the BOSAI Project target areas in El Salvador. When a survey was made in December 2011 in San Pedro Mashuat, where significant damage occurred during storm 12E, inhabitants expressed their gratitude for the BOSAI Project that there were no casualties thanks to early evacuation practice.[7]

One of the pioneer municipalities of the BOSAI Project in El Salvador, Santa Tecla, participated in February 2011 as the sole local government representative community of Central America in the Thematic Debate of the United Nations General Assembly on Disaster Risk Reduction which aimed to strengthen the understanding of how to reduce risk and exposure to disasters through effective investment policies and

[7] Terminal Evaluation Team (2012), p.13

practices and sustainable urban management. Santa Tecla received recognition as the “Role Model for Participatory and Sustained Risk Reduction Policy” of the “Making Cities Resilient Campaign” in the Third Session of the Global Platform for Disaster Risk Reduction, organized by the United Nations in Geneva in May 2011.

According to the Mayor of Santa Tecla, Oscar Ortiz, strong awareness and motivation of this municipality on disaster prevention is due to the tragic consequences of a landslide caused by the big earthquakes in 2001. The landslide took the life of 700 inhabitants. It was difficult to reconstruct communities seriously affected by the earthquakes. The municipality put the highest priority on disaster risk management since this tragedy occurred. He considers the keys to the successful process, recognized by the United Nations, was the trust of the inhabitants through a participatory approach, education and local government leadership with medium and long term vision. Santa Tecla’s experiences and know-how are shared with other Central American countries. The rain gauges (fluviometer) introduced by Yayoi Yoshioka, a volunteer of JOCV for the first time in the municipality are still in use for early warning of floods. The BOSAI Project has been effective and the municipality learned a lot from the Hyogo Phoenix Plan.[8]

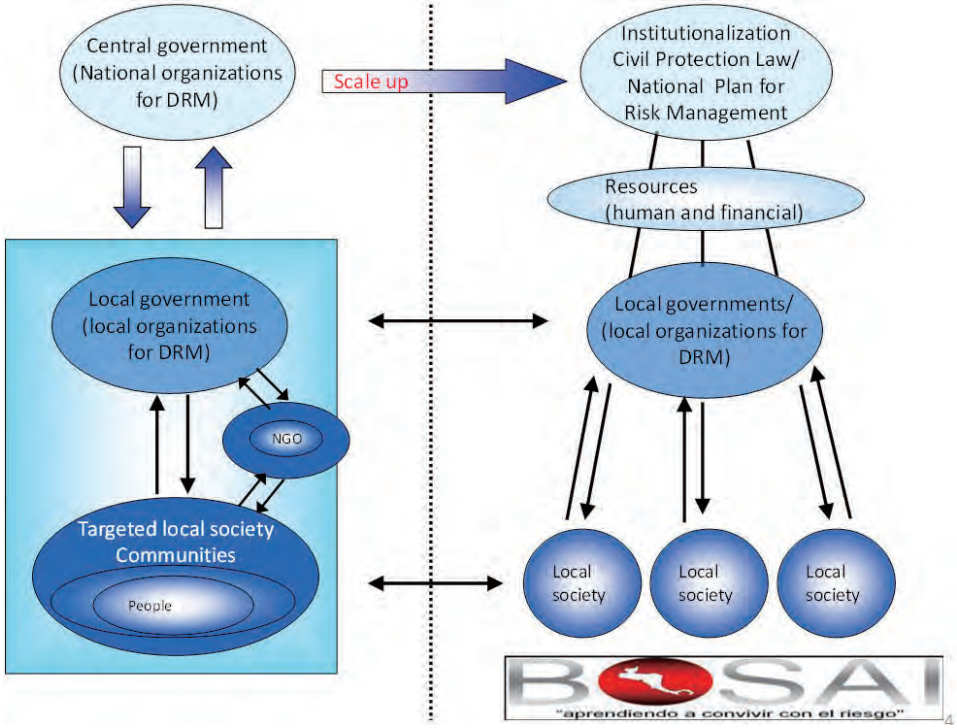
Figure 12: Landslide at Las Colinas, Santa Tecla, El Salvador in 2001

Source: Oi, Hidetomi (2008)

[8] This part of the experiences of Santa Tecla is based on the author’s interview with its Mayor, Mr. Oscar Ortiz on August 28, 2012.

Several national scale-up initiatives of the BOSAI Project have been carried out. In El Salvador, the Civil Protection Authority has assigned 178 municipal delegates ("Delegado en Municipio") and 19 department delegates ("Delegado en Departamentos") in accordance with the Law of Civil Protection, Prevention and Mitigation of Disasters enacted in 2005. These delegates facilitated the establishment of the Municipal Commission of Civil Protection (CMPC). The National System of Civil Protection (SINAPROC) in Panama has increased the number of staff at a provincial level with the assignment of a national agent ("Punto Focal Nacional") and provincial agent ("Punto Focal Provincial), who are engaged in the coordination with municipalities/communities to promote the integrated local disaster risk management. The Permanent Commission of Contingencies (COPECO) of Honduras through its seven regional offices is promoting the establishment of Emergency Committees at different levels (departments, municipalities, communities, schools and working centers). As of the end of 2011, 150 out of 298 municipalities have established Municipal Emergency Committees (CODEM). Also 325 Local Emergency Committees at community levels have been organized. The BOSAI Project has been contributing to the institutional strengthening of these organizations

Figure 13: CD Pathways for Innovative Practices to Scaling Up in the Case of BOSAI Project (examples)



Sourse: Prepared by the author

through activities specifically targeting municipalities and communities.

National legal and/or regulatory frameworks have been established or will be in force soon. The Civil Protection Law for Prevention and Mitigation of Disasters in El Salvador, the National Policy for Integrated Risk Management in Panama, the National Plan for Risk Management in Costa Rica and the National Policy for Disaster Risk Reduction in Guatemala are already in force. The National Policy for Integrated Risk Management in El Salvador and the National Plan for Risk Reduction as well as the National Policy and Strategy for Integrated Risk Management in Nicaragua, the Law of National Systems for Risk Management and the National Plan for Integrated Risk Management in Honduras are in the approval process. These legal frameworks are appropriate and instrumental in promoting the scale-up of local risk management to a nation-wide level.

From the South-South/Trangular cooperation perspective, exchange of experiences, knowledge and know-how related to disaster risk management is actively promoted through CEPREDENAC. The capacity of CEPREDENAC itself has been strengthened during the BOSAI Project. In the BOSAI Project, methodologies and tools commonly applicable in Central America were developed based on the different experiences of member countries, producing a series of practical materials including a manual of hazard-map based trainings, manuals of production and use of a rain gauge, and of water glass, construction guides for used-tire dykes, and of soil cement dykes, prevention kits for disasters caused by volcanic eruptions, Frog Caravan manuals, DIG (disaster imagination game[9]), SAT (Sistema de Alerta Temprana, early warning system) guidebooks and so on, which are now publicly available in member countries.

Regional workshops have been held using developed methodologies and tools. Through regional meetings and in day-to-day communications among national member institutions of BOSAI, there have been effective exchanges of experiences, technology and know-how, which constitute the South-South cooperation of knowledge sharing and mutual learning. This process developed in the regional platform, CEPREDENAC, with cooperation of JICA could be considered as a case of region-wide South-South/Triangular cooperation.

[9] DIG (known in BOSAI Project as “El taller de Metodologia Komura) is the methodology developed by Professor Takashi Komura, of the Fuji Tokoha University, Japan.

CEPREDENAC received in the Third Session of the Global Platform for Disaster Risk Reduction in May 2011, the UN Sasakawa Award for Disaster Reduction for its contribution to regional efforts for formulating disaster prevention strategies and national plans based on Central America Policy of Integrated Disaster Risk Management (PCGIR). It was prepared by CEPREDENAC and approved by heads of states of Integration System of Central America (SICA).

One interesting achievement of South-South/Triangular cooperation in the framework of BOSAI is that it constructed a community shelter house in collaboration with another SSC project in Central America, the TAISHIN project. The TAISHIN Project aimed at strengthening earthquake-resistant housing in El Salvador from 2003 through 2012.[10] The shelter house was constructed in the Metapalos Arriba community in Triunfo municipality, Cholteca, Honduras. The house was based on the structural engineering research using a large-scale structure testing laboratory to study the seismic behavior of structures made of frame and sun-dried brick or adobe (a locally available low-cost material). These are the most common building types found in Mexico, Central America, and the Caribbean.

BOSAI Project in the Metapalos Arriba community started June 2008. The construction of the community shelter house was the plan proposed through the mutual learning process similar to that of the community near the City of Cañas, Costa Rica explained in the Section 2. Community members, JICA professionals including Mr. Horigome and Mr. Kinoshita as well as other stakeholders had several meetings. Through this process, it was decided to construct the earthquake resistant low-cost house (“casa de sismoresistente con abobe reforzado) with the use of the technology developed by the TAISHIN Project in El Salvador.

The municipality provided a fund to buy the land. More than 6000 adobes were made by inhabitants themselves using the most inexpensive locally available material. This construction project was important for community members, because it gave them the opportunity to enhance their awareness of and capacity for disaster risk management and to learn about the construction methods for building seismo-resistant houses. The synergy effect of the BOSAI and TAISHIN

[10] For details of TAISHIN, see the case study on this Project included in this volume.

projects was attained through SSC/TrC in this community shelter housing construction project.

Figure 14: Centro Albergue (a Community Shelter House) in the Metapalos Arriba Community in Cholteca, Honduras.

Source: JICA El Salvador Office

6. A More Comprehensive Approach to Disaster Risk Management in Developing Countries.

In order to formulate a comprehensive approach to disaster risk management in developing countries, the following three aspects appear to be crucial, bearing in mind experiences of recent natural disasters and of international cooperation in developing countries. First of all, the importance of both risk prevention and reduction as is mentioned in the “The recommendation of the Reconstruction Design Council in Response to the Great East Japan Earthquake” cited in the Section 1 of this Chapter must be considered. Secondly, it is necessary to take into account changes of risk over time taking into account the effects of climate change, urbanization and so on. These changes could produce the Type 3 Gap as discussed in the Section 2. Thirdly, in the case of developing countries, affordability by governments, communities and inhabitants should be fully taken into account.

Generally speaking, the main aspects of a standard framework of risk management are risk avoidance (or prevention, Bosai), risk reduction (Gensai) and risk transfer (insurance). In the risk avoidance (or prevention) area, in addition to a strengthened capacity for disaster risk management, quality standards of public works, seismic building codes and land use regulations are important. In the risk reduction (Gensai) area, pre-disaster investment and seismic reinforcement construction are essential.

In an effort to support risk reduction efforts of El Salvador, a new cooperation project called GENSAI started recently. The tropical cyclone 12E seriously affected El Salvador, due to historically high continuous rainfall and caused severe damage to social and economic infrastructure in the country. Not only did 12 bridges collapse, 37 bridges were damaged seriously, landslides and road slope failures were observed at many sections along roads including major highways. Disasters caused by rain in El Salvador have become more frequent and serious recently. Hurricanes Mitch, Stan, Ida and tropical cyclone 12E brought heavier continuous rainfall.

In these circumstances, the Department of Climate Change Adaptation and Strategic Risk Management (DACGER) was newly organized under the Ministry of Public Works, Transport, Housing and Urban Development (MOP) of El Salvador under the Minister's direct control in 2008. With this initiative, the government of El Salvador made the promptest response to climate change in Central American countries. With these provisions, government efforts proved highly capable during the restoration works for 12E. Heavy equipment consisting of 142 heavy machines for reconstruction granted by the Japanese government in 2010 was effectively utilized during the restoration work. With this experience and in response to the request from the MOP, the Japanese government decided to carry out the Economic Infrastructure Rehabilitation Project in 2012. And, almost at the same time, in order to strengthen the capacity of disaster reduction regarding pre-disaster investments and seismic reinforcement construction, the GENSAI Project has started with the cooperation of JICA.

The aims of the GENSAI Project to be implemented between 2012-14 in El Salvador are: (1) to establish a structure in the MOP which

promotes the implementation projects of improvement of public infrastructure in accordance with the priority recommended by DACGER; (2) to establish a system which rapidly and adequately prepares an inventory of damages and implements reconstruction work when natural disasters occur; and (3) to establish a national training system for national engineers in charge of public infrastructure.

The GENSAI Project includes grant provisions for equipment and technical cooperation for reinforcement of public infrastructure for climate change adaptation as well as education for disaster prevention.[11]

In this way, now a more comprehensive approach to disaster risk management has been adopted in El Salvador. The goal of the GENSAI Project is to strengthen the infrastructure to protect the lifelines of inhabitants. On-going BOSAI and TAISHIN Projects are expected to produce synergy effects with GENSAI Project making the capacity to address the risk of natural disasters much more integral and effective.

Figure 15: GENSAI Project Brochure

Source: JICA El Salvador Office

[11] Mikihiro Mori (2012)

It should be emphasized that specific, technologically and financially feasible options are essential in developing countries. Fiscal and other constraints of these countries' central and local governments and the low-income of the most affected inhabitants of the country should be fully taken into account. In the case of the BOSAI project in Central America, used tires are utilized to reduce the risk of land-slides and floods, etc. This innovative practice has been applied in Honduras, Costa Rica and El Salvador, using locally available low-cost materials. Another example is an inexpensive community flood early warning system with rain gauges and water glass.

As was mentioned in the previous Section, low-cost earthquake-resistant housing is another example. JICA started cooperation for CENAPRED, Mexico after the big earthquake in the central part of Mexico in 1985. The technology and innovative methods developed by CENAPRED have been used in the TAISHIN Project, aimed at furthering earthquake-resistant housing in El Salvador from 2003 through 2012. Then, experiences and innovation in the joint TAISHIN Project CENAPRED/JICA/Japan Institute of Construction/El Salvador were shared with Central America and other Latin American countries through the Japan Mexico Partnership Program (JMPP), as a South-South/Triangular cooperation project.

According to a study of the two large earthquakes that hit El Salvador in 2001, 60% of the houses destroyed were those of poor people whose income was less than twice the country's minimum wage. Houses made of improved adobe, soil cement, block panel, and concrete block were tested with their respective appropriate structures in the Large Structure Laboratories installed in the University of El Salvador and the Jose Simeon Cañas University of Central America. This Mexico-Japan-El Salvador South-South/Triangular project included the establishment of official technological standards for earthquake-resistant houses and institution buildings for the governmental urban and housing development agencies in charge of housing policies and construction permits.

Finally, it should be noted that further effort is necessary to address disaster risks especially in poor urban districts. Half of the global population resides in urban centers and urbanization is accelerating in developing countries. A close correlation is observed between urbanization

and the number of natural disasters. The possibility of a “Type 3 Gap” increases due to rapid urbanization. Possibility of another “Type 3 Gap” increases as well due to climate change (floods, etc.). Furthermore urban slums have been expanding in risk areas in the case of many developing countries. Today, there are a billion people living in urban slums. We need to focus on disaster prevention for the urban poor.

In many developing countries, urban sprawl, slums and inadequate infrastructure provision are commonly observed in the process of urbanization. Programs of “urban redevelopment” with land readjustments could be an effective approach to address urban poverty, slums and disaster prevention. After urban areas are subdivided and settled, whether legally or illegally, it is extremely difficult to re-arrange property patterns, and it is both difficult and expensive to assure land for proper public purposes and facilities. Land readjustment is a public-private partnership model, which local governments, residents and landowners bearing the urban development costs and sharing benefits in places where land use patterns are inadequate and/or risky. Normally every transformed lot will be smaller than the original one due to the significant increase in public spaces, but lot value will be higher due to the added facilities as well as to improved safety and disaster prevention.[12]

JICA has been supporting land readjustment initiatives in Sao Paulo and Curitiba, Brazil, and other developing countries. Several training courses to share the knowledge about land readjustment have been carried out in Brazil, Colombia and other countries through South-South/Triangular cooperation. Better urban land use taking into account risk areas should be one of the most important measures to avoid disasters.

In addition to different programs and projects of cooperation mentioned through this chapter in the area of disaster risk management, JICA independently and through the Japan Disaster Relief (JDR) system for years has helped nations and victims of natural disasters, offering emergency supplies and follow-up assistance to countries affected by natural disasters including Central American countries.[13]

[12] De Souza, Felipe Francisco and Cintia Estefania Fernandez (2012)

[13] In the last 10 years it implemented a series of disaster prevention projects (technical cooperation) costing 47.33 billion yen (500 million US dollars) in 147 countries. Grand aid projects totaling 38.15 billion yen (450 million US dollars) were implemented in 27 countries including the procurement of weather reader systems, radar, shuttle, construction of emergency evacuation centers and the rehabilitation of basic infrastructure such as schools, hospitals and water supply facilities. Financial cooperation (yen loan) totals 463.14 billion yen (5.7 billion US dollars) in 13 countries for urban drainage, river improvement, multi-purpose dam, etc.

7. Concluding Remarks

The current international framework for promoting the disaster prevention measures throughout the world is called the “Hyogo Framework for Action (HFA)” This is the document adopted at the Second United Nations World Conference on Disaster Reduction in 2005 by 168 participating countries, under the initiative of the UN International Strategy for Disaster Reduction (ISDR). It is the guideline showing the goals and prioritized actions in the area of disaster prevention throughout the world for the ten year-period from 2005 to 2015.

Interim evaluation of the Hyogo Framework of Action was implemented last year. From now on, along with aiming at the achievement of goals towards 2015, discussions will begin on the new post-2016 framework.

Lessons learned from Great East Japan Earthquake and Tsunami on March 11, 2011 and from other recent disasters as well as international efforts to prevent and reduce disaster risks, including South-South/ Triangular cooperation to enhance the capacity of disaster risk management in Central America, one of the most natural disaster fragile regions in the world, should be reflected in this new post 2016 framework.

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Chapter 3

South-South/Triangular Cooperation and Capacity Development

Akio Hosono

1. ProSAVANA Project as an Example of Triangular Cooperation

In recent years, the ProSAVANA Project being carried out by Japan, Brazil and Mozambique has become a focus of wide attention. The project aims to develop agriculture in Mozambique's tropical savannah, drawing on Brazil's "Cerrado" development as a reference. The "Cerrado" tropical savannah in Brazil, once regarded as a barren plateau, has been transformed into one of the world's largest and most productive crop-agricultural regions. Brazil-Japan cooperation stretching back almost three decades to the mid-1970s was one of the factors which contributed to the process. The ProSAVANA Project is an agricultural development assistance program targeting synergistic effects from both promoting agricultural investment by the private sector and raising the incomes of the small-scale farmers. The program also aims to generate synergies from the development of agriculture and investment in infrastructure, keeping in mind a concrete proposal at the national level of the principles of "responsible agricultural investment" led by Japan.[1]

The idea behind the ProSAVANA project dates back to 2009. At a top-level meeting between Brazil and Japan at the L'Aquila Summit in July of that year, an agreement was reached to "develop agriculture in African tropical savannahs through Japanese-Brazilian cooperation by building on the achievements of the Cerrado agricultural development

[1] "Responsible agricultural investment (RAI)" was proposed by Japan on the occasion of L'Aquila Summit in July 2009. In September, 2009, Japan, World Bank, FAO, UNCTAD and IFAD organized a round-table discussion on "Promoting Responsible International Investment in Agriculture." These four international organizations made a joint proposal on RAI Principles in May 2010. (See RAI Knowledge Exchange Platform.)

cooperation." Following this agreement, preparations were carried out in Brazil, Japan and Mozambique, and the ProSAVANA Project for cooperation to develop African tropical savannahs through collaboration between Japan and Brazil was launched in 2011.

The ProSAVANA Project was spotlighted internationally at the G20 meeting in November 2011. This attention was initiated by Bill Gates, co-chair of the Bill and Melinda Gates Foundation, who proposed to the leaders of each country the plan "Innovation with Impact: Financing 21st Century Development," in which he endorsed the ProSAVANA Project as a good example of an innovative partnership. Thereafter, in her keynote speech at the opening of the Fourth High Level Forum on Aid Effectiveness, a ministerial level meeting held in Busan, Korea, US Secretary of State Hillary Clinton described the ProSAVANA project as a model for triangular cooperation between a developed nation, an emerging nation and a beneficiary nation.

In May 2012, at the G8 meeting at Camp David in the United States, an agreement was reached on a New Alliance for Food Security and Nutrition targeting Africa. Six countries, including Mozambique, were selected as partner countries with the country plan for Mozambique to be co-chaired by Japan and the United States. The New Alliance can be said to share a common directionality with the ProSAVANA Project, for example, insofar as both are collaborations between the public and private sectors.

This chapter aims to consider the significance and challenges of South-South /Triangular cooperation and capacity development, both of which are features of Japan's official development assistance (ODA), by looking at specific case studies.

The ProSAVANA Project discussed above is an instance of full-scale triangular cooperation that is being implemented as part of the Japan-Brazil Partnership Program (JBPP). This chapter begins with a discussion of the features of South-South/Triangular cooperation, as well as the background to this type of cooperation taking the ProSAVANA Project as an example.

2. Japan's South-South/Triangular Cooperation

2-1 Growing Interest in South-South/Triangular Cooperation

In recent years, emerging nations have gained increasing prominence in the international community, notably for the increasing roles they are playing. As a whole, trade involving developing nations has risen to the point where it now occupies one third of all global trade, and the growth in trade by emerging nations is particularly remarkable. Such being the circumstances, South-South cooperation – that is, cooperation between developing nations, and particularly cooperation provided by emerging nations to other developing nations – has played a significant part and hopes are high for the role of this type of cooperation. Moreover, the importance of triangular cooperation, whereby a traditional donor nation (a developed nation) assists this kind of South-South cooperation, is also being recognized. South-South/Triangular cooperation are often mentioned together as a single unit.

The Busan High Level Forum held in 2011 strongly reflected the changes of recent years. The Busan Partnership for Effective Development Cooperation emphasized the importance of South-South cooperation growth, and enumerated the following four points as specific methods for boosting this type of cooperation: 1) scaling up the use of triangular approaches to development cooperation; 2) making fuller use of South-South and triangular cooperation, recognizing the success of these approaches to date and the synergies they offer; 3) encouraging the development of networks for knowledge exchange, peer learning and coordination among South-South cooperation actors; and 4) supporting efforts to strengthen local and national capacities to engage effectively in South-South and triangular cooperation.[2]

Japan is a pioneer in South-South/Triangular cooperation, having started third country training programs as long ago as 1975. Japan started partnership programs (described below) for South-South/Triangular cooperation with several countries in 1994, and thereafter policies emphasizing triangular cooperation as an effective method for promoting development cooperation were set forth in the new ODA Charter in 2003.

However, South-South cooperation also faces challenges. In particular, concerned organizations have pointed out that when numerous small-

[2] The Forth High Level Forum on Aid Effectiveness (2011), p.10

scale cooperation projects are conducted the burden on the recipient country increases (transaction costs increase), that it is possible to end up with a number of disparate cooperation projects with a low level of interrelatedness (fragmentation) and that, as a result of these factors, the benefits of the aid tend to be limited.[3]

Japan's international cooperation, with its long history of South-South/Triangular cooperation, involves comprehensive cumulative efforts to ensure that cooperation is effective. This experience is likely to provide a valuable reference for the countries that are now trying to expand this kind of cooperation.

In the rest of this chapter, this experience will be analyzed on the basis of specific case studies.

2-2 Development of South-South/Triangular Cooperation

Looking back at JICA's history of South-South/Triangular cooperation, it is apparent that thoroughgoing efforts are expended to implement effective cooperation. Initially, these efforts centered on third-country training programs but, in order to conduct the programs effectively, one of the basic patterns was to team up with one of the counterpart institutions, with whom JICA had conducted bilateral technical cooperation in the past, as a base for triangular cooperation projects. The merit of this is that these institutions have a high level of capability, particularly with respect to their level of technical skills, as a result of the long period of cooperation. These institutions can also be described as Centers of Excellence (COE) in their respective fields.

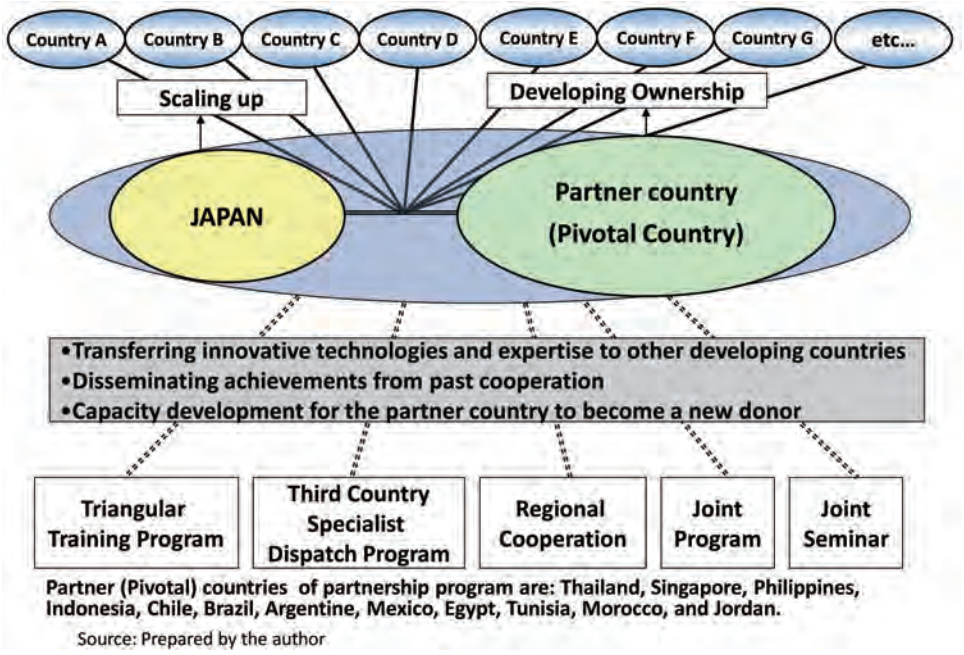
The existence of these kinds of institutions is invaluable for South-South/Triangular cooperation, and the possibility of working with them as bases for cooperation means that they are regarded as important assets for JICA, as well. Accordingly, it is important to know what kind of capacity development (CD) process these institutions have developed to increase their capabilities, and what kind of institution building they have conducted as part of this process, as well as what kind of cooperation was effective in facilitating these processes. This chapter touches upon these points later.

[3] Ree Hyunjoo (2011)

The High-Level United Nations Conference on South-South Cooperation in Nairobi in 2010 asked United Nations specialized agencies to help developing countries to establish or strengthen centers of excellence within their respective areas of competence.[4] Actually, from this perspective, Japan can be said to have contributed to the development of numerous centers of excellence in many countries around the world over a long period of time.

A second approach that deserves attention is the use of Partnership Programs (PP) implemented by Japan since 1994. Beginning with the Japan-Thailand Partnership Program in 1994, this approach has expanded steadily to the point where now agreements relating to partnership programs have been concluded with twelve countries (Thailand, Singapore, the Philippines, Indonesia, Chile, Brazil, Argentina, Mexico, Egypt, Tunisia, Morocco, and Jordan). The outcomes delivered by this approach have been enormous, although there is also variation from country to country. The partnership programs truly are frameworks for triangular cooperation teaming Japan, the pivotal (partner) country of South-South cooperation, and beneficiary countries in a well-coordinated fashion. One advantage of partnership programs is that cooperation can be implemented efficiently, as these programs enable triangular

Figure 1: Partnership Program (Advanced/Structured Form of Triangular Cooperation)



Source: Prepared by the author

[4] UN (2011), pp. 17-18

cooperation to be conducted systematically through regular meetings and discussions, and can also be combined with a range of schemes, such as triangular training programs, third-country expert programs, regional cooperation, joint programs, and so on. (See Figure 1.)

A third effective approach that has attracted increasing interest in recent years is the South-South/Triangular cooperation which is being conducted over a wide area and which is based on regional integration/ cooperation frameworks and so on. Specifically, wide area cooperation is being actively pursued in the ASEAN and in Central America. JICA is conducting regional cooperation projects directed at making an ASEAN community a reality and assisting the Master Plan on ASEAN Connectivity. The latter consists of assistance for the creation of the East-West corridor, the Southern corridor, and the sea-based ASEAN economic corridor. Cooperation directed at AUN/SEED-Net (the South East Asia Engineering Education Development Network, an autonomous sub-network of the ASEAN University Network) and the Asia-Pacific Development Center on Disability are also being conducted.[5]

In Central America, South-South/Triangular cooperation is being conducted over a wide area in collaboration with the Central American Integration System (SICA). This cooperation is based on the Tokyo Declaration and Action Plan adopted by the Japan-Central America Summit Meeting in 2005, and consists of cooperation in areas such as measures to tackle Chagas disease, mathematics education, disaster resilience, reproductive health, and quality and productivity improvements. In Africa as well, region-wide cooperation aimed at strengthening mathematics and science education (SMASE-WECSA) is also being conducted. Wide area South-South/Triangular cooperation based on platforms such as regional organizations is an effective approach for tackling challenges that are common to the whole region.

3. Capacity Development as Basis for South-South/Triangular Cooperation

Capacity development generally refers to the process whereby the capacity for addressing issues in a developing nation improves on aggregate at multiple levels, including the level of people, organizations and society as a whole.[6] The features of this approach are that it defines

[5] See JICA (2012) and Ninomiya, Akiie (2010)

[6] This is how capacity development is defined in OECD/DAC (2006), and the UN also follows this definition. See Hosono, Akio et al. (2011), p.180

capacity as the ability for the individuals, organizations and social institutions of the developing nation to identify what the issues are for themselves and to address these issues by themselves, and that it emphasizes endogenous and autonomous efforts treating the concept of capacity inclusively, with a broad vision that includes, but is not limited to, individuals and organizations.

This perspective, which presupposes endogeneity and inclusiveness, differs from the traditional perspective whereby technology is transferred in order to fill in a perceived gap resulting from a technology deficit; instead, donors are expected to try to cooperate by fulfilling the role of catalyst in this process. In this kind of process, the parties involved in capacity development, together with other stakeholders, are expected to work together to address issues and find solutions by first having a clear awareness of the issues to be addressed and then learning from one another (including donors).

This process can be thought of as a process of mutual learning and co-creation of innovative solutions (both technologies and systems), based on a thorough awareness of the issues to be addressed. Rather than simply transfer technology, the idea is that donors participate in learning and co-creation as actors entering from outside, and can contribute to capacity development by fulfilling the role of catalysts as “facilitators”, so to speak.[7]

The significance of South-South/Triangular cooperation must also be considered from this perspective. Below, the case of the Cerrado development mentioned at the beginning of this chapter will be discussed from this approach.[8]

The nature of the technologies needed for the agricultural development of the Cerrado was not such that it could be transferred from the country of the North providing aid. That is to say, none of the Cerrado vegetation can be found in Japan, and Japan had almost no relevant experience in terms of how to go about transforming the Cerrado soils, which were not suitable for agriculture, into farmland. It is not an exaggeration to say that it was necessary to start from scratch. However, Japan did have technologies for analyzing soil and so on, and was able to make these

[7] Hosono, Akio, et. al (2011)

[8] For details on JICA’s cooperation for the Cerrado development, see *Hosono, Akio and Yutaka Hongo (2012)*.

technologies available. The development of varieties of soy beans and corn that could be grown in the tropical zone where the Cerrado is located also had to take place from scratch. Japan had no corresponding experience of tropical agriculture. This meant that the mutual learning and co-creation of innovative solutions emphasized by the capacity development process described above were literally essential.

Cerrado : Scenery before the Cooperation for Cerrado Agricultural Development
(Source : Yutaka Hongo, Senior Consultant of JICA)

The two technological innovations of soil improvement and variety improvement were prerequisites for agricultural development in the Cerrado, but it was the Brazilian Agricultural Research Corporation (EMBRAPA) and the affiliated Cerrado Research Center (CPAC) that made these innovations a reality. Cooperation continued from 1977 until 1999, with the Cerrado Agricultural Development Research Project implemented by JICA in two phases centering on CPAC, followed by the Cerrado Agricultural Environmental Conservation Research Project.

In 2006, Dr Edson Lobato, famed for his achievements in soil research, was awarded the World Food Prize. Dr Pilinio Itamar de Mello de Souza developed a revolutionary tropical variety of soy beans over a five year period. EMBRAPA named this variety the “Doko” soybean after Toshio Doko, a Japanese national who contributed greatly to strengthen Brazil-Japan economic relations and cooperation for many years. The many

researchers from Brazil and Japan, including Lobato and Souza, are the ones who did the heavy lifting to make Cerrado agriculture a possibility. Through this process – which took more than twenty years – the efforts directed at technological innovation through collaboration between Japanese and Brazilian researchers can be said to have borne fruit. Souza has said, “When I was young, I learned a great deal from the research attitude of the technical experts from Japan, including JICA specialist Yo’ichi Izumiyama (an expert in plant cultivation). Now it is my turn to set an example, as Izumiyama set an example for me.”

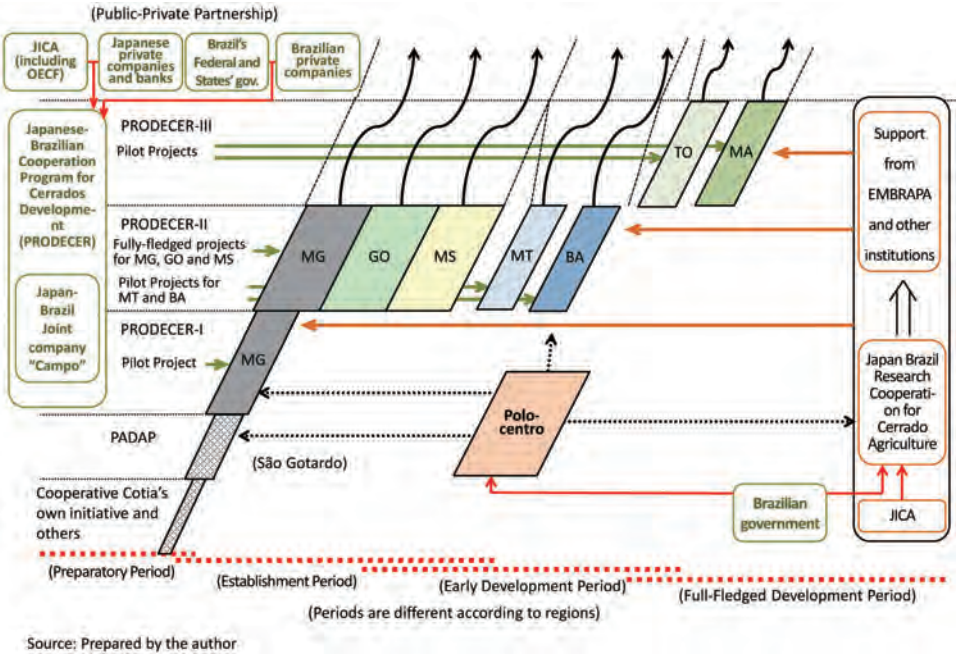
Cerrado : Scenery after the Cooperation for Cerrado Agricultural Development
(Source : Yutaka Hongo, Senior Consultant of JICA)

In this process, JICA’s technical cooperation can be described as having contributed to the development of EMBRAPA by improving the capacity of CPAC. EMBRAPA has been extremely proactive in rapidly lifting its capacity through an approach that Dr. Eliseu Alves, one of the founders of EMBRAPA, describes as “the EMBRAPA Model”. EMBRAPA is now a Mecca for tropical agriculture known all around the world, and it is a presence well-deserving of the appellation “Center of Excellence”. As of 2010, the 8,100 EMBRAPA employees included 2,100 researchers, and the number of staff holding a doctorate degree (just a few when EMBRAPA was first inaugurated) stood at more than 1,600. The sequence of events leading to this standard of achievement can be described as a truly autonomous capacity development and institutional building process.

However, it was not just the organizational influence and capabilities of EMBRAPA that made Cerrado agriculture a reality. Agricultural producers, who actively took up new technologies and improved their own capabilities, made significant contributions, and agricultural cooperatives, such as the joint Brazil-Japan public-private company, Campo, and other local entities played a significant part in the dissemination of these technologies. Thus, Brazil can be said to have raised its capacity to promote the development of the Cerrado as a multilayered whole inclusive of individuals, organizations and social institutions, such as numerous producers and their organizations, with EMBRAPA conducting research and development and the federal government developing agricultural policies.

The agricultural development of the Cerrado itself was promoted by the Japan-Brazil Agricultural Development Cooperation Program (PRODECER). Financial cooperation from JICA and OECF was mobilized as part of this program. This program was carried out over a period of about twenty years, gradually scaling up in the three phases promoted by PRODECER; the first phase focusing on trial projects in Minas Gerais, the state where Cerrado agriculture began; the second phase consisting of full-scale projects in Minas Gerais and two adjacent states as well as trial projects in the states of Mato Grosso and Bahia;

Figure 2: The Japan-Brazil Agricultural Development Cooperation Program (PRODECER)



Source: Prepared by the author

and the third phase extending the program to the Cerrado agriculture frontier states of Tocantins and Maranhão (see Figure 2).[9]

Even after completion of PRODECER, the expansion of agriculture in the Cerrado has continued dynamically with progress in areas such as an expansion of the area of land under cultivation, improvements in productivity, diversification of the crops being produced, and expansion of the downstream value chain, such as agricultural processed goods. Brazil has overtaken the United States in terms of the production and export of soybeans, and is expanding its share of the global market for soy beans, corn and other grains. Moreover, the diversification of the agricultural and grazing industries has included labor intensive agriculture which, when combined with the expansion of the value chain, has meant that employment growth in the Cerrado regions has exceeded that in other regions, so that the expansion of Cerrado agriculture has also contributed to reducing poverty and narrowing the gap between regions. Furthermore, from the beginning of Cerrado development there have been initiatives to protect the environment and ecosystems. In this sense, Cerrado agriculture can surely be described as inclusive, sustainable development.

The city of Lucas do Rio Verde, one of the focal points of the Cerrado agricultural development by PRODECER, as it appears today (2001). Environmental conservation zones where virgin nature has been preserved: dark green area running through left of center and crop fields (light green area) stretching to the horizon.
(photo source: Municipality of Lucas do Rio Verde)

[9] For details on the development of Cerrado agriculture, see Hosono, Akio and Yutaka Hongo (2012).

The expansion of Cerrado agriculture is described by former Brazilian President Lula as Brazil's agricultural revolution, and by a 2010 feature article in *The Economist* magazine as "The miracle of the Cerrado". Dr Norman Borlaug, who received a Nobel Prize for his part in the Green Revolution, endorsed Cerrado agriculture as "one of the great achievements of agricultural science in the 20th century".

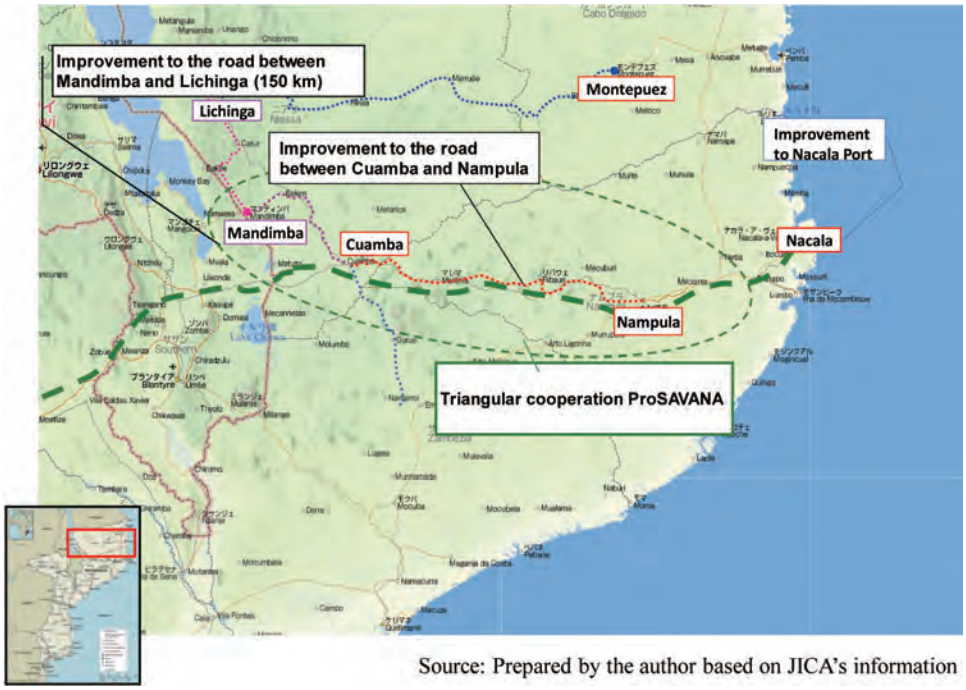
4. Japan-Brazil Partnership Program and Expansion of Triangular Cooperation

As was mentioned earlier, the ProSAVANA Project is pursuing agricultural development in Mozambique through tripartite cooperation among Japan, Brazil and Mozambique, drawing on the experience of the Cerrado development. The benefits of having three countries implement the project are numerous and varied. Mozambique is an agricultural nation with 80 percent of the workforce engaged in agriculture. Brazil has the experience of developing Cerrado agriculture, and has an excellent stock of technologies for tropical agriculture. Also, both Brazil and Mozambique are former Portuguese colonies, so they share a common language. The regions targeted by the ProSAVANA Project are located in the northern part of Mozambique and have a great deal in common with the Cerrado regions in Brazil, particularly where the savannah extends around the Lichinga Plateau.

Progress has also been made in the form of improvements to infrastructure as a result of Japanese cooperation projects, and these are expected to have synergistic effects with the ProSAVANA Project. Asphalt paving for the roadway between Nampula and Cuamba (part of the Nacala corridor, one of the major arterial roads) is scheduled for completion during 2014. This project is funded by Japanese financial cooperation. Technical cooperation started at the Nacala port in April 2012, and it is also likely that financial cooperation will be implemented for the roadway upgrades between Cuamba and Lichinga. (See Figure 3.)

The ProSAVANA project is being implemented as part of the Japan-Brazil Partnership Program (JBPP). As discussed earlier, partnership programs are an effective approach for South-South/Triangular cooperation. The JBPP is one such program. But even before the start of the program in 1990 Japan-Brazil triangular cooperation was ongoing (1985) in the form of third-country training programs and other projects,

Figure 3: The ProSAVANA Project Teaming Japan, Brazil and Mozambique



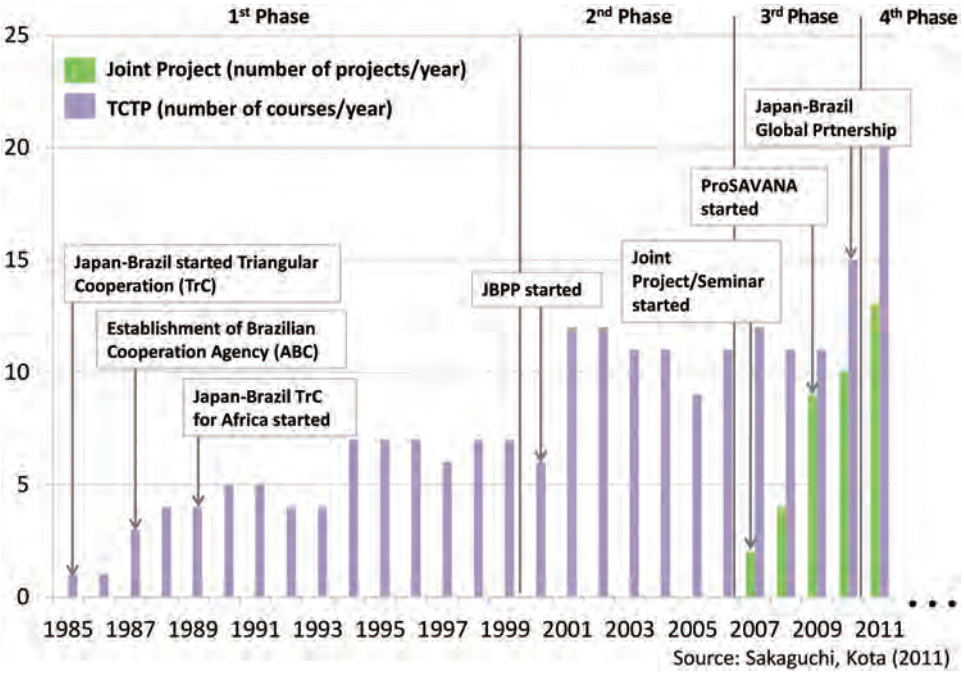
Source: Prepared by the author based on JICA's information

so triangular cooperation joining Japan and Brazil as partners dates back more than twenty years. If triangular cooperation with Brazil prior to the conclusion of the JBPP in 1990 is taken as the first phase, then the second phase started with the inauguration of the JBPP, while the period starting with the joint projects and joint seminars in 2007 is the third phase, and the period since cooperation started based on the new concept of "Japan-Brazil Global Partnership for the solution of global issues" in 2010 can be viewed as the fourth phase.[10] From the start of the third phase until September 2011, Brazil and Japan had conducted 13 joint projects, 13 joint seminars, and 16 new third-country training programs. Not only have the numbers increased, the scale of each project has increased dramatically, and projects expected to have a large impact have been launched, one of which is the ProSAVANA project. (See Figure 4.)

Many other cooperation projects implemented through the JBPP deserve attention. The Japan-Brazil global network for protecting tropical rainforests is one of them. This project aims for truly global expansion, targeting South East Asia and non-Portuguese-speaking Africa, such as the Congo Basin. As the country with the largest tropical rainforest in the world, Brazil is carrying out advanced initiatives for

[10] Sakaguchi, Kota (2011)

Figure 4: Japan-Brazil Triangular Cooperation



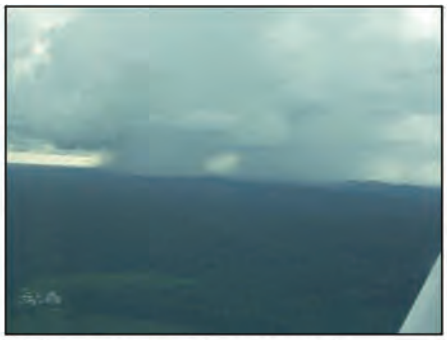
protecting tropical rainforests, and bilateral cooperation between Brazil and Japan has also contributed to the formation of models for protecting tropical rainforests.

The Advanced Land Observing Satellite “DAICHI” (ALOS) operated by the Japan Aerospace Exploration Agency (JAXA) uses microwave sensors rather than optical sensors, and so using this data makes it possible to monitor tropical rainforests for illegal logging around the clock and even under conditions of heavy cloud cover. This has been highly effective in suppressing illegal logging, and in recent years the area of tropical rainforest lost in the Amazon has declined sharply. “DAICHI” is the only satellite orbiting the earth that uses this technology, and so the benefits of Japan’s international cooperation can be seen on and above the earth.

This technology and experience is eagerly sought by countries with tropical rainforests around the world, and so Japan and Brazil are working jointly to implement triangular training such as “Monitoring tropical rainforests from space satellites” and “Spreading agroforestry to address fragmented forests”.

There is also a great deal of interest in collaboration and cooperation between Japan and Brazil to improve public security in Central America.

Extensive forest of Amazon
Picture: Yutaka Hongo, 2009



Rainy season of Amazon. Rain shower to the forest.
Picture: Yutaka Hongo, 2009

JAXA's ALOS satellite
Picture: JAXA

ALOS 2 is scheduled to be launched in 2013.
Picture: JAXA

Since the year 2000, Japan and Brazil have implemented bilateral technical cooperation to extend local policing activities based on the *koban* ("police box") model in São Paulo state, which used to have a high crime rates. This cooperation project has contributed to concrete outcomes such as a 70 percent reduction in the murder rate in the city of São Paulo. Japan and Brazil are working jointly to bring training programs for improved public security to the countries of Central America interested in the São Paulo model. Here, dialogs have been continuing since 2005.

Both of these two cases are driven by ongoing bilateral cooperation for capacity development and they are making progress in innovative technological solutions and associated systems, as well as institution building. South-South/Triangular cooperation continues to be actively conducted based on this experience, and with Brazil playing a central role.

5. Synergistic Effects between South-South/Triangular Cooperation and Capacity Development

The current interest in South-South cooperation is expected to grow even further in the future. But in order to avoid the fragmentation

discussed earlier and the rising transaction costs resulting therefrom, the use of several effective approaches will most likely be necessary (such as those mentioned so far in this chapter) as well as assigning priority to those areas where the expected benefits peculiar to South-South/Triangular cooperation are more significant than can be achieved using traditional cooperation.

Concrete examples of this cooperation are areas of cooperation that cannot be performed by developed nations. These are responses to issues faced by more than one developing nation, but for which developed nations do not have adequate expertise. Examples include areas such as tropical agriculture and tropical diseases. Developed nations tend not to be located in tropical climates, so they usually lack the store of technologies for agriculture peculiar to this kind of climate, for example. The case of Brazil's Cerrado discussed above is an excellent example of such an area, and it is unlikely that a developed nation would ever be able to accumulate a level of experience and technology equivalent to that which exists in Brazil. EMBRAPA receives cooperation requests from numerous countries. The same applies to measures to combat the illegal logging in tropical rainforests. Chagas disease, which is found in South America and Central America, is almost completely unknown in developed nations. Cooperation in these areas would be difficult if not for South-South cooperation, and the triangular cooperation that supports this South-South cooperation is highly significant.

Similarly, developing nations generally have large numbers of poor people, and so have a need for low-cost housing, a situation that differs from what is found in developed nations. Earthquake-resistant housing, for example, would be expensive if constructed using the materials used in developed nations, and so meaningful cooperation cannot be achieved without innovating in ways appropriate to the reality of the developing nation. However, the lost-cost building materials that are available in developing nations are not necessarily known in developed nations.

For many base-of-the-pyramid (BOP) businesses as well, it is necessary to innovate by developing products and services that are appropriate to the reality in developing nations, so that these products and services can be the ones the poor really need, and can afford to

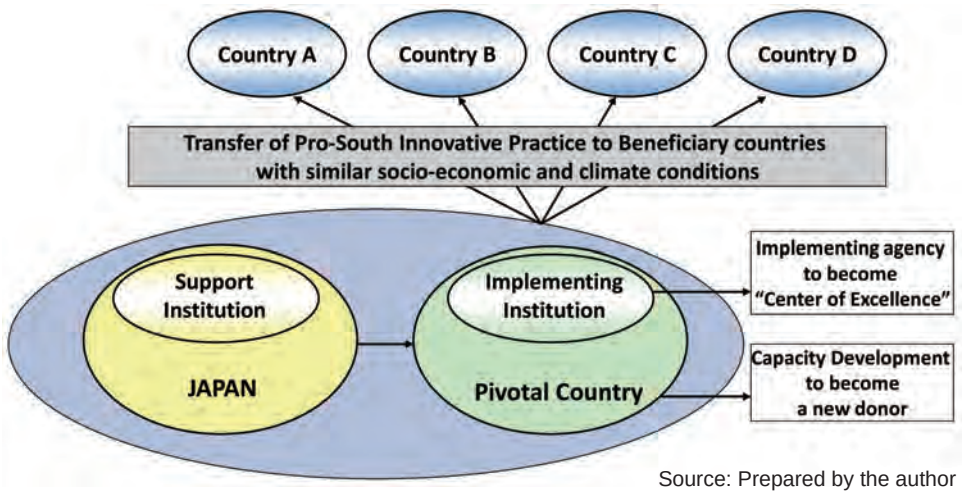
actually buy. The well-known Olyset Net mosquito net, which is increasingly being adopted as part of the fight against malaria, is one such example. This kind of technology and experience has an important significance in mutual cooperation between developing nations. This can be described as an area where there is huge potential for the impact of South-South/Triangular cooperation.

Thus, the particular importance of the kind of capacity development perspective described earlier should be emphasized once again when it comes to tackling challenges specific to developing nations. This is because these challenges cannot be solved simply by transferring technology from developed nations. This point should be explored further, taking as an example the construction of earthquake-resistant buildings that can be provided affordably.

The huge earthquake that struck Mexico in 1985 caused massive damage in many places, including in the capital, Mexico City. Afterwards, the Japanese government cooperated with the establishment of CENAPRED (the National Center for the Prevention of Disasters), as well as the building up of capacity and creating systems. In recent years, CENAPRED has raised the level of its functions as a center of excellence in this area. In particular, CENAPRED fulfilled an important role in the implementation of the TAISHIN project in El Salvador, based on the framework of the Japan-Mexico Partnership Program (JMPP).

El Salvador is one of the most vulnerable countries in the world when it comes to natural disasters. The huge earthquake that struck El

Figure 5: Triangular Training Program (Third Country Training Program)



Source: Prepared by the author

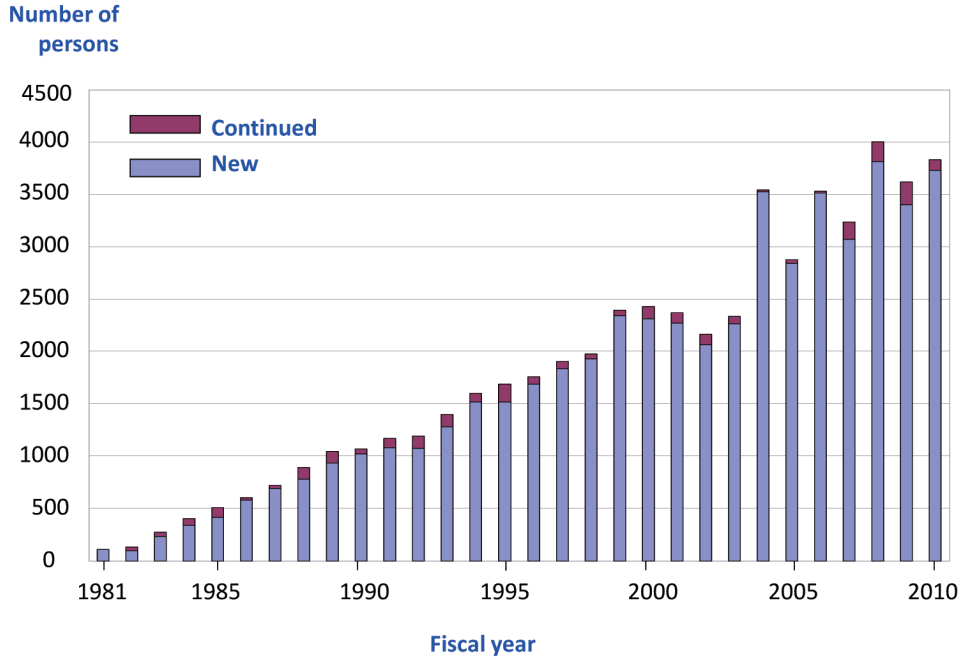
Salvador in 2001 left many injured and homeless. About 60 percent of the homes that were destroyed belonged to the poor. The TAISHIN project was started out of recognition of the importance to develop houses with good earthquake-resistance for low-income earners. The project, which started with a process of mutual learning oriented at solving problems, involved researchers from El Salvador (mainly from the University of El Salvador and “José Simeón Cañas” Central American University), Mexican experts from CENAPRED and Japanese experts from the Building Research Institute of Japan.

Of the building materials currently available, among the cheapest and most readily available are the sun-dried bricks known as “adobe” and “soil cement” (a building material for economizing on the amount of cement used through its 10-parts soil and 1-part cement ratio. Japan has no experience with these materials. Other circumstances were also significantly different from those in Mexico. These materials were used, together with the expertise from Mexico, to produce various combinations of raw materials and designs which were tested for anti-seismic properties in seismic testing laboratories of each university. The laboratories were capable of testing large structures. After numerous tests, the researchers were able to develop an earthquake-resistant model house that could be produced at low cost. This is an excellent example of technical innovation and the creation of expertise through collaboration. South-South cooperation extended further to other Central American countries and elsewhere, such as Haiti. Thus, a center of excellence was first created in Mexico, and the capacity development process then progressed further in El Salvador.

The various examples that we have touched upon so far in this chapter illustrate the necessity of a capacity development perspective in South-South/Triangular cooperation. Normally, “knowledge exchange” is emphasized as a method of South-South/Triangular cooperation, but from these examples we can go further and see the importance of cooperation directed at mutual learning, collaborative problem-solving, and the co-creation of innovative technologies and expertise.

It is known that centers of excellence also make progress in terms of capacity development as institutions through the process of South-South/Triangular cooperation. For example, the Faculty of Marine Science of Chile’s Universidad Católica del Norte developed as

Figure 6: Triangular Training Programs Organized by JICA



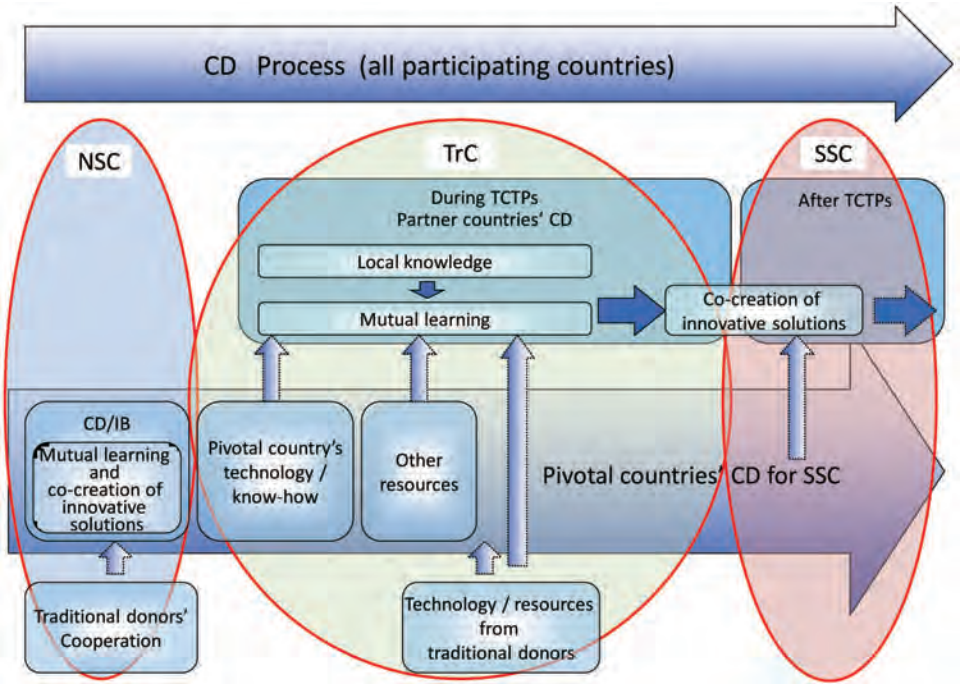
Source: JICA

a center of excellence in Latin America in the area of shellfish aquaculture. The starting point was the beginning of a project to cultivate Chilean scallops in 1981. Aquaculture had not been conducted until then, but a scallop aquaculture industry was established in about eight years, and Chile is now the third largest exporter of scallops. There has been mutual learning between Chilean researchers, Japanese specialists, Chilean aquaculture companies and fishermen, as well as problem-solving initiatives and an accumulation of research. These paved the way to development of aquaculture technologies appropriate to local conditions. This can be regarded as having been an endogenous, inclusive capacity development process.

Thereafter, South-South/Triangular cooperation started in 1988, as the Faculty began the process of capacity development as an international cooperation institution. In the twenty year period up until 2007, the Faculty conducted a third-country training program, accepting 400 trainees from 16 Central and South American countries, selected from 1200 candidates. In this process, the Faculty built a strong network with other relevant parties attempting to develop aquaculture as an industry in Central and South America. Moreover, in the process of carrying out cooperation projects, the Faculty was able to learn about the state of development of the aquaculture industries in each of these countries in great detail. This laid the groundwork for the successful implementation

of even more advanced cooperation projects in Peru, Ecuador, Brazil, Columbia, Venezuela, and El Salvador. The crucial factors that made this possible were trust, the network of relevant parties built up over a long time, and a detailed understanding of the local conditions. This suggests that the Faculty's capacity to function as a center of excellence grew over time as a result of its involvement in South-South/Triangular cooperation. (See Figure 7.)

Figure 7: Seamless CD Process toward SSC/TrC



Source: Prepared by the author

In this way, triangular cooperation also fulfills a role in assisting the process of countries becoming new donors. In the cases described above, the assistance was directed at enabling centers of excellence in specialized areas to become donors, but it should be pointed out that triangular cooperation also leads to a strengthening of the capacity for cooperation of the institutions in developing nations that provide aid through South-South cooperation. This is a particularly significant benefit in partnership programs.

6. Conclusion

To sum up, the following points are likely to be important if we are to aim for the further expansion of South-South/Triangular cooperation. Firstly, in those areas where South-South/Triangular cooperation offers

comparative advantages that only these forms of cooperation can provide, we should aim to draw out these benefits to the greatest extent possible. Secondly, we should make full use of proven approaches that have delivered successful outcomes so far, such as effective triangular training programs organized around Centers of Excellence, partnership programs, and wide-area approaches collaborating with organizations for regional integration/cooperation as platforms. Thirdly, we should make the "capacity development" perspective mainstream in South-South/Triangular cooperation as well. Japan is a pioneer in South-South/Triangular cooperation, and has a great deal of valuable experience in this area. Moreover, the existence of Centers of Excellence in various countries that have been made possible through Japan's previous cooperation projects is a key asset for future South-South/ Triangular cooperation. It is expected that these advantages can be used to further strengthen and scale up South-South/ Triangular cooperation.

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Chapter 4

Scaling Up South-South and Triangular Cooperation

Hiroshi Kato

1. Introduction[1]

As suggested in the Introduction of this volume, the challenges that the global community face in the 21st century will call for a new architecture of development cooperation that is no longer based on the dichotomy of north-south or south-south. Tomorrow's international cooperation will increasingly become a process of horizontal "mutual learning" and "joint solution discovery" rather than that of vertical and uni-directional resource transfer from the provider's side to the recipient's side.

South-south cooperation (SSC) as we know it today is already leading us in that direction; it is indeed promoting active interactions for mutual learning in a horizontal and multi-lateral manner and involving an increasing number of heterogeneous players. The remaining challenge is how to scale up SSC, in such a way that it will evolve into a system that we aspire to have.

Scaling up of SSC, however, is not an easy challenge; indeed there seems to be a number of challenges involved in SSC. We are aware that many of SSC projects are not completely immune from the problems that have often been associated with traditional north-south cooperation: oft-cited are such problems as the lack of institutional mechanisms, high transaction costs, and their tendency to be fragmented and short-lived. Rhee (2011) pointed out financial constraints and the high transaction costs associated with the process of matching the supply and demand before starting SSCs. Our task,

[1] The arguments developed in this chapter rely to a considerable degree on the case analyses presented in this volume. However, the views expressed herein are solely those of the author of this chapter and do not necessarily represent the views of case authors or those who contributed to the case analyses.

then, must be to seek ways to overcome these possible problems for effective scaling up of SSC.

In addressing this issue, this chapter will explore possible factors to increase the likelihood of successful scaling up of SSC. The term "scale up" here is defined as the process of "expanding, adapting, and sustaining successful policies, programs, or projects in different places and over time to reach a greater number of people.[2] By using the term scaling up I do not necessarily imply that the activity must always be large in input, significant in impact, or wide in coverage; rather, we define the project scalable or scaled up if it has some expansionary positive feedback cycle built in it providing energy for continued growth.

We will look at the scaling up issue from three angles. *First*, we would like to pay particular attention to what kind of ***knowledge*** is being created through successful SSC projects. We pay special attention to the issue of knowledge based on the shared assumption in the international development community that knowledge - knowledge sharing and knowledge creation - is the key for successful development.[3] *Second*, we will pay close attention to the issue of ***institutional arrangements*** to make such knowledge creation through SSC sustainable. Lastly, we will look at the ***process of capacity development*** at the national level - and the ways to assist such processes from outside – in building up such institutions. Building-up such SSC-supporting institutions takes years and persistent effort, but there are good examples offering rich experiences to draw lessons from.

With these definitions and viewpoints, in the following section, this paper attempts to explore what factors in terms of knowledge, institutions, and capacity building increase the likelihood of SSC's scaling up. It will look at the issue both from the short-and medium term perspectives at the project level as well as from the longer-term perspective at the national level.

We base our discussions on cases of triangular cooperation (TrC) projects in which Japan was involved, for being a "traditional" donor, Japan's SSC-related activities are by definition TrC projects.

[2] Hartmann and Linn (2008), and Linn (2011).

[3] The recently held High-Level Meeting "Towards Country-led Knowledge Hubs" (10-12 July, Bali, Indonesia) organized by the Government of Indonesia, the World Bank, UNDP, and JICA represents such interest.

2. SSC as a Knowledge Creation Process

SSC is likely to succeed and to be scaled up when it deals with types of knowledge particularly relevant to the context of developing countries. Hosono (forthcoming) argues there are certain knowledge areas in which SSC can be particularly effective. These kinds of knowledge are usually not readily available from the north, and they have to be discovered, created, and internalized through SSC. They are: (1) knowledge pertaining to possible solutions adapted to the needs of a certain southern country (e.g., solutions to problems faced by landlocked LICs), (2) knowledge pertaining to possible solutions related to the challenges of the global-south (e.g., developing effective BOP business model in a specific context) and, (3) knowledge pertaining to possible solutions that must be shared among north and south countries for global challenges (e.g., on climate change and disaster management).

Based on this understanding, we will look at two SSC cases to see how knowledge creation takes place.

Case 1: Better Hospital Service Program in Africa[4]

The first case is the "Better Hospital Service Program," a tri-partite joint venture involving fifteen African countries, Sri Lanka, and Japan. The idea of the program is to introduce some management tools such as "5S," "KAIZEN,"[5] and Total Quality Management (TQM) in improving hospital services and health care. The program has been progressing to the satisfaction of the participants since it started in 2007; actions are continuously implemented by participating hospitals to improve the working environments and the services they provide. Such actions have resulted, for example, in tangible outcomes such as shorter waiting times for patients for clinical examinations in pilot hospitals. This movement is spreading both within and across participating countries, with Tanzania functioning as the pivotal center. At the policy level, the 5S-KAIZEN-TQM approach has been mainstreamed in Tanzania and Kenya. Among the participating countries, Tanzania stands out with 56 participating hospitals, whose capacities have been so developed as to have become able to offer training programs to peer African practitioners.

[4] For a detailed description, please see Case 2 of this booklet.

[5] "5S" stands for the five key practical steps for better productivity in the work place, and they are: Sort, Set, Shine, Standardize, and Sustain. KAIZEN is a Japanese word meaning "improvement," or "changing for the better." It is a concept or philosophy that emphasizes the importance of a continuous process of improvement in engineering, manufacturing, and business organizations.

The successful progress of the program thus far has been driven by several forces.

First, there was a strong demand for knowledge on hospital management; before the project started in 2007, medical and health professionals in Africa were feeling the strong need for better-quality care and medical safety at their hospitals, which drove the movement forward. From the project, we observed, little to our surprise, that the stronger the need for knowledge, the more dynamic the knowledge acquisition and creation processes are; Tanzania, which apparently had the strongest need for hospital improvement among the participating countries, has grown into the regional center of excellence through the application of 5S-KAIZEN-TQM.

Second, knowledge cannot be created *ex nihilo*, and there must be a body of knowledge that serves as the base on which further knowledge creation takes place. In this case, luckily, the base knowledge and role model to learn from was available in an Asian island country - Sri Lanka; it had been developed by Dr. Karandagoda, a doctor who was then a hospital director. Adjusting what he had learned about 5S-KAIZEN-TQM from Japanese firms operating in Sri Lanka, Dr. Karandagoda had adopted and improvised various management tools to suit the Sri Lankan local contexts, which were then applied to his hospital. That this system of knowledge was available meant a lot to the African health professionals. Comprising simple, flexible and low cost techniques and skills, Dr. Karandagoda's system has been tested and proven effective in the developing country context of Sri Lanka, a context shared by many African counterpart countries. The application of such knowledge entailed minimal costs, not requiring expensive professional consultants' help for internalization.

Third, it is noteworthy that Dr. Karandagoda had developed the knowledge system himself as a problem solver. This experience of his may have played an important role in making him an excellent mentor to his African counterparts.

And fourth, the triangular cooperation arrangement provided African, Sri Lankan and Japanese experts to actively interact and learn from one another. The interaction opportunities included training sessions in Sri Lanka and Japan, monitoring and field visits to African hospitals by Sri

Lankan and Japanese experts, and additional support to individual African country by JICA.

Case 2: Earthquake-resistant Housing Project in El Salvador[6]

The second case is an earthquake-resistant housing development project in El Salvador, a triangular cooperation project supported by Mexico and Japan.

The project's most notable achievement was the development of an affordable housing model for low income households. There were four types of local housing construction methods in El Salvador, using as main materials, respectively, soil cement, block panels, adobe, and concrete blocks. None of these construction methods, however, had been tested and validated for their earthquake resistance performance. This validation was accomplished by the project, which culminated in the development of a housing model applicable nationwide.

The success of the project was driven by several driving forces. ***First,*** there was desperate need for and commitment to obtain applicable knowledge on earthquake-resistant housing in El Salvador, a country that was devastated by a horrendous earthquake in 2001, and the hardest-hit victims being the poorer segments of society. Hence, there were fully-committed experts in El Salvador, primarily comprised of government agencies and universities. ***Second,*** just like in the above-mentioned case, there was a body of knowledge based on which new knowledge could be developed. In this case it was the technological support provided by the experts from Mexico[7]. Mexico, a country of frequent earthquakes, was already building up its willingness and capacity to extend cooperation to its neighbor. ***Third,*** an important point in the case is that the Mexican organization that provided technological support (CENAPRED) had not only "owned" anti-seismic housing technologies as mere textbook knowledge, but also had the experience of having recently tackled the same sort of challenge, and developed such technologies on their own, based on the country's experiences in dealing with repeated earthquakes. ***And fourth,*** the triangular cooperation arrangement facilitated interactive knowledge creation by the Salvadoran experts, who also were familiar with the local contexts, Mexican experts, who provided technical expertise, and Japanese

[6] For a detailed description, please see Case 5 of this booklet.

[7] The capacity development in anti-earthquake housing in Mexico was supported by a Japanese cooperation.

experts, who supported and facilitated the collaboration in various ways – financially, technically, and as facilitators.

The Process of Knowledge Creation

So far we have looked at two SSC/TrC cases from the knowledge creation perspective. Our observations include, among others, the following:

- ✓ Strong need for knowledge must be at the very core of successful SSC/TrC projects.
- ✓ For effective knowledge creation there must be a knowledge base to develop from.
- ✓ It helps greatly if those who developed the original knowledge base participate actively in the process of knowledge creation with their partners.
- ✓ Knowledge creation can be most effective when it is realized through the interaction of practioners who own the same or similar problems.

Similar knowledge creation processes can be observed in many other cases.

In a Haiti-Dominican Republic-Japan triangular agricultural technology project,[8] positive learning activities took place among the Haitian practitioners even in extremely difficult working conditions: after their return from training courses in the Dominican Republic, the Haitian participants are starting to organize, voluntarily, activities to share knowledge and information among them, and their enthusiasm has resulted in a proactive organization of an advanced training course. Here factors similar to the African Hospital and Salvadoran housing cases can be observed: the Haitian participants had strong needs for leaning; the Dominican counterparts were quite willing to provide support and had base knowledge to share with the Haitians; and the project created a space for interactive learning among the professionals.

A similar process of knowledge creation has taken place also in a project on livestock hygiene for animal health in South America

[8] For a detailed description, please see Case 6 of this booklet.

involving Argentina, Bolivia, Paraguay, and Uruguay.[9] Since its start in 2005, the project has created an ample body of knowledge among the participating professionals, making possible clinical and epidemiological examinations of many animal diseases which were previously impossible. The success factors in this project have been threefold: the participants all had strong needs to develop a body of knowledge on dangerous veterinary diseases; the project had the knowledge base developed in Argentina, which had been developed with the support of Japan, and the interaction and mutual learning among scientists.

3. Institutional Support for Scaling Up Knowledge Creation

As shown above, successful SSCs are observed to have strong demand for knowledge acquisition as a innate driving force, as well as a knowledge base to capitalize on and collaborative interaction between the practioners who "own" the same or similar problems.

If SSCs are to be sustained and scaled up over the long term, these favorable conditions must be maintained and reproduced. If not, the initial enthusiasm could be lost, initiatives of visionary leaders undermined, participants' incentives reduced, and allocated resources dried up. To avoid such negative feedback loops from taking place, projects must have institutions. The need for such institutional support is relevant to any developmental effort but is particularly relevant in developing countries.

As effective institutions for support scaling up SSC, Hosono, based on Japan's experiences, suggests three arrangements.[10] They are: centers of excellence or COEs, partnership programs, and regional mechanisms (Hosono, op.cit. See also Chapter 3 of this volume). With this in mind, we will look at how such arrangements and others support effective knowledge creation by (1) having a knowledge base, (2) providing continuous support, (3) creating space or "Ba" for mutual learning, and (4) making individual "encounters" occur.

Having a Knowledge Base

As stated above, the importance of having a center of excellence (COE)

[9] For a detailed description, please see Case 7 of this booklet.
[10] Hosono, op. cit.

as the core organization in SSC has been emphasized.[11] COE's advantages are manifold, but the most important is the basic body of knowledge and skills that they provide to its SSC partners. Landmark examples of COEs, to name a few, are Mexico's Disaster Prevention Center (CENAPRED), Brazilian the Agricultural Research Corp (EMBRAPA), and Singapore's Standards, Productivity and Innovation Board (SPRING).[12] Japan has been involved in the capacity development of all these organizations.

Mexico's CENAPRED is an organization that supported El Salvador in the above mentioned project. Since its foundation in 1988, CENAPRED has developed its technological capabilities, including the knowledge on the seismic behavior of the frames used in local housing. Referring to these technologies, El Salvador was able to develop the earthquake-resistant housing models suited to their local contexts.

Brazil's EMBRAPA, founded in 1973, succeeded in developing new varieties of soybeans for the Brazilian savannah, and that technology along with other technological and institutional innovations is being extended to Mozambique (See Chapter 3 of this volume).

Singapore's SPRING developed various techniques for productivity, and quality management, and these bodies of knowledge are widely shared with interested developing countries, both what they created with Japan and on their own.[13]

Providing Continuous Support

These COEs have one thing in common, and that is they have accumulated and created, through years of effort, a solid knowledge base on issues in their specialized fields. Their very experience of obtaining and creating knowledge constitutes their primary competence, with which they can extend support to southern partners.

Another advantage of having such COEs is that their established organizations and policies, as well as their relatively abundant technical and financial resources enable them to implement long term, consistent

[11] The recognition of the importance in having Centers of Excellence is not new. The United Nations, for example, highlighted their importance in its 2010 Nairobi Outcome Document, and encouraged its specialized organizations to assist developing countries in enhancing or establishing centers of excellence in their respective areas of competence.

[12] Part of the following descriptions on the COEs are based on Hosono (forthcoming).

[13] See, for example, Ohno 2010.

and comprehensive support to their partners.

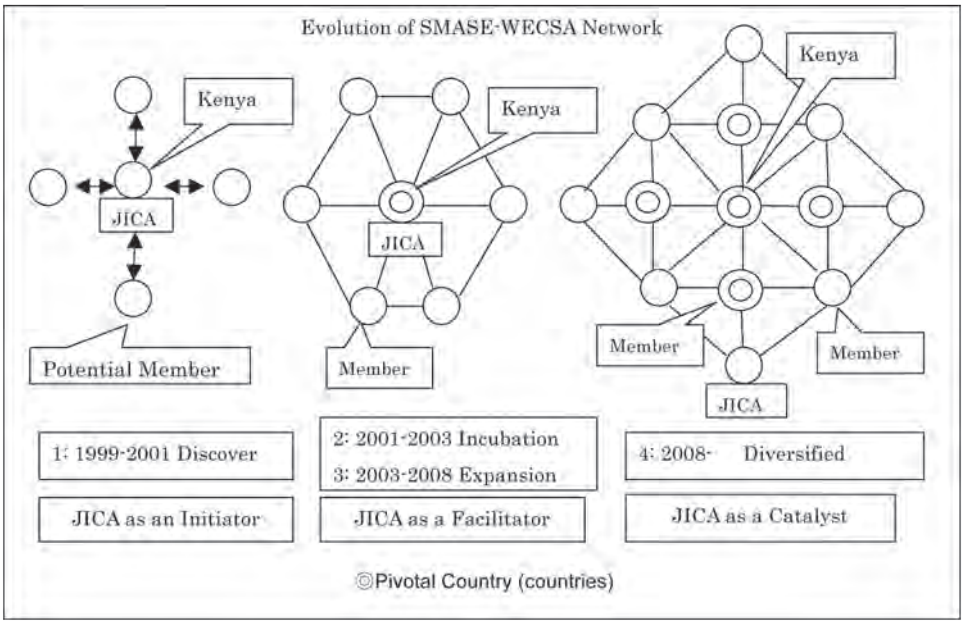
Creating Space or "Ba" for Mutual Learning

In order for an effective creation of knowledge to take place, there must be a space where different actors can interact and learn from one another. The Japanese management scientist Ikujiro Nonaka's concept of "Ba" (space) (Nonaka and Konno 1998) explains this experience of ours quite well. According to them, Ba is a context which harbors meaning and can be considered as a shared space that serves as a foundation for knowledge creation. Ba can be physical, virtual, mental, etc. Ba provides a platform for advancing individual and/or collective knowledge. Our experience tells us projects that succeeded in creating such Ba tend to be successful and self-sustaining.

Such space or "Ba" in SSCs can be developed and scaled up through a variety of paths; SSC can start small and expand gradually, or alternatively, start with a fairly solid institution from its initial stage.

Case 3: Mathematics and Science Education in Africa

Our project on mathematics and science education projects in Africa provides an interesting case of network development. Entitled SMASE-WECSA (Strengthening of Mathematics and Science Education – Western, Easter, Central, and Southern Africa), it is a network project serving as a platform under which "mathematics and science educators



Source:Ishihara (2012)

across Africa can gain practical wisdom via the exchange of each country's experiences and knowledge in the field."[14] The network started in 2001 having Kenya as the pivotal country, in which a cooperation project on math and science education with Japan had continued since 1995. Since its establishment and going through the "discovery," "incubation," "Expansion," and "diversified" stages, the project "has been gradually moving towards more diversified relations among the member countries." (Ishihara, op.cit.)

Case 4: "School for All" project

A similar pattern of gradual evolution of networks can be observed in West Africa's primary education development. A primary education development project based on the "school based management" has been conducted in Niger since 2004 supported by Japan.[15] The project, commonly called the "School for All" project, has turned out to be quite successful: the country established a network of school management committees, contributing to the improvement of primary school education in the country, one of the world's poorest. This positive outcome encouraged decision makers in three neighboring west-African francophone countries - Senegal, Burkina Faso, and Mali to do likewise and currently, primary education projects employing the same concepts exist. Officers and project members of the four countries hold regular meetings – once a year – to exchange information, and learn from one another, thus **developing** a network of mutual learning.

Case 5: Coalition for African Rice Development

Another possibility is to start from the beginning, networking with careful planning and negotiations/coordination among interested parties. One such example is a process through which an initiative called the "Coalition for African Rice Development," or CARD, was initiated and developed. Launched on the occasion of the 2008 Fourth Tokyo International Conference on African Development (TICAD IV), CARD is an initiative "to support the efforts of African countries to increase rice production."[16] It also forms a consultative group of donors, research institutions and other relevant organizations to work with rice producing African countries. Unlike the previous two examples, this initiative has had strong administrative institutions from its early stages, comprised of

[14] For a detailed description, please see Case 1 of this booklet.

[15] For more details, see, for example, http://www.jica.go.jp/english/our_work/thematic_issues/education/study.html.

[16] This part relies on JICA 2009.

the General Meeting, the Steering Committee, and the Secretariat, with the participation of major organizations such as AGRA, NEPAD, FAO, IFAD, CGIAR, WFP, WARDA, IRRI, JIRCAS, as well as JICA.

Making fortuitous "encounters" intentionally

Matching the demand and supply of required knowledge and skills is an age-old challenge for any form of international cooperation, not unique to SSC. However, given the large and increasing number of cooperation providers in the south, this challenge is likely to become more serious over time.

One oft-mentioned approach for effective matching is to take advantage of regional mechanisms (See, for example, Hosono, op. cit.), whose significance has been proven. Our experience' tells us that having schemes like Japan's partnership programs (as discussed in Chapter 3 of this booklet) is also useful. In addition to these, there seems to be several ways to reduce such transaction costs.

First, transaction costs for supply-demand matching can perhaps be reduced if the demand for a certain body of knowledge leads to a natural selection of potential partners of knowledge creation. For example, in our case of El Salvador-Mexico-Japan collaboration, the choice of Mexico as a partner was a natural selection for El Salvador, given the former's abundant and advanced knowledge on anti-earthquake housing technologies, not to mention its geographical proximity and linguistic commonality. Another example is the choice of Brazil as a partner in an agricultural development project in Mozambique, given Brazil's comparative advantage in tropical agriculture along with the two countries' closeness as Lusophone countries.

And ***second,*** external players, both multilateral and bilateral, can act as an intermediary or a broker in matching the demand and supply of required knowledge. This function can be of vital importance, for oftentimes potential partners are not led automatically by an invisible hand to encounter their ideal partners. Here the roles of multilateral organizations with their vast network and convening power cannot be over emphasized. However, bilateral donors, too, can play a role. For example, in the above two cases, Japan facilitated the inception of the projects by acting as an intermediary, connecting the pivotal and

beneficiary countries – Mexico and El Salvador, and Brazil and Mozambique. In both cases Japan facilitated the initial project formation process – which usually requires much coordination - by participating in the joint preparatory study missions. There are other cases where a Japanese expert working in Cambodia worked as an intermediary to link with Brazil to stimulate knowledge exchange, though at a smaller scale. It enabled the meeting of professionals in maternal and child health of the two countries, which otherwise would not have been possible. This interaction between the professionals of the two countries resulted in positive learning experiences.

4. National level capacity development for scaling up SSC

So far, we have considered *project level* factors that increase the probability of effective scaling up of SSC. Turning our attention now to the national level, we will have a look at the issue of medium- and long-term capacity development of countries as providers of cooperation. Of late, a lot of attention is being given to the SSCs, but most of the attention seems to have been paid by a handful of dynamically emerging economies, like Brazil, China, India, Mexico, and South-Africa. However, SSC is not to be monopolized by several countries but must and can in principle be provided by any country. Such capacity development is a complex process, requiring a long time as well as a careful and strategic approach. Let us first have a look at the case of Indonesia, and see how this country with an outstanding history of SSC is now trying to streamline its SSC activities.

Case 6: Systematic Capacity Development for SSC in Indonesia

Indonesia prides itself in having a long history of SSC, starting from the days of the well-known Asian-African Conference held in 1955, to promote Asia-African cooperation. Ever since then, Indonesia has conducted a number of SSC activities, accumulating a huge body of expertise. Even with such a long history and abundant experience, however, putting the international cooperation policy in the mainstream policy framework was not an easy task. Quite wisely, Indonesia has been taking a step-by-step approach in developing its capacity as an international cooperation provider, clarifying the specific tasks that have to be tackled in a carefully planned sequence.

Since 1981, in line with the Buenos Aires Plan of Action (BAPA) which underpinned the importance of technical cooperation among

developing countries, the Government of Indonesia (GOI) has been implementing various technical cooperation activities in the Indonesian Technical Cooperation Program. However, the successive structural changes of the government over time have made the GOI mechanism for SSC complicated, which came to be viewed as hampering effective coordination in implementing SSC. This recognition prompted GOI to formulate policy frameworks and restructure their complex implementation and funding mechanisms toward more effective SSC. This imperative was furthered by the international environment and national factors such as international initiatives on aid effectiveness (the Paris Declaration and the Accra Action Agenda), the inclusion of Indonesia in the Group 20, and the signing of the Jakarta Commitment and the inclusion of SSC into the National Medium Term Development Plan.

Since the late 2000s, GOI has been conducting a series of dialogues on the future direction of their SSC with various national and international stakeholders and supporters on various occasions. These dialogues culminated in the Grand Design 2011-2025 and the Blue Print 2011-2014, a policy framework of Indonesia's SSC and triangular cooperation. In preparing these documents, several donors including the UNDP, the World Bank and JICA provided support. These documents are now in the process of receiving approval.

Within the framework of the national Long-Term Development Plan (RPJPN) 2005-2025, the targets and time frame of the Grand Design are phased into three periods: Period I (2011-2014) is for the consolidation of Indonesia's SSC, mainly by legal framework development and institutional coordination strengthening; Period II (2015-2019) is for enhancing the involvement of all stakeholders, including the private sector, NGOs and universities; and Period III (2020-2025) is for furthering the SSC.

Simultaneously, they worked to revitalize the implementing mechanism of Indonesia's SSC. An important event in this context was the organization of a national seminar in 2010, at which the draft of the Grand Design and the Blue Print were widely shared among diverse interested parties, from line ministries to international donors and to NGOs. This seminar resulted in the establishment of the Coordination Team on South-South and Triangular Cooperation in 2010, mandated,

as a coordinating body across line ministries, to promote and develop Indonesia's strategic SSC cooperation. Through these steps, GOI's governance structure of SSC has come to be consolidated and streamlined.

The GOI's on-going efforts and the progress of SSC capacity development have demonstrated the importance of fostering a common vision for the strategic national direction toward effective SSC and triangular cooperation among a broad range of stakeholders. This policy framework also served as a guide for external supporters including JICA in extending support to GOI in their efforts for effective SSC.

What is notable in GOI's efforts in strengthening capabilities for SSC is their approach to emphasize a balance between policy/institutional framework and its operationalization. For instance, under its policy framework, the GOI is now supporting the development of the road sector in Timor-Leste by providing training and workshops in collaboration with external supporters including JICA. The outcome of the project, in turn, is immediately provided as feedback to the policy framework for its further refinement. This integration of policy and operation has provided a process and space for learning, and has been the key in building up the GOI's capacity for SSC.

Start small

The above mentioned Indonesian case is an example of capacity development of a large-scale country, and is not easily replicable by other, especially smaller, countries. There are ways, however, that smaller countries or small organizations with fewer resources can, just as well, participate in the mutual learning and joint solution search exercises. In the case of the Better Hospital Service Program, one of the initial pilot hospitals that introduced 5S-KAIZEN-TQM in Tanzania – namely Mbeya Referral Hospital - developed its capacity so that it could organize a training course geared to the peer practitioners from other African countries. In case of the El Salvador seismic-resistant housing project, experts on adobe housing were invited from Peru to provide assistance. Toward the later years of the project, Salvadoran participating universities developed their capacity and motivation to such an extent that they started exchange programs with some universities in Central American countries.

Capacity development of COEs

The preceding discussion reminds us that actually every one of today's powerful cooperation providers started small. Some of the organizations we mentioned earlier as "centers of excellence such as EMBRAPA, CENAPRED, SPRING, too, all started small, often by organizing small training programs. By steadily repeating such activities and accumulating experiences, they gradually developed their capabilities. Japan, too, started small, in 1954, with very modest training programs and dispatches of small numbers of experts.

Another point worthy of our attention is that COE's usually don't simply grow on their own; these COEs are usually established to serve their own countries and are not for the purpose of international cooperation. With such organizational mandates, their drive toward international cooperation might wither if not warranted by clear organizational visions and government orientations. It is partly in this context that Hosono (op. cit.) emphasizes the significance of "partnership programs," a framework that Japan has been developing with 12 partner countries since 1994. The partnership programs' regular planning and coordination processes enable the partnering countries to work out their cooperation program and accordingly mobilize resources effectively. Such arrangements have made it possible for the governments to pronounce clear messages and predictable plans concerning their SSC, thereby enabling systematic resource mobilization on the part of collaborating agencies.[17]

5. Summary and Concluding Remarks

This chapter started with the discussion of international development cooperation inevitably concerning itself more with mutual learning and joint solution discovery, and to that end, current SSC and TrC must be scaled up. Viewing SSC essentially as a process of joint knowledge creation, and paying particular attention to institutional arrangements and capacity development aspects, we have looked at some factors that can contribute to scaling up of SSC.

We argued that SSCs can particularly be effective when they deal with the right kind of knowledge that is unavailable elsewhere and strongly

[17] The partnership also alleviates the financial burdens of partners, with its cost-sharing arrangements with Japan.

needed by the beneficiaries. We then argued the importance of having a knowledge base and continuous support, for both of which, we argued, having COEs could be instrumental. We emphasized the importance of encouraging an interactive knowledge creation process, for which, we argued, there are a variety of possible approaches. Finally, we looked into the process of capacity development to become cooperation providers. Since the process will inevitably be a time-consuming exercise, consistent and continuous support from the international community is called for.

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