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Perspective of Development Assistance Projects in Rural Area of Post-Conflict Country
—Based on Experience of Emergency Relief in Sierra Leone

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Abstract

Featuring a community empowerment project (CEP) conducted by UNHCR in the framework of its Reintegration Program in the post-conflict Kambia District of Sierra Leone as a case study, this paper analyzes the constraints faced during the implementation of CEP and the results of interview surveys conducted after its completion. Based on the lessons learned from the analysis, this paper then discusses the perspective of development assistance projects in postconflict rural areas.

The objective of CEP was to improve project sustainability and community empowerment by increasing the community ownership, applying participatory approach to emergency relief. Thus, CEP was considered as emergency relief implemented from the viewpoint of development assistance. However, as emergency relief, it was constrained by being a temporary and short-term development assistance project, which limited the understanding of the community conditions and way of project implementation, leaving some issues unsolved in achieving the objective.

Based on the lessons learned from CEP experiences, nine key points were identified for consideration in the implementation of future development assistance projects in the transition period after conflict: (1) understanding the circumstances surrounding the project, (2) sufficient preparation time to determine the direction of the project, (3) formulation of a project that will strengthen cohesion of the community, (4) project selection through open and transparent process in the community, (5) establishment of a system in the project implementation that maintains project sustainability, (6) phased project implementation style which will be gradually expanded in scale, (7) preparation of a separate fund to support the socially vulnerable, (8) project information sharing among stakeholders, (9) provision of all possible and full logistic support for project implementation.

In order to reflect these points in development assistance projects in the transition period after conflict, the following is necessary: (1) timely intervention and longer engagement; (2) provision of comprehensive assistance in an earlier timing; (3) assurance of influence and information at the field level. For the next step, it is necessary to explore ways of capacity building assistance for reconstruction of local government organizations and of involvements of local government organizations in community development.

Introduction

Sierra Leone has faced ongoing conflict and repeated coups since 1991, but in May 2001 a new ceasefire agreement was reached between the government and the Revolutionary United Front (RUF), and with the conclusion of hostilities and the lifting of the national state of emergency by the President in January 2002, the conflict was brought to an end (see table 1).

During the ten years of the war, an estimated two million people, roughly half of the population at that time, were displaced, while the number of deaths exceeded 20,000. The war left Sierra Leone with massive rehabilitation and development support.
needs resulting from land devastation, depletion of human resources, and the spread of poverty. In fact, 70% of the Sierra Leone population falls below the national poverty line (about US $0.75 / day) (World Bank 2005), and the country is ranked 177th out of 177 countries in the Human Development Index (HDI).

The international community has provided large amounts of emergency relief to deal with the extensive devastation left by the war, including assisting with the resettlement and social integration of repatriated refugees and internally displaced persons, and also with the social reintegration of the disarmed and demobilized soldiers, and helping to rebuild the socioeconomic infrastructure, and political and administrative organizations and institutions. At present, the primary issue facing Sierra Leone is how best to break away from its dependence on international emergency relief and get back on track with its own independent and sustainable development.

This paper examines as a case study the community empowerment project (CEP) conducted by UNHCR (United Nations High Commissioner for Refugees) in the framework of its Reintegration Program (UNHCR 2004a)\(^1\) in the post-conflict Kambia District of Sierra Leone, and based on that, discusses the implementation of development assistance projects in post-conflict rural areas.\(^2\) That is, the scope of this paper is limited to development assistance projects carried out during the transition period from post-conflict humanitarian and emergency relief until the initiation of full-scale development aid. It should be noted that this paper does not address those issues concerning the gap between post-conflict emergency relief and development, or the issues of the continuum enabling the smooth flow from humanitarian and emergency relief to rebuilding, rehabilitation and development, all of which have been discussed widely in the international community.\(^3\)

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### Table 1 Chronological table of Sierra Leone development

<table>
<thead>
<tr>
<th>Year</th>
<th>Month</th>
<th>Particulars</th>
</tr>
</thead>
<tbody>
<tr>
<td>1999</td>
<td>July</td>
<td>Signing of the Lomé peace agreement</td>
</tr>
<tr>
<td></td>
<td>October</td>
<td>Dispatch of the United Nations Mission in Sierra Leone (UNAMSIL), start of DDR (Disarmament, Demobilization and Reintegration) activities</td>
</tr>
<tr>
<td>2000</td>
<td>November</td>
<td>Signing of the Abuja Peace Accord</td>
</tr>
<tr>
<td></td>
<td>March</td>
<td>Start of the UN “Sierra Leone Information Management System: SLIS”</td>
</tr>
<tr>
<td></td>
<td>May</td>
<td>New ceasefire agreement between the government and the Revolutionary United Front (RUF), recommencement of DDR activities</td>
</tr>
<tr>
<td></td>
<td>July</td>
<td>Establishment of the National Recovery Committee</td>
</tr>
<tr>
<td></td>
<td>September</td>
<td>Formation of the I-PRSP (Interim Poverty Reduction Strategy Paper)</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Approval by the IMF (International Monetary Fund) of the Poverty Reduction and Growth Facility: PRGF</td>
</tr>
<tr>
<td></td>
<td>January</td>
<td>Official declaration of the end of the civil war by the Sierra Leone President.</td>
</tr>
<tr>
<td></td>
<td>February</td>
<td>Attainment of the HIPC (heavily indebted poor countries) decision point.</td>
</tr>
<tr>
<td></td>
<td>March</td>
<td>Formulation of the World Bank’s second Transitional Support Strategy</td>
</tr>
<tr>
<td></td>
<td>May</td>
<td>Implementation of presidential and parliamentary elections</td>
</tr>
<tr>
<td></td>
<td>November</td>
<td>Holding of the Sierra Leone Consultative Group (CG)</td>
</tr>
<tr>
<td></td>
<td>December</td>
<td>Completion of the internally displaced persons (IDP) resettlement program</td>
</tr>
<tr>
<td>2002</td>
<td>January</td>
<td>Conclusion of the Paramount Chief election</td>
</tr>
<tr>
<td></td>
<td>March</td>
<td>Formulation of the “UN Development Assistance Framework 2004-2007: UNDAF” by UNCT</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Establishment of the Development Partnership Committee</td>
</tr>
<tr>
<td></td>
<td>January</td>
<td>Establishment of the Development Assistance Coordination Office (DACO)</td>
</tr>
<tr>
<td></td>
<td>February</td>
<td>Conclusion of DDR activities</td>
</tr>
<tr>
<td></td>
<td>March</td>
<td>Conclusion of the government reintegration program</td>
</tr>
<tr>
<td></td>
<td>May</td>
<td>Implementation of local elections</td>
</tr>
<tr>
<td></td>
<td>July</td>
<td>Conclusion of the refugee repatriation project (UNHCR)</td>
</tr>
<tr>
<td>2004</td>
<td>May</td>
<td>Approval of the full version of the PRSP (Poverty Reduction Strategy Paper)</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Formulation of the “Country Assistance Strategy: CAS” by the World Bank</td>
</tr>
<tr>
<td></td>
<td>December</td>
<td>Withdrawal of UNAMSIL (military division only)</td>
</tr>
</tbody>
</table>

**Source:** Prepared by the authors based on (World Bank 2005) and other documents.
This paper is based on information and knowledge gained by the authors during their participation in the formation survey for JICA’s project, “Assistance for the Social Reintegration of Children through Education in the Kambia District of Sierra Leone” as they gathered relevant material, interviewed people involved in the CEP, and visited project sites with the aim of making effective use of lessons gained from CEP in the project formation.4

I. Community Empowerment Project (CEP)

1. Reintegration program

Humanitarian and emergency relief essentially is aimed at the prompt provision of external resources in response to the urgent needs of individuals, families or groups — the beneficiaries — to ensure the survival of people who have been caught up in a conflict or crisis situation.5 Such humanitarian and emergency relief is a stopgap measure that directly treats the symptoms, so often the aid implementation bypasses the administrative organizations of the recipient country. Development aid, on the other hand, is long-term aid that seeks to improve overall economic, political and social conditions in the recipient country. Development aid organizations therefore respond to needs based on a development strategy encompassing the entire recipient country premised on the solid involvement of that country’s administrative organizations (UNHCR 2004b). In this way, humanitarian and emergency relief and development aid are quite different in their targeted recipients, particulars, and structure, so the lack of a smooth linkage between the two kinds of aid has been acknowledged as a problem.

To date, UNHCR has been implementing “reintegration programs” in the post-conflict country aimed at 1) meeting the short-term needs of returnees (refugees and internally displaced persons) immediately following resettlement and 2) contributing to the process of development and peace-building by maintaining the long-term sustainability of the project. However, UNHCR’s internal evaluation has pointed out that although the first objective of the reintegration program has been achieved, for the second, because it is not a sustained project, it does not function as a “bridge to development.”6 UNHCR has therefore acknowledged the need to implement reintegration programs with even higher sustainability, and link these programs with assistance provided by development aid organizations after reflecting the needs of returnees and resettlement areas in long-term development plans.

Against this backdrop, UNHCR was to implement CEP within the framework of its reintegration program in Sierra Leone.

2. CEP background and objectives

The Sierra Leone reintegration program started in 2001 in areas where public peace and order had been stabilized. The program distributed resettlement packages (food, farm tools and machinery, etc.) and implemented “food for work” in communities that took in returnees, and also built medical and health care facilities, schools, wells, irrigation facilities, etc.7 It is based on an awareness that for returnees to be reintegrated effectively, they need access not just to basic services such as health and medical care, education, and safe drinking water, but also to the means of production, including restoration of irrigation facilities and provision of seed rice. Moreover, local administrative organizations were not functioning, so the program provided medical supplies to clinics, distributed textbooks to schools, and paid teachers’ salaries.

Nonetheless, reintegration programs focused on immediacy and promptness, and because large amounts of aid were injected in a short period of time, in many cases implementing organizations funded by UNHCR (normally international NGOs) implemented the programs in a top-down manner, resulting in little if any participation by local residents in project plan formulation or in the project implementation process.

For the second phase, CEP introduced reintegration programs in four districts (Kambia, Kailahun, Kono, Pujuhun) of Sierra Leone from 2003, and over the two years until 2004, a total of 250 CEP projects were implemented. CEP adopted a resident-participation project implementation approach in which UNHCR funds were used according to the needs and priorities of the local residents themselves, and from the perspective of Sierra Leone’s geographical and social cohesiveness, chiefdoms8 were taken as the unit for CEP intervention, and resident groups became the basis for CEP funds provision (about US $6,200 per case).

By incorporating the resident-participation approach in the reintegration program, CEP sought to promote the democratic decision-making process in communities, and raise their sense of ownership over the project as a means of boosting project sustainability and community empowerment. In particular, there was a strong call for participation by the socially vulnerable, including women, children,
youths, and the elderly, who are UNHCR’s priority aid recipient.

3. CEP in Kambia District
Kambia District is located in the northwestern area of Sierra Leone on the border with Guinea (see figure 1). Kambia is a self-sufficient agricultural district with rice as its primary product, and is linked socially to, including language and religion (Islam), and actively trades with the neighboring country Guinea. Kambia comprises seven chiefdoms.

Kambia was controlled by RUF until it was seized by government forces in May 2001. After government forces regained control, refugees and internally displaced persons who had fled to neighboring Guinea or sought refuge in Sierra Leone’s capital of Freetown returned, so measures had to be taken for their resettlement. While Kambia sustained the most war damage, and refugees poured out of the district, it recovered public order and safety relatively quickly, so considerable emergency relief has been provided by the international community. Statistical data for 2003 estimates that of Kambia’s population of roughly 280,000, about 25,000 are returnees.

The organization responsible for implementing CEP in Kambia is the American Refugee Committee (ARC). ARC and UNHCR have established local offices in Kambia Town.

ARC was active in Kambia for two years from 2003 to 2004 in accordance with the CEP guidelines.
Table 2  CEP guidelines

<table>
<thead>
<tr>
<th>Project selection criteria</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. UNHCR and the implementing organization do not have any priority fields, so the communities are to select their own priority fields.</td>
</tr>
<tr>
<td>2. Projects requested by communities are to be small-scale projects rather than projects that require large-scale assistance to meet needs and plans.</td>
</tr>
<tr>
<td>3. Projects must give consideration to the environment. (Projects must not lead to forest destruction or soil erosion.)</td>
</tr>
<tr>
<td>4. To secure ownership, multiple community groups are to participate (especially women and youth), and take part in project identification, formulation, implementation, monitoring and evaluation.</td>
</tr>
<tr>
<td>5. The majority of project benefits are to be allocated especially to women, children, youth, physically disabled people and the elderly.</td>
</tr>
<tr>
<td>6. Local skills, knowledge, and community strengths are to be utilized to the maximum. (Skilled workers are to be remunerated from the project.)</td>
</tr>
<tr>
<td>7. Projects are to be both technically and economically sustainable, and communities themselves must be able to maintain and manage the projects.</td>
</tr>
<tr>
<td>8. Where possible, projects must have the effect of preventing HIV/AIDS (priority selection).</td>
</tr>
<tr>
<td>9. UNHCR funds are limited to 15 million leones (equivalent to US $6,237) per project, but if a project is to benefit more than one community, more funds can be approved as a special case.</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Community responsibilities</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Participation (especially by women and youth) in each stage of the project (identification, formulation, prioritization, implementation method, implementation, monitoring, and evaluation).</td>
</tr>
<tr>
<td>2. Formulation of the prescribed project form.</td>
</tr>
<tr>
<td>3. Selection of representatives and project approval by paramount chiefs.</td>
</tr>
<tr>
<td>4. Confirmation of material and equipment (quality and quantity) and signing of receipts.</td>
</tr>
<tr>
<td>5. Material and equipment storage and theft prevention measures.</td>
</tr>
<tr>
<td>6. Provision of local resources (timber, soil/sand, rocks, etc.).</td>
</tr>
<tr>
<td>7. Unpaid provision of unskilled labor.</td>
</tr>
<tr>
<td>8. Formulation of a written business implementation plan that takes into account seasonal and other work factors.</td>
</tr>
<tr>
<td>9. Installation of project signboards (these expenses are included in the project expenditure).</td>
</tr>
<tr>
<td>10. Appointment of secretaries, preparation of minutes of meetings, and storage of all documents related to the project.</td>
</tr>
<tr>
<td>11. Submission of an evaluation report on project completion.</td>
</tr>
<tr>
<td>12. Accompanying at the procurement of project material and equipment.</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Implementing organization responsibilities</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Public education activities and briefings on CEP guidelines within the chiefdoms.</td>
</tr>
<tr>
<td>2. Support for community project formation, and submission of prescribed forms to the UNHCR office.</td>
</tr>
<tr>
<td>3. Securing technical capabilities for assessing the feasibility of project plans.</td>
</tr>
<tr>
<td>4. Foster support relating to the purchase and distribution of material and equipment and project implementation after project approval. (It is desirable that the communities themselves procure the material and equipment as much as possible.)</td>
</tr>
<tr>
<td>5. Notification of project costs and report of all project expenditure to the communities.</td>
</tr>
<tr>
<td>6. Ensure accountability relating to the project budget.</td>
</tr>
<tr>
<td>7. Support for monitoring and evaluation conducted by the communities, and implementation of training to enhance the capabilities of project management committees (PMC).</td>
</tr>
<tr>
<td>9. Preparation of the work implementation plan and submission of a monthly progress report on all projects. Submission of a final report at the completion of the project.</td>
</tr>
<tr>
<td>10. Adhere to instructions from the UNHCR office.</td>
</tr>
<tr>
<td>11. Secure approval for projects requested by communities.</td>
</tr>
<tr>
<td>13. Participation in routine reviews of CEP.</td>
</tr>
</tbody>
</table>


shown in table 2.

CEP was implemented within the framework of the reintegration program, but differed from normal emergency relief in the following five aspects.

(1) The approach has shifted from one in which the implementing organization that received funds from UNHCR becomes the main implementing entity to one in which the community that received UNHCR funds formulates and imple-
ments the project while the implementing organization assists as facilitator.

(2) It adopted the perspective that local residents are not just the project beneficiaries, but also the project initiators and promoters.

(3) CEP focus shifted from projects that have to date responded directly to the individual needs of beneficiaries — individuals, families and groups — to projects that meet the needs of the overall community with a view to community capacity building.

(4) It obligated a physical contribution by way of residents' participation in the implementation of projects.

(5) By limiting aid input to a small scale to facilitate project maintenance and management, CEP seeks to improve project sustainability.

ARC implemented 40 projects in 2003. In 2004 ARC provided ongoing support for 15 projects implemented in 2003 (mainly support for vocational training centers), and also implemented ten new projects. In 2004 ARC also conducted training over two days for all project management committees (PMC). Other than CEP, in 2004 ARC was also commissioned by UNHCR to carry out 28 school construction projects.\(^{10}\)

As shown in table 3, Kambia CEP can be broadly divided into the four categories of 1) income improvement, 2) vocational training, 3) rehabilitation of facilities, and 4) others (literacy, nursery farming, etc.).

A characteristic feature of CEP in Kambia is that the majority of projects are related to agriculture and vocational training, and in most cases the beneficiaries are women and youths, who are the priority UNHCR support recipients.

ARC withdrew from Kambia at the end of December 2004 with the completion of UNHCR's operations in the District.

II. CEP limitations and issues

There is no doubt that CEP has achieved much in response to the needs of communities. But, as stated by UNHCR itself, CEP was introduced as an experimental project, and many aspects of it need improvement (UNHCR 2005).\(^{11}\) In this chapter, the paper examines CEP limitations and issues through analysis of the constraints faced by ARC during the implementation of CEP and the results of interview surveys with beneficiaries conducted after its completion.

1. Constraints in CEP implementation\(^{12}\)

This section analyzes constraints in CEP implementation based on the ARC report and the UNHCR Kambia workshop report.

(1) Communities and project formation units

For CEP projects, representatives from the various residents' group take part in meetings to clarify and prioritize the needs of the overall chiefdom, which is the unit of CEP involvement, then after groups have been set up to implement the projects PMCs are established. This does not follow the normal method of project formation.\(^{13}\) In CEP, projects are formed by various residents' groups within the chiefdom based on their own respective needs, or by residents who form groups among themselves based on common needs. Each of these groups establish PMCs to implement the projects.

The reason for this is that the start of the CEP was delayed, and ARC needed to form the projects quickly. It is thought that the lack of preparation time led ARC to establish the PMCs under the condition in which the residents' groups that bring together the community needs were viewed in the same way as the groups that implement the projects with UNHCR funding.

### Table 3 Categories of CEP in Kambia District

<table>
<thead>
<tr>
<th>Category</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Income improvement</td>
<td>Rice milling machines, palm oil fruit processing, concrete flooring for drying rice plants, storehouse construction, promotion of fishery, livestock barns, small-scale businesses, etc.</td>
</tr>
<tr>
<td>Vocational training</td>
<td>Dressmaking, dyeing, carpentry, soap manufacture, textiles, cosmetic and hairdressing skills, welding, etc.</td>
</tr>
<tr>
<td>Rehabilitation of facilities</td>
<td>Rehabilitation of community schools and public health centers</td>
</tr>
<tr>
<td>Others</td>
<td>Literacy and numeracy training, nursery farming schools, etc.</td>
</tr>
</tbody>
</table>

Source: Prepared by the authors from (UNHCR 2005) and (GTZ 2005).
Some of these groups were hastily set up once it was known that the CEP would be implemented, and there are also cases in which groups formed projects specifically targeting women and youths because it was well known that they were the priority recipients of UNHCR aid. Many of the project activities of such groups stopped when the CEP finished.

Therefore, because CEP dealt with the various residents’ groups as project formation units, there was a risk that some project would benefit only parts of the community. Rather than “community empowerment,” such projects were more like “group empowerment.” We can point to a livelihood improvement project aimed at the cash revenue of the group as a typical example of this. There were also some projects that communities are aware of in which those gaining the most benefit from the project were not the community, but the PMCs that were paid salaries by the CEP. This raises the question that at the completion of the CEP, where is the project ownership (Kambia District, chiefdom, community, group, or PMC).

(2) Project decision-making process
As stated earlier, individual groups form their own respective projects, so questions remain as to whether the views of residents in other regions are fully reflected in the project decision-making process, and whether support from the community (e.g., provision of unpaid labor) can be expected when implementing the project. At the same time, CEP guidelines stipulate that projects require approval by paramount chiefs (tribal chiefs of the chiefdoms), and there are also reports of cases where some paramount chiefs refused to sign their approval for projects that did not bring benefit to their own blood relatives or relatives by marriage. This then tended to lead to projects that followed the agenda of the paramount chief, the project approving authority. For example, in a women’s group project for setting up rice milling machines, the equipment was installed in the compound of the paramount chief, and PMC members were female members of the paramount chief’s family.

Because each residents’ group independently forms its own project and each project requires approval by the paramount chief, “promoting the democratic decision-making process in communities,” one of the CEP objectives, is quite difficult. Naturally, in such cases, there is only a low sense of project ownership among the community.

(3) Priority aid recipients as development executors
As stated in the CEP guidelines, the socially vulnerable (especially women and youths), who are the priority recipients of UNHCR aid, are not only to be the major beneficiaries of the projects, but also required to participate actively in each stage of the project as development executors.

Many socially vulnerable people lost their chance of gaining an education because of traditional customs and the impact of the prolonged war, and are therefore forced to live in poverty. Consequently, just because the socially vulnerable implement the projects, questions have arisen about whether they are able to suddenly transform themselves into development executors. In fact, some projects may have had women in key roles to make project approval easier, but in reality, men standing behind them were actually pulling all the strings. Moreover, as suggested by the recommendations made at the post-CEP workshop on the need for introducing literacy and numeracy skills training at vocational training centers, the literacy and numeracy skills of women and youth are generally extremely low. So some women’s group PMCs were unable to fill all the secretary and accounting positions with women, and these positions had to be filled by men. Therefore, in addition to a lack of skills as development executors, without receiving training to improve such skills, the socially vulnerable would find it difficult to fulfill the roles expected in the CEP guidelines. It is also difficult for the socially vulnerable who are trapped in poverty to actively participate in the projects.

(4) Causes and consequences of project delays
Commencement of projects was delayed by two to three months in both 2003 and 2004 due to the UNHCR single-year project cycle. Priority was therefore given to implementing the projects as quickly as possible, so that results could be delivered by the end of the financial year. This resulted in the following issues for the CEP.

1) Public education activities in the communities were inadequate, so the project formation processes became short-sighted.
2) There was insufficient time to carefully examine proposals from residents’ groups, resulting in under- or over-estimations of project budgets.
3) Monitoring to ascertain project progress and problem areas was inadequate, so discrepancies arose in project information between ARC and the communities.
sive, so most had to be purchased in the national capital Freetown, and here too, problems were encountered in securing and coordinating the transport means. Transport became a bottleneck, and it was difficult to have PMC members accompany trips to purchase material and equipment, so in many cases the CEP guidelines could not be observed. This was also a cause for grievance and dissatisfaction regarding material and equipment from communities.

Other causes of project delays included a lack of skilled workers in communities and engineers in Kambia for projects that involved the construction of facilities. Delays in obtaining approval from supervising government authorities for projects relating to public health centers, schools and other public facilities were also raised as causes of project delays.

### Table 4 Results of interview survey with CEP beneficiaries

<table>
<thead>
<tr>
<th>Type of project</th>
<th>Number of beneficiaries</th>
<th>Targeted beneficiaries</th>
<th>Achievements</th>
<th>Project sustainability</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Vocational training center</strong></td>
<td></td>
<td>Females (16-20)</td>
<td>Acquisition of dyeing skills (initial sales amount: 600,000 leones)</td>
<td>Strengthening of community solidarity (base of activities)</td>
</tr>
<tr>
<td>(dyeing)</td>
<td></td>
<td></td>
<td></td>
<td>Lack of funds for continuing vocational training.</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td>Lack of opportunities to effectively utilize the acquired skills.</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td>Lack of funds to start business.</td>
</tr>
<tr>
<td><strong>Vocational training center</strong></td>
<td>32</td>
<td>Males and females (18-60)</td>
<td>Becoming independent with the acquired skills (only some).</td>
<td>High interest in the project among community leaders.</td>
</tr>
<tr>
<td>(dressmaking, dyeing, weaving, bread making)</td>
<td></td>
<td></td>
<td></td>
<td>Low interest in the project among young people.</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Use as a facility for orphaned children.</td>
<td>Lack of funds to look after orphaned children.</td>
</tr>
<tr>
<td><strong>Community school construction</strong></td>
<td>104</td>
<td>Students</td>
<td>Introduction of Islamic and English education</td>
<td>Need for improving the quality of education (securing qualified teachers), water, and toilet facilities.</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Reduction of commuting distances to and from school</td>
<td>Need for close liaison and cooperation with district school inspectors.</td>
</tr>
<tr>
<td><strong>Livestock center construction</strong></td>
<td>300</td>
<td>Males and females (30-50)</td>
<td>Profit from livestock sales (annual net profit: 500,000 leones)</td>
<td>Potential for livestock breeding and marketability.</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Simplified sales and negotiations and realization of economy of scale through concentration in one location.</td>
<td>Community solidarity through the cash income-generating effect.</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Reinvestment of profits into farming.</td>
<td>Lack of livestock health and medical care (problems dealing with sickness etc.).</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Leadership by town chiefs</td>
<td></td>
</tr>
<tr>
<td><strong>Installation of rice milling machines</strong></td>
<td>25</td>
<td>Males and females (20-50)</td>
<td>Easing rice milling labor for women.</td>
<td>Strong demand for milled rice.</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Supply of good quality rice to the community.</td>
<td>Community solidarity through the cash income-generating effect.</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Income from milling charges (400,000 leones / month x 3 months / year)</td>
<td>Reinvestment of profits into other activities.</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Leadership and coordination capabilities of locally selected district assembly members.</td>
<td>Poor skills in organizational management and accounts management (lack of training opportunities).</td>
</tr>
</tbody>
</table>

Source: (JICA 2005, 91-92)

4) Training necessary for operation and management of PMCs was inadequate, and as a result, PMCs rarely kept books of accounts and minutes of meetings.

5) Annual community schedules (farm work during the wet season and traditional events during the dry season, etc.) were not taken into account, so participation from community residents was difficult to secure.

Logistic problems also caused project delays. For example, in one case four trucks were needed for transport, yet because of budget constraints, only two on loan from UNHCR were available. The two trucks on loan were used continually, so they often broke down, resulting in even further delays to the project. Very little project material and equipment was available in Kambia, or it was extremely expensive, so most had to be purchased in the national capital Freetown, and here too, problems were encountered in securing and coordinating the transport means. Transport became a bottleneck, and it was difficult to have PMC members accompany trips to purchase material and equipment, so in many cases the CEP guidelines could not be observed. This was also a cause for grievance and dissatisfaction regarding material and equipment from communities.
(5) Participation by community residents

CEP guidelines placed an obligation on communities to contribute by way of providing unpaid unskilled workers and local material (soil and sand, timber, etc.). These specifications, however, were not determined on the basis of surveys of conditions in the targeted communities or discussions with local residents. Therefore, the contribution that the project expected from the communities was very different from the contribution communities could actually make, and this became an obstacle to advancing resident participation-type projects.

In fact, virtually no project site was able to obtain the prescribed local material. And even if the material was available elsewhere, securing the transport means and labor was a problem. As for the unpaid supply of unskilled labor, widespread poverty in the community made the supply of free labor difficult, so cash payments or “food for work” have been put forward.17

Another reason raised for low resident participation from the communities was the difference in rules for projects implemented in the same region. In some CEP, residents’ participation dropped because of differences in community obligations (requirement for unpaid labor and free supply of local materials), incentives to participants (provision of lunch to participants on vocational training courses, etc.), and payments to skilled workers in the community.

2. Results of interview survey of CEP beneficiaries

This section summarizes lessons from CEP from a project sustainability perspective, based on the results of interviews at the conclusion of CEP by the previously mentioned project formation survey team.

The survey team interviewed PMC members, trainees at vocational training centers and other CEP beneficiaries from the end of May to early June 2005. The projects covered by the survey were 1) vocational training centers, 2) construction of community school, 3) construction of livestock center, and 4) installation of rice milling machines. Table 4 summarizes the results of the above-mentioned interview survey.

Here the authors will touch on the following five lessons based on the above survey results, supplementing their own knowledge gained during the project formation surveys (UNHCR 2005).18

First, projects require community solidarity and leadership. For community solidarity, projects must not be appropriated by specific groups or individuals, and accounting and the flow of funds must be transparent. Residents who survived the conflict tend to give primary consideration for benefits to themselves, family members, blood relatives and other relations as a survival strategy, and it is a fact that humanitarian and emergency relief has fostered such a tendency. In this sense, “who is gaining the most benefit from the project” and “how the project is being operated and managed” are two critical aspects in considering “appropriation of the project.” In post-conflict rural areas, some communities have only a very fragile sense of solidarity, and here the input of aid can also sow the seeds of dispute over who gains the benefits of that aid. So the presence of a trusted leader who can fulfill a conciliatory role if community confrontation or problems arise is absolutely essential.

Second, projects require sustainable and steady cash revenue. Not only is a source of revenue essential for purchasing spare parts and maintaining and managing facilities, but a stable flow of revenue from the project will enable PMCs to commit resources (e.g., unpaid labor) with peace of mind. And by investing the generated profits into other business (e.g., employment of day workers, sale of cash crops, and purchase of farm material and equipment), it will also bring about a greater sense of solidarity within the community. In post-conflict rural areas, it is difficult to expect any financial or personnel assistance from the local administrative organizations because they themselves are in the process of rebuilding. In fact, many of the projects that could not secure a sufficient flow of cash revenue ended up coming to a halt.

Third, projects must benefit the entire community, either directly or indirectly. It is therefore critical that projects respond to the high needs of the community as a whole, meet the needs of as many beneficiaries as possible (setting up vocational training courses, etc.), and ensure that the project benefits are returned to the community. From this perspective, it is important to reactivate pre-existing industries that provided services to the whole community (e.g., blacksmithing, cassava milling, and microfinancing) or revive “collective activities” that existed in the community before the conflict. To return benefits to the community, there have been some attempts to establish microfinancing for community activities (sports competitions, dance parties, etc.) through acts of endowment and project profits.

Fourth, projects must be of a scale that can be operated and managed by communities, and especially the PMCs. The suitable scale of a project depends on the business scale of the project itself, and also the existing capabilities of the PMC that
will operate and manage the project. In fact, many vocational training centers faced difficulty in continuing their training because of a lack of the necessary operational funds, and in many cases, they became production centers run by the PMCs.\textsuperscript{22} Contrasting with this, there are also successful examples where the shift from existing individual-based profitable businesses to expanded group activities, as in the case of the livestock centers, has reduced operation and management risks, and delivered economies of scale. Considering the limitations of existing human resources (quantity and quality) in post-conflict rural areas, those who received training in refugee camps and those who worked for NGOs during the conflict are a vital resource to the PMCs.

Fifth, projects require low competitiveness and high demand. For example, there has never been any rice milling machines or a livestock center in the relevant project chiefdom, so there is a high community demand. In addition, rice cultivation and the livestock industry are active in this chiefdom. However, for the vocational training center, a market survey that should naturally have been undertaken before setting the training subjects was in fact not carried out.\textsuperscript{21} In post-conflict rural areas, once social stability returns, factory mass-produced goods (such as soap and dyes) appear on the market, and this can result in a loss of competitiveness in both quality and price by those goods produced with the skills gained at the vocational training centers.

3. **Key points in development support projects**

CEP in post-conflict rural areas can be seen as “emergency relief from a development perspective” implemented during the transition period from emergency relief to the commencement of full-scale development aid. However, as emergency relief, it was constrained by being a temporary and short-term development assistance project,\textsuperscript{22} which limited the understanding of the community conditions and the method of project implementation, leaving some unresolved issues in achieving the CEP objectives of project sustainability and community empowerment.

In this chapter we propose the following nine important points to note when implementing development assistance projects in rural areas during the post-conflict transition period, based on the lessons learned from such CEPs:

First, gaining a sound understanding of the situation surrounding the projects is crucial. To this end, once the community's social, economic and political situation is clear, there is a need to grasp how the conflict has impacted on the community, and how the community was caught up in the conflict. It is also effective to analyze the factors contributing to the failure or success of humanitarian/emergency relief or other assistance that had already been implemented in the community. It is also important to understand the state of the community’s resources (human resources, material and equipment, etc.) that will be required for implementing the project. Being aware of the kind of environment under which the project is to be implemented will facilitate the setting of a solid foundation for the project.

Second, there is a need for sufficient preparation time to set the direction of the project. To date local residents had only received humanitarian and emergency relief, invariably supplied by aid agencies using external resources. In the provision of the development assistance project, there is a need for local residents to 1) shift from being aid recipients to development executors, and 2) pursue common benefits instead of individual benefits, but for this, residents need to have a complete rethink of their attitude and outlook concerning aid. In addition, clearly articulated post-project vision and future prospects will give clarity to the community's role and responsibilities regarding the project. Raising awareness and motivation among residents in this manner is the key to giving clear direction to the project. Aid organizations should therefore undertake extensive public education activities as a prior investment to the development assistance project.

Third, there is a need to form projects that can enhance the cohesion of the community. Projects that benefit only a section of the residents in the community on the path to redevelopment could end up disrupting community solidarity. To enhance community solidarity, projects should 1) respond to the needs of the entire community, 2) provide services to the entire community, 3) be structured to return the generated benefits to the community, and 4) generate cash revenue. Projects formulated in this way will be recognized by the community as community projects. In project operation and management, the community must set out project rules and take steps to disclose project information to prevent specific individuals or groups from appropriating the project as their own.

Fourth, project selection must be transparent and open to the community. There is a need for a system that will allow the project to be approved at meetings among representatives from various groups (including traditional leaders) without any influence being exerted by the motives or power structures of specific individuals or groups. The process of deci-
sion making by the relevant representatives at such meetings will boost general acceptance of the projects among the community. Moreover, such meetings also fulfill a coordinating function when there are multiple projects formulated by the community. And if local government organizations undergoing reconstruction are able to participate in these meetings, the different bodies can ensure consistency with development plans to be formulated.

Fifth, activities aimed at building the framework for sustainability must be incorporated into project implementation. The framework for ensuring project sustainability encompasses the followings: 1) securing operational management funds, 2) strengthening the capabilities of project management organizations, 3) establishing a maintenance management structure (acquiring maintenance management skills and methods of procuring spare parts), 4) methods of dealing with operational management problems, and 5) liaison and cooperation with other aid and administrative organizations. Post-project measures must be discussed with the community and the building of a sustainability framework must be incorporated into activities at the earliest possible stage.23

Sixth, there is a need for a phased implementation style that gradually broadens the project scale. Local residents have no experience in implementing development assistance projects, so a phased implementation method that starts with small business-scale projects is essential, both for avoiding the risk of failure and for sounding out community reaction. In this way, the process of building up project implementation experience and having this reflected in larger scale projects is crucial. To facilitate this, those concerned with the project must also take part in the project’s post-completion evaluation processes. It is also necessary to reach agreement with the community before establishing benchmarks for moving on to the next phase.

Seventh, a separate project funding framework is essential for providing assistance to the socially vulnerable. Historically, the socially vulnerable have found it difficult to participate in project activities at the same level as other local residents. Ways of countervailing the handicap they face can include establishing a separate framework for assistance to the socially vulnerable according to the project content; for example, literacy and numeracy training and priority distribution of project benefits (e.g., microfinancing).

Eighth, there is a need to share project information with project stakeholders. In post-conflict rural areas roads and other communication means are badly underdeveloped, so communication with and among those concerned is quite difficult and requires considerable time. So discrepancies can easily arise in project information among the stakeholders. Even minor discrepancies in information can lead to community grievances and dissatisfaction, and this will have a detrimental effect on the smooth operation of the project. It is for this reason that the sharing of information among concerned parties and the accurate understanding of the state of progress and any problems affecting the project are extremely critical. Information disclosure and sharing are an essential element for ensuring the project proceeds without delay, and also for heightening community confidence in the project. Here, there is need for a uniform point of contact for information so that all stakeholders are provided with the same information, thereby preventing confusion within the community.24

Ninth, full and thorough logistic support must be provided for the implementation of the project. To this end, there is a need to build, in a sense, a self-contained support structure. There is no way that the government of the recipient country can be expected to play the role of a counterpart. Unlike the environment in normal developing countries, in post-conflict rural areas there is a distinct lack of basic social infrastructure such as electricity and water supply facilities, office equipment and consumables, means of communication such as telephones and the Internet, and means of transport. And the reality is that there are limitations in the market and personnel for the purchase, maintenance and repair of such material and equipment. Building a comprehensive logistic support structure requires considerable funds and time, and an ongoing budgetary allocation for the maintenance and management of this structure and the deployment of full-time staff to oversee the logistical aspects will be essential. Without such logistic support, implementing the projects will be difficult.

Conclusion

As in the case with CEP, it is by no means an easy task to step into post-conflict communities undergoing reconstruction amid political, economic and social instability to implement programs with local residents who are accustomed to humanitarian and emergency relief, and achieve the desired objectives in a short period of time. As the demarcation between post-conflict humanitarian and emergency relief and development aid becomes less clearly defined, it is thought that Japan will have more
opportunities to implement development aid projects in post-conflict countries in the transition period before full-scale development aid commences. It is therefore essential to learn from the lessons of "emergency relief from the viewpoint of development assistance," such as CEP.

The following three points will be necessary for Japan to reflect such lessons in development assistance in the post-conflict transition period.

First, as for the method of aid implementation, intervention must be timely like emergency relief, and engagement must be for the long term from a development perspective. Second, as for the method of aid input, a gradual input of aid confined to annual budgets should be avoided in line with UNHCR's suggestion that "an input of a substantial scale of funds at an earlier timing will lead to considerable savings over the long term (UNHCR 2005, 9)." In particular, a flexible response is important when establishing logistic support in the local area. Third, as a means of promptly responding to uncertainties, establishing a field level presence, as was done by UNHCR and ARC in their local offices in Kambia District, is necessary for ensuring local influence and an adequate flow of information.

This paper focused on CEP, so it made no mention of the post-conflict reconstruction of local government organizations. In fact, as CEP is emergency relief, local administrative bodies were by-passed for direct intervention in communities, and, as indicated by beneficiaries in the post-CEP interview survey, no attempts were made to liaise or cooperate with the local government organizations undergoing reconstruction. In this light, the next step is to explore ways of capacity building assistance for the reconstruction of local government organizations and their involvement in community development.

Notes

1. Reintegration is defined as “the achievement of sustainable repatriation,” and states that it constitutes the capability to secure the necessary political, economic and social conditions for maintaining the lives, livelihood and dignity of the returnees (refugees and internally displaced persons).

2. In this paper, “development assistance project” indicates the form of development-oriented aid provided until full-scale development aid is implemented. The situation can arise where humanitarian and emergency relief are being implemented concurrently.

3. Refer to (Japan International Cooperation Agency [JICA], Post-Conflict Cooperation Study Group 1999) regarding the gap between emergency relief and development. The following five kinds of gaps between post-conflict emergency relief and development are pointed out (UNHCR 2004a). The first is an institutional and organizational gap arising from differences in establishment objectives and implementation methods among implementing organizations (e.g., UNHCR focuses on refugee protection; UNDP focuses on development). The second is the gap concerning aid funds; funds for humanitarian and emergency relief and development aid are normally established separately. The third is the time gap, whereby once emergency relief decreases immediately after the conflict has been stabilized, time is needed before long-term development activities can be started on a full scale. The fourth is the gap from the time the peace agreement is signed to the time that national protection is restored. The fifth is a political gap, which occurs when the parties concerned have no clear political goals, or have differing political goals.

4. JICA conducted the formation survey for the project, "Assistance for the Social Reintegration of Children through Education in the Kambia District of Sierra Leone" from March to August 2005. The authors took part in the survey as members of the "general/participatory development" and "assistance for the socially vulnerable"; however, responsibility for all contents of this paper rests with the authors alone.

5. Humanitarian and emergency assistance can at times be distorted through corruption by project beneficiaries that take advantage of the nature of the assistance. The following is an example of such corruption (Richards et al. 2004), highlighting the following five points as corruption in humanitarian and emergency relief projects at the village level. The first is corruption regarding the distribution of aid goods (rice, seed rice, farm tools and machinery, etc.) by village representative organizations in which eligible villagers only receive a part of their goods entitlement, but are made to sign the receipts as though they had received their full entitlement. The second is the method in which aid brokers and project implementers collude to draw up contracts that bloat the price of the procured goods; or corruptly split up part of the procured goods among themselves. Third is the scheme known as “multi-level financing” in which, for example, profits from cooperative projects carried out by members are repeatedly reinvested in other projects without the approval of the members. This is used as a means of giving the impression to donors that the project is proceeding smoothly, con-
In Sierra Leone the local administrative unit is the district. Districts are normally divided into chiefdoms, which are ruled by paramount chiefs, who are traditional tribal chiefs. Chiefdoms are further divided into sections and villages, which are ruled by section chiefs and village chiefs, respectively. Courts and police are established in chiefdoms for traditional and cultural matters. All land in chiefdoms are under the jurisdiction of paramount chiefs.

Kambia is strategically positioned as a key communication cog with Guinea. RUF attempted to invade Guinea in September 2000, but were forced to abandon this after month-long air strikes by Guinean military forces. The air strikes forced the withdrawal of RUF from Kambia, but they also totally destroyed the local infrastructure.

According to the UNHCR Kambia Workshop Report 2004, as of November 19, 2004, only three of the 28 schools had been fully completed. The report pointed to the following six reasons for the delay in school construction: 1) lack of community participation; 2) lack of trained technicians in Kambia; 3) under- or over-estimations of project budgets; 4) low level of construction skills in ARC; 5) delays in material and equipment transportation; and 6) difficulty by the community in providing non-paid labor.

The following six proposals are pointed out, considering CEP evaluation in Sierra Leone: 1) The range of aid recipients needs to be further narrowed down so that CEP can deliver definite benefits to UNHCR's priority aid recipients; 2) Depending on the kinds of projects selected by communities, some CEP implementing organizations may lack the technical capabilities to manage and supervise the projects; 3) Public education activities among communities and the mobilization of local residents are processes that need considerable time, and this tends to lead to project delays; 4) Literacy and numeracy skills are low in rural areas, so there is a need to adopt means of building up capabilities to a sufficient level that will enable the communities to manage the CEP; 5) Project identification and formation are left up to the individual communities, so there is a risk that projects may be implemented in a haphazard manner without any consistency with the general regional development plan; and 6) Government organizations are quite fragile, so the relevant government agencies have difficulty in maintaining and managing the CEPs and deploying the necessary personnel.

Regarding the particulars stated in this section, the cases are basically extracts from the report, and the particulars regarding analysis and interpretation are the results of the authors' analysis based on the information in the report.

ARC held briefings for representatives of various resi-
21. ARC points out that the most suitable kinds of vocational training courses that facilitate the independence of course graduates are short courses that can use local material, have a high demand, and are inexpensive to set up; for example, women’s cosmetic and hairdressing courses.

22. UNHCR is essentially a humanitarian aid agency, and under its mandate, it cannot provide long-term development assistance.

23. One local NGO has pointed out that to ensure project sustainability, aid organizations must continue providing funds until government organizations have been rebuilt and are able to support the project. As an aside, project beneficiaries are not only project recipients, but local staff employed in the projects, and local NGOs commissioned to implement the projects as well.

24. The ARC report pointed out that there were some cases in which communities were confused about exactly what was supposed to be happening because the division of responsibilities between UNHCR and ARC was not clearly defined, and UNHCR selected and implemented projects directly within some communities, and also because at times the two organizations would issue different directions.

References


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—. 2004b. Convention plus, issues paper on targeting of development assistance (draft).
A Study on the Sustainable Management of Medical Equipment in Developing Countries
— A Case in Uganda

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Abstract

It is often difficult to use medical equipment appropriately in developing countries due to problems like insufficient maintenance and management skills, lack of knowledge on the part of medical professionals who use the equipment, or budgetary constraints. Medical equipment at public medical facilities in developing countries is not only procured and purchased with the government budget; a large amount also is provided by aid organizations. Although there are administrative organizations in charge of maintenance and management of the medical equipment installed in public medical facilities, the functions of these organizations are not fully optimized. Many aid organizations are aware of this problem but do not deal squarely with it. This study first outlines the gap between developed and developing countries and then describes international efforts to close that gap.

In order to address the difficulties in managing medical equipment provided to developing countries, it is necessary to shift the form of development assistance from a hardware-oriented approach (installation of related equipment and devices) to a software-oriented approach. This study has analyzed the situation in Uganda, as an exemplary case of a developing country, and has examined the possibility of the sustainable management of medical equipment using a categorization of medical equipment status. It was found that the following two points should be considered by developed countries when formulating their ODA aid policies for providing medical equipment to developing countries.

First, the operation and function of the government agency in charge of maintaining and managing medical equipment in the developing country should be thoroughly understood by the provider of the medical equipment. Second, a framework that enables continuous technical assistance, including securing maintenance and management costs during the lifetime of the equipment, should be established. In response to the assistance, partner countries should be required to provide the donor countries with analyzed data of the current status so that maintenance and management of the medical equipment can be carried out based on medical information, including medical equipment data. The data analysis of medical equipment will enable its sustainable management based on medical information, leading to the successful provision of cost-effective medical equipment in accordance with the current situation in developing countries.

Introduction

While there are reports of incidents caused by errors related to medical equipment in developed countries, in general medical equipment is used safely and effectively. This is because there is an abundance of qualified users and technical staff for medical equipment, and governments have strict regulations for the management of medical equipment. Moreover, investment in medical equipment is considered an essential factor for the provision of quality medical care for patients. The health insurance scheme can ensure returns commensurate with the amounts invested, and encourage further investment for medical equipment. Developing countries, on the other hand, face considerable difficulty maintaining medical equipment in good condition so that it can be used effectively. In many developing countries, management of medical equipment is a task of the government, so the responsibility rests with a governmental organ, but in

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Table 1  Regional ratio of pharmaceuticals and medical equipment production

<table>
<thead>
<tr>
<th>Industry</th>
<th>Year</th>
<th>USA</th>
<th>European region</th>
<th>Japan</th>
<th>Others</th>
</tr>
</thead>
<tbody>
<tr>
<td>Pharmaceutical industry</td>
<td>1985</td>
<td>38%</td>
<td>21%</td>
<td>19%</td>
<td>22%</td>
</tr>
<tr>
<td></td>
<td>1999</td>
<td>31%</td>
<td>20%</td>
<td>16%</td>
<td>33%</td>
</tr>
<tr>
<td>Medical equipment industry</td>
<td>2000</td>
<td>37%</td>
<td>26%</td>
<td>15%</td>
<td>22%</td>
</tr>
<tr>
<td></td>
<td>2002</td>
<td>43%</td>
<td>26%</td>
<td>14%</td>
<td>17%</td>
</tr>
</tbody>
</table>

Note: In the pharmaceutical industry, the European region consists only of the three countries of Germany, France, and UK.
Source: Adapted from (WHO 2004, 7) for pharmaceuticals, and (EUCOMED 2000) and (WHO 2003a) for medical equipment industry, respectively, 2000 and 2002.

some cases these divisions are in practical terms dysfunctional. That is because many developing countries are importing medical equipment for their medical facilities, and accordingly the budget for procurement and maintenance is a burden on the government's health budgets.

In addition, while there is medical equipment supplied by aid organizations in developing countries, many items remain unused because of a lack of knowledge and inadequate maintenance skills. Although the governments in many developing countries and aid organizations have already acknowledged the problems concerning efficient and sustainable medical equipment management, they have neither the statistics nor the mechanism to obtain the data.

Firstly, this study outlines the gap between developed and developing countries regarding medical equipment and pharmaceuticals and summarizes the situation of management and technical staff for medical equipment maintenance. Secondly, international efforts to curtail this gap will be reviewed. Finally, the approach in Uganda will be discussed as an example of sustainable management of medical equipment in developing countries.

I. Comparison of developed and developing countries

1. Gap between developed and developing countries concerning medical equipment and pharmaceuticals

The international market of medical equipment in 1993 was $71 billion (World Bank 1993, 137), and the World Health Organization (WHO) estimated in its report (WHO 2003a) that the market would almost double from $145 billion in 2000 to $260 billion in 2006. Of the $71 billion medical equipment market in 1993, only $5 billion, or 7%, was shipped to developing countries, and a report (Bloom and Temple-Bird 1994, 513), calculates that as of 1985 it was less than 1% for sub-Sahara Africa only. As for the pharmaceutical industry, of sales reaching $500 billion in 2004, the World Bank (World Bank 2005) reports that 88% was consumed in Japan, North America, Europe, and other developed countries, 11% was consumed in Asia and Central and South America combined, while less than 1% was consumed in the African region (table 1). It has been pointed out that the monopoly held by the U.S., Europe, Japan, and other developed countries in medical equipment and pharmaceuticals production represents one of the strongest currents of the money flow from the poorer countries to the wealthier (Bergen 1997, 1050-1053). Moreover, WHO has indicated that 50% of the medical equipment that reaches developing countries remains unused because of a lack of knowledge among medical staff and a shortage of spare parts (WHO 2005).

There is also a gap in expenditure per capita for the medical equipment between developed and developing countries. There are few published data for expenditure per capita on medical equipment, but according to the previously mentioned Bloom et al., in 1985 expenditure per capita on medical equipment for the year in the sub-Sahara region was $0.50, whereas in the U.K. it was $21, and in the U.S. $66. The 2000 European Medical Technology Industry Association (EUCOMED) report stated that the annual expenditure per capita on medical equipment in the U.S. was $125. The situation of this market reality is a factor in private companies losing the motivation to develop and manufacture suitable medical equipment for developing countries. This is the reason that the medical equipment demanded by developed countries is exported to developing countries.
2. The situations of management systems and technical staff in Europe, U.S. and Japan

The quality of the medical equipment affects directly or indirectly the life and safety of the patient, so the maintenance and operation of the medical equipment must be done carefully. Europe and the U.S. have paid attention to medical equipment management since the 1960s, and governments started a discussion of countermeasures for incidents involving artificial heart valves and hemodialyzers in the late 1970s. The action behind this is believed to have been influenced by the enormous costs involved in compensation and litigation over incident cases caused by medical equipment, and negative information regarding medical care has the potential of reducing the incomes of health facilities (Kanai 2000, 16-20).

In the U.S., the American College of Surgeons established the Joint Commission on Accreditation of Healthcare Organizations (JCAHO) in 1917 to ensure quality assurance (QA) for safe medical care. JCAHO’s accreditation criteria note that medical care facilities are required to check the medical equipment regularly and record the data. The U.K. and Germany are steadily introducing ISO (International Organization for Standardization) 9000 for their quality management of medical care in a consecutive manner (Japan Quality Assurance Institute 2000, 555-559). In Japan, the Pharmaceutical Affairs Law has regulated the manufacture, distribution, import, and export of medical equipment since 1948 (Health and Welfare Statistics Association 2005, 234). The Enforcement Regulations of the Medical Service Law was amended in 1996, making it mandatory for medical care facilities to maintain and check their medical equipment. The situation in most developed countries, private companies, hospitals, or independent organizations is carrying out the maintenance and management of medical equipment.

Regarding the technical staff for medical equipment management, in the U.S. it has been the responsibility of the specialist, such as clinical engineers and biomedical equipment technicians, since the early 1970s (Bronzino 1992, 20). As for the situation in the U.K., medical physicists are stationed in the major hospitals, and they are responsible for the management of medical equipment not just in the major hospitals, but in other hospitals within their region of responsibility (Japan Industries Association of Radiation Apparatus 1997, 13-15). In Japan, a national license for clinical engineers was established in 1987, and clinical engineers are responsible for the operation and maintenance of life support equipment such as cardiopulmonary pumps, hemodialyzers, and respirators (Health and Welfare Statistics Association 2005, 186). However, the national license for clinical engineers is not essential for a person to work in medical equipment management in Japan. Discussions by the advisory panel in the Ministry of Health, Labour and Welfare pointed out that the implementation of better management of medical equipment for ensuring the safety of medical equipment should be considered a mechanism for compensating the expenses for maintenance work (Ministry of Health, Labour and Welfare 2005). In consequence of this situation in Japan, it can be considered that the management of medical equipment is not recognized as a serious issue from the quality medical care point of view.

II. International cooperation for developing countries

1. Dissemination of medical equipment and pharmaceutical products

The mechanism aimed at making anti-HIV/AIDS drugs more readily available in developing countries draws attention to a reduction in cost. Cooperation between international organizations and pharmaceutical companies (public private partnership or PPP) in recent years focusing on HIV/AIDS patients in Africa has successfully led to the lowering of anti-HIV/AIDS drug prices. Moreover, the global procurement mechanism of international organizations that supply immunization drugs for children, as well as drugs for communicable diseases such as malaria and tuberculosis, has effectively lowered the distribution costs in developing countries (WHO 2004, 70). The report (Reuters 2006) mentions that a private pharmaceutical company and three foundations will jointly collaborate on research and development into a new anti-malaria drug. The efforts to facilitate easier access to pharmaceuticals in developing countries are progressing.

As for medical equipment, there is a case in which a WHO expert committee developed the specifications for a basic radiological system (BRS), and it has been produced by manufactures in Europe and the U.S. primarily for use in developing countries (Palmer 1985, 169-178). This BRS covers most of the routine radiological examinations adopted by the innovative mechanical structure. The price is more affordable because of the lower specifications. It is also designed to run radiological examinations by
power supplied by batteries during power failures. Another approach is that the governments in developing countries specify the specifications for essential medical equipment and purchase the equipment in bulk to lower the unit cost even more, so only specific spare parts need to be purchased and basic skills are required for their maintenance. However, compared to the case of pharmaceuticals, there are fewer approaches to sustainable utilization of the medical equipment in developing countries.

2. The action by WHO on issues with medical equipment

Most of the medical equipment used in developing countries has been provided by aid organizations, which means that the management of medical equipment confronts the difficulties from management and technical aspects. With respect to this issue, the Evidence and Information Policy (EIP) of WHO is responsible for the policy of medical equipment management. The Essential Health Technology (EHT) Department of WHO is responsible and supports these technical aspects. The EIP Secretariat held an Inter-regional Meeting on Maintenance and Repair of Health Care Equipment in 1986 with the cooperation of the American College of Clinical Engineering and the German GTZ to address the problem of medical equipment in the African region, and a similar conference was held in South Africa in 1994. WHO also held the conferences in 1996 and 1997, and formulated the guidelines for health care equipment donations (WHO 2000). These guidelines pointed out that the current situation is that "Some countries rely on foreign products for nearly 80% of their medical equipment, and a large proportion (up to 70%) of equipment lies idle due to mismanagement of the technology acquisition process, lack of user training, and lack of effective technical support in the sub-Sahara region." The guidelines clearly describe the following four principles: 1) medical equipment donation should benefit the recipient to the maximum extent possible, 2) donations should be in conformity with existing government policy in the recipient country, 3) unacceptable standards of medical equipment in the donor country make it not acceptable as a donation, and 4) there should be effective communication between both countries. The African regional offices of WHO took the leading role to formulate these guidelines, and government officials responsible for medical equipment in the Ministry of Health of Kenya, South Africa, Senegal, Tanzania, Zimbabwe, Mozambique, and Uganda were all involved in this work.

EHT Department of WHO was reformed in 2004 from the Blood Safety and Clinical Technology Department, and covers a broader range of issues related to medical technology. This organizational reform in WHO is representing the higher prioritization of the health technology field. Advocacy Folder (WHO 2003b), published by EHT, WHO, pointed out that despite the large investment by many developing countries in medical equipment, the public is not receiving the necessary medical care because of the neglected aspect of medical equipment management. It was also pointed out that in order to provide safe and reliable medical care to a wide portion of the public, governments need to formulate national medical equipment policies based on fundamentals (for example, epidemiological information and equipment inventories), and establish national regulatory authorities.

The WHO report on health workers (WHO 2006, 4) used the expression “invisible workers” for those engaged in medical equipment maintenance, and pointed out their importance in that a lack in the number and technical capabilities of these technicians will severely hinder the provision of medical care. Despite this, the reality is that the qualifications held by these technicians are classified at a lower category than those of medical care workers. Of all the problems faced by many developing countries in medical equipment management, WHO is focusing on the improvement of administrative functions in the Ministry of Health. This approach is considered to have provided greater access to safe and reliable medical care for the public in developing countries, but there are no specific proposals for improving the situation.

3. Examples of Japanese aid in this field

First, the majority of Japanese ODA for medical equipment comes from the grant aid scheme. For example, in fiscal 2004 (Ministry of Foreign Affairs 2006) (JICA 2006), medical equipment totaling about ¥3.1 billion was provided to a total of eleven developing countries—four in the Asian region, two in Oceania, one in Africa, one in Central and South America, and three in Europe (including the States of the former Soviet Union) — through general grant aid. This represents about 1.9% of general grant aid, and about 18.3% of Japan’s aid in the medical care field. In grass-roots grant aid for fiscal 2004, even limited to aid that can be judged to be medical equipment provision, roughly ¥800 million worth of medical equipment was provided to a total of 74 countries — 17 in Asia, four in Oceania, 12 in the
Middle East, two in Africa, 12 in Central and South America, and 27 in Europe (including the States of the former Soviet Union). This is about 6.3% of total grassroots grant aid, and about 37.9% of aid in the medical care field. While we can readily determine figures for the provision of medical equipment, the condition of utilization and management of medical equipment is not easily obtained because the responsibility of the management of the medical equipment depends on the recipient country after the project contract is terminated.

Second, as an example of technical cooperation, the paper will look at a report on a Cambodia maternal and child health center (Shimizu 2005, 1, 13). The report indicates that 60% of all medical equipment failures can be attributed to a deterioration of attached accessories and consumables, and that at least 60% of the cases classified as equipment failure could be prevented if consumables were regularly changed, or changed immediately after problems are detected. As an example of figures in Japan, one report (Nasuno et al. 2005, 333-336) indicates that at one hospital (Yokohama Rousai Hospital), 91% of the 787 cases of medical equipment failure were caused by deterioration, 7% by user errors, 1% by manufacturer fault, and 1% by other factors. The reports from these two examples suggest that many medical equipment failures can be dealt with by means of relatively simple technical skills such as changing consumables, so it is considered a potential area for technical cooperation. Third, in 1999 the Technical Information Center for Equipment was established in the Japan International Cooperation System (JICS) to deal with problems with medical equipment failures and parts acquisition for medical equipment provided by the Japanese government, and reports indicate that about 10 cases are referred to the Technical Information Center a year (Kokusai Kaikatsu Jannaru [International Development Journal] 2004, 34-37).

III. Medical equipment management in developing counties

It is reported that when medical equipment that exceeds routine management capabilities are introduced in developing countries, qualified staff, consumables, spare parts, and other expenditures are required. The annual maintenance and management expenditures are calculated to be 6-15% (Bloom and Temple-Bird 1994, 515) or 10% (World Bank 1993, 138) of the purchase price. From a macroeconomic perspective, “It is important to calculate the cost of human resources and maintenance charges in the internal rate of return. Accordingly, the greater the number of sophisticated machines installed, the greater the running cost that affects the government budget of the developing country” (Takagi 1998, 37-72). This mechanism does not care whether management is carried out by the public or by the private sector. It is quite costly either way. Medical equipment provided by aid organizations is considered an initial investment for medical facilities in the developing country; and running cost are expected to be sustained by the recipient government. Therefore, in many developing countries, as medical equipment is introduced and used by more patients more frequently, the maintenance costs will be more of a burden for their government budget. Of course, patients can be asked to pay for medical services on a cost-sharing basis, but if all maintenance costs for the medical equipment depended on cost-sharing by patients, examinations and treatment using the medical equipment would become prohibitively expensive for some patients.

IV. A case of sustainable medical equipment management in Uganda

1. Public health policy in Uganda

Uganda is a highland country located to the northwest of Lake Victoria in the eastern part of Africa, and is roughly the same size as the island of Honshu, Japan. Uganda has a population of about 20.9 million with an annual growth rate of 2.5%. Life expectancy is 45.7 for men and 50.5 for women. Per capita GDP in 2002 was $236, and public health and medical care spending accounted for 8% of the government budget. Annual medical care spending per person was $12, of which $3.95 was the government expenditure (Ministry of Health 2000, 8-9).

In 2000, the Ministry of Health in Uganda commenced reforms in line with the first 5-year Health Sector Strategic Plan to expand public medical care services. Under this 5-year plan, medical facilities were classified into three categories of HC (Health Center) II-IV, and hospitals were classified into three categories of GH (General Hospital), RRH (Regional Referral Hospital) and NRH (National Referral Hospital). Table 2 categorizes the 6 health facilities in terms of population scale and the classification by management organizations. Functionally, HC II provides only outpatient service, and HC III provides outpatient and inpatient servic-
es, but doctors are not required to be stationed there, and the range of equipment held is just manometers and stethoscopes. HC IV provides outpatient, inpatient, and surgical services (including caesarean operations), so one doctor must be stationed there, and there are plans to station seven doctors at GH. These medical facilities can be categorized into government, Christian NGO, and private facilities according to the management organizations. While the logistics management for drugs and medical equipment are different for each management organization, the function of the medical facilities must be standardized under the government criteria.

2. Current situation of medical equipment management in Uganda

There are some developing countries that formulate national medical equipment policies for medical equipment management based on WHO initiative. In Uganda, the National Advisory Committee on Medical Equipment (NACME) was established in 1989, and published the first national medical equipment policy in 1991, followed by a second policy in October 2000 (NACME 2000). The 2000 policy documented guidelines for required technical skills for medical equipment maintenance and management structure. However, there is no information on unused medical equipment. This is one of the problems pointed out by WHO, and it contains nothing about actions to improve the current situation.

Unlike in developed countries, in most developing countries this is a task for the governments. Figure 1 shows the mechanism of medical equipment management in Uganda. A special structure in Uganda is the Health Infrastructure Division in the Ministry of Health, which is comprehensively responsible for maintenance and developing plans with respect to hospitals, building facilities, and medical equipment.

While this structure has a merit in that the initiatives of the Ministry of Health are directly reflected in the management of medical equipment, this mechanism heavily depends on the government budget and takes time to improve the situation. The Ministry of Health in Uganda has a unique facility (hereinafter referred to as “workshops”) for medical equipment maintenance network in which it sets up workshops independent from hospitals and technical staff are stationed in these central and seven regional workshops. These eight workshops are responsible for medical equipment maintenance for mainly government-run medical facilities throughout Uganda. As for the numbers of technical staff, for example, the central workshop has eight technicians, and they are responsible for two RRHs, eight GHS and 47 HC IV facilities. The management of workshops is supported by a management committee comprising representatives from hospitals and medical facilities that receive maintenance service for medical equipment, and from the district health departments. An advantage of this maintenance structure is that the maintenance services can be done by less technical staff members, but the reality is that responding to problems at individual medical facilities takes considerable time, and travel costs for the technicians are expensive, so these shortcomings are issues that need to be addressed.

The government of Uganda abolished its cost-sharing scheme for government-owned medical facilities in 2001 (Ministry of Health 2005a, 107) to provide easier access to patients, and since then all budget for medical equipment maintenance was brought under government responsibility. As a result of this medical reform, hospitals are now required to commit the costs for medical equipment management (travel expenses, technical fees, and costs for spare parts and training) to workshops as contract pay-

### Table 2  Medical facilities and management organization

<table>
<thead>
<tr>
<th>Medical facilities classification</th>
<th>Population serviced</th>
<th>Management organization</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td>Government</td>
<td>NGO</td>
</tr>
<tr>
<td>NRH (National Referral Hospital)</td>
<td>2,000,000 or more</td>
<td>2</td>
<td>0</td>
</tr>
<tr>
<td>RRH (Regional Referral Hospital)</td>
<td>1,000,000-2,000,000</td>
<td>10</td>
<td>0</td>
</tr>
<tr>
<td>GH (General Hospital)</td>
<td>100,000-1,000,000</td>
<td>43</td>
<td>42</td>
</tr>
<tr>
<td>HC (Health Center)IV</td>
<td>100,000</td>
<td>151</td>
<td>12</td>
</tr>
<tr>
<td>HC III</td>
<td>20,000</td>
<td>718</td>
<td>164</td>
</tr>
<tr>
<td>HC II</td>
<td>5,000</td>
<td>1,055</td>
<td>388</td>
</tr>
<tr>
<td>Total</td>
<td>1,979</td>
<td>606</td>
<td>858</td>
</tr>
</tbody>
</table>

Source: Adapted from (Ministry of Health 2000, 8-9)
pletion of seven years of compulsory education, followed by three years of vocational training in woodworking, electrical, or water supply works. Consequently, their job title is ranked lowest among the hospital staff, and even some GHs don’t have any of these technicians.

3. Three perspectives regarding sustainable management of medical equipment in Uganda

With respect to the management of medical equipment, a software-oriented perspective is considered an important factor. A case reported on village electrification in Vietnam (Abe 2005, 109-124) recommends a software-oriented strategy by reviewing a hardware-oriented strategy such as that prioritized on provision of equipment and other related facilities. The recommended strategies are based on three perspectives, such as “technical transfer” of the most appropriate technology, “systems design” for supporting the sustainable “technical transfer,” and “participatory approach” to motivate ownership by the beneficiary residents. While there are differences between

![Figure 1 Maintenance and management organizational flow chart in Uganda](image-url)
management of electrification and medical equipment, it is considered that this approach can be introduced in medical equipment management because of their similarities described in the following sentences. Firstly, medical equipment and its maintenance skills are not originally developed in developing countries, so that the “technical transfer” to local staff is essential. Secondly, a certain “system design” supported by a budgetary system is important for sustainable operation of medical equipment. Finally, the perspective of “participatory approach” by the beneficiaries from the medical equipment also is important. The issues with respect to the sustainable management of medical equipment in Uganda from these three perspectives are examined in the following paragraphs.

First, in Uganda there is a difficulty related to the capabilities of technicians who will be the target of the technical transfer. Most technicians who are working in the field of maintenance for medical equipment are not qualified enough to absorb the “technical transfer.” In developed countries, technical staff people are abundantly available in private companies for manufacturing and dealing with medical equipment, accordingly they can transfer the technical skills to clinical engineers and biomedical equipment technicians in the U.S., and clinical engineers in Japan. However, the market for medical equipment in Uganda is rather small, so there are limits to the scope of technical transfer from the private sector.

Second, in systems designed to maintain the transferred technologies, Uganda is facing the difficulties of a sustainable system for medical equipment maintenance and the budgetary system. In Japan, a regulation for maintenance of medical equipment is stipulated in the Enforcement Regulations of the Medical Service Law, and the health insurance scheme secures the budget for maintenance activities, but in Uganda there is no such mechanism. In both developed and developing countries, the same level of spending is required to manage the medical equipment, but in Uganda, the allocation of the budget for the management of medical equipment from the Ministry of Health is not assured, so the current situation for medical equipment management is dependent on the uncertain contribution budgets from the medical facilities.

Third, the perspective from the beneficiary residents is important. The Ugandan government is pushing ahead with decentralization, and accordingly local government has the responsibilities for medical services, recruitment of health workers, and management of medical facilities. Local residents will be involved in the management of medical facilities through the local councils comprising healthcare practitioners and local leaders who represent the residents. However, the current situation is not only the problem of medical equipment management but also there is no mechanism for improving medical services through the “participatory approach.”

Therefore, it has been considered that effective medical equipment management in Uganda requires 1) improvement of technical capabilities, 2) an assured maintenance and management budget from the Ministry of Health, and 3) dissemination of information to local councils and other bodies representing residents.

4. Management of medical equipment based on the data and its obstacles

When improving the management of medical equipment in Uganda, it has been considered that the compilation of accurate data of the current state of medical equipment is essential. The data can identify problems in the management of medical equipment in specific medical facilities, and by comparing data among medical facilities, the Ministry of Health and other policy-formulating organizations can make the medical equipment allocation plans and also provide a specific guidance of sustainable management to the particular medical facilities based on the medical equipment data. Considering the three perspectives mentioned in the previous section, medical equipment data 1) make it possible to specify the technical aspects of medical equipment that needs to be improved, 2) can calculate the budgets relating to spare parts and training needed for the maintenance, and 3) can present the current status to the residents’ representatives. In practical steps to collect the data, the medical equipment will be classified into several categories. For example, by classifying medical equipment into six categories from A to F (table 3) and comparing the medical equipment data at several medical facilities, it is possible to weigh the problems in equipment management, and look into necessary measures to facilitate efficient and sustainable medical equipment management.

In the case of medical facilities with many items in Category A, this suggests that the medical equipment in those facilities is being used effectively. In the case of facilities with many items in Category B, this suggests that the medical equipment is not being used. The reasons are believed to be that the equipment is not selected in accordance with an appropriate technology, equipment users are reluctant because
of the insufficient skills for operation, or there is a surplus supply of the equipment. For facilities with many items in C or D, this suggests taking action to disclose the reasons. For example, the situations of technical skills and capabilities of medical equipment maintenance and hospital budget should be examined. And for facilities with many items in E and F, the data suggests that the requirement of medical equipment and the equipment’s year of manufacture will infer the problems faced by specific medical facilities.

In this way, the data of medical equipment can contribute to effective medical equipment allocation plans by the Ministry of Health, and also to the training plans for health workers. For example, in the case of Category B it needs to ensure that the selection of the equipment within the scope of appropriate technologies, make the placement plans for health workers, carry out the appropriate training for medical equipment users, and provide the appropriate number of medical equipment. In the case of facilities with many items in C and D, there may be a need for more technical staff and to improve their skills, and for securing their budget of medical equipment management. If the skills for technical staff need to be improved, these medical equipment data can clarify the specific skills as a scope of “technical transfer.” For example, in E and F categories, there may be a need to secure the budget for repairs, or selection of the essential medical equipment or allocation of the new medical equipment. According to the 6 different categories, the conditions of the medical equipment can be clearly indicated by the color coded stickers. The color coded stickers can provide a clear picture of how the problem is progressing by updating the data. Using such medical equipment analysis based on the data will enable the governments of developing countries to make recommendations to medical facilities for the efficient and sustainable management of medical equipment. These data also need to be indicated to the donor countries. In Uganda’s case, the Health Infrastructure Division in the Ministry of Health will be responsible for this work.

The sample data on surgical beds and sterilizers at eight GH and two RRH under the responsibility of the central workshop show that category A and category B for sterilizers account for 21% and 31%, respectively, and category A and category B for surgical beds account for 15% and 31%, respectively (table 4). These data indicate that the surgical operations at those hospitals are carried out with unsanitary materials and faulty surgical beds. These data clearly indicate the need for appropriate maintenance or provision of new equipment in order to improve the situation. The data of this medical equipment needs to be updated to build a framework for updating the mechanism of appropriate management of

<table>
<thead>
<tr>
<th>Category</th>
<th>Interpretation of equipment condition</th>
<th>Action needed</th>
</tr>
</thead>
<tbody>
<tr>
<td>A: Good, in use</td>
<td>Equipment is good and appropriate. Being used effectively</td>
<td>Use and continue to take good care of it. Nothing in particular</td>
</tr>
<tr>
<td>B: Good, but not in use</td>
<td>Medical equipment not within the scope of appropriate technologies, lack of skills among medical equipment users, or insufficient number of users, oversupply, etc.</td>
<td>Placement of necessary health workers, carry out appropriate training for users, etc.</td>
</tr>
<tr>
<td>C: In use, but need repair</td>
<td>Lack of maintenance skills, budgetary problems, etc.</td>
<td>Appropriate placement of the technical staff and training to improve their skills, securing the maintenance budget, etc.</td>
</tr>
<tr>
<td>D: In use, but needs replacement</td>
<td>Medical equipment is old, budgetary problems, etc.</td>
<td>Establishment of medical equipment disposal regulation, plans for the provision of new medical equipment, etc.</td>
</tr>
<tr>
<td>E: Out of order, but repairable</td>
<td>The medical equipment is not necessary, the medical equipment is old, budgetary problems, etc.</td>
<td>Securing the maintenance and management budget, selection of the necessary medical equipment, plans for the provision of new medical equipment, etc.</td>
</tr>
<tr>
<td>F: Out of order, and should be replaced</td>
<td></td>
<td>Establishment of medical equipment disposal regulation, plans for the provision of new medical equipment, etc.</td>
</tr>
</tbody>
</table>

Source: Prepared by the author.
the medical equipment. In addition, even if the medical equipment is properly allocated and maintained, it is clear that there is no benefit for the patients without the qualified medical workers. For example, the placement plan for the health staff is 184 at each GH, but this plan has been fulfilled only at eleven NGO-run hospitals and only one government hospital (Ministry of Health 2005, 134-135), so there is no benefit in evaluating the quality of medical care from just a medical equipment point of view.

V. Challenge for sustainable management of medical equipment in developing countries

There are many requests from developing countries to aid organizations for the provision of medical equipment, and they greatly appreciate the Japanese government. However, the management of medical equipment in developing countries is a big challenge. It is a fact that medical care cannot be provided without appropriate medical equipment at the medical facility. With respect to the policy for medical equipment donation of official development aid from the Japanese government, it should be considered in terms of the following points. This is because Japan is one of the world’s leading medical equipment manufacturing countries and provides medical equipment to developing countries as part of its official development aid.

Firstly, it is definitely essential to study the medical equipment management organizations and their functions, which are different from those in developed countries. This is because medical equipment management should not be addressed as the problem of individual recipient medical facilities, it must rather take into account the medical equipment management organizations at the health ministry level in the recipient country; specifically, understanding the mechanism of the organizational structure with respect to medical equipment management and its problems in the organizational structure. The information that needs to be studied is 1) the number of technical staff in the medical equipment management organizations and their structure, 2) job description of the technical staff, 3) medical equipment data stating the situation of medical equipment maintenance, 4) medical equipment placement plans based on the medical care policy, 5) medical equipment-related budget and budget expenditure system, and 6) existence of residents’ organizations for representing local people for their medical care. With this information, it is possible to assess whether the requests from the recipient country are within the scope of appropriate technologies. It is also possible to predict the state of maintenance conditions after the equipment has been provided, and to specify the appropriate technical cooperation as a donor country.

Secondly, the budgeting may not be a problem if the governments of the developing country can prioritize the medical equipment management in line with their health policy. However, in most developing countries, the most challenging issue for the sustainable maintenance of medical equipment is

| RRH 1 | 4 (3) | 0 (15) | 1 (2) | 4 (2) | 1 (2) | 2 (8) | 12 (32) |
| RRH 2 | 1 (6) | 1 (7)  | 2 (6) | 0 (0) | 0 (2) | 1 (0) | 5 (21)  |
| GH 1  | 0 (4) | 0 (3)  | 0 (2) | 1 (0) | 1 (1) | 1 (0) | 3 (10)  |
| GH 2  | 0 (3) | 0 (5)  | 0 (0) | 0 (0) | 2 (1) | 0 (0) | 2 (9)   |
| GH 3  | 0 (2) | 1 (1)  | 0 (0) | 2 (0) | 0 (1) | 0 (2) | 3 (6)   |
| GH 4  | 0 (1) | 0 (0)  | 0 (1) | 2 (1) | 1 (5) | 0 (0) | 3 (8)   |
| GH 5  | 0 (2) | 0 (2)  | 0 (0) | 1 (1) | 0 (6) | 1 (0) | 2 (11)  |
| GH 6  | 0 (2) | 0 (3)  | 0 (3) | 1 (0) | 0 (1) | 1 (2) | 2 (11)  |
| GH 7  | 0 (1) | 0 (1)  | 1 (1) | 1 (0) | 1 (1) | 1 (5) | 4 (9)   |
| GH 8  | 1 (3) | 0 (3)  | 2 (0) | 0 (0) | 0 (4) | 0 (1) | 3 (11)  |
| Total | 6 (27)| 2 (40)| 6 (15)| 12 (4)| 6 (24)| 7 (18)| 39 (128)|

Source: Prepared by the author based on the data from JICA expert, Akiko Niwa

<table>
<thead>
<tr>
<th>Table 4: Number and condition of surgical beds and sterilizers</th>
<th>A</th>
<th>B</th>
<th>C</th>
<th>D</th>
<th>E</th>
<th>F</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>RRH 1</td>
<td>4 (3)</td>
<td>0 (15)</td>
<td>1 (2)</td>
<td>4 (2)</td>
<td>1 (2)</td>
<td>2 (8)</td>
<td>12 (32)</td>
</tr>
<tr>
<td>RRH 2</td>
<td>1 (6)</td>
<td>1 (7)</td>
<td>2 (6)</td>
<td>0 (0)</td>
<td>0 (2)</td>
<td>1 (0)</td>
<td>5 (21)</td>
</tr>
<tr>
<td>GH 1</td>
<td>0 (4)</td>
<td>0 (3)</td>
<td>0 (2)</td>
<td>1 (0)</td>
<td>1 (1)</td>
<td>1 (0)</td>
<td>3 (10)</td>
</tr>
<tr>
<td>GH 2</td>
<td>0 (3)</td>
<td>0 (5)</td>
<td>0 (0)</td>
<td>0 (0)</td>
<td>2 (1)</td>
<td>0 (0)</td>
<td>2 (9)</td>
</tr>
<tr>
<td>GH 3</td>
<td>0 (2)</td>
<td>1 (1)</td>
<td>0 (0)</td>
<td>2 (0)</td>
<td>0 (1)</td>
<td>0 (2)</td>
<td>3 (6)</td>
</tr>
<tr>
<td>GH 4</td>
<td>0 (1)</td>
<td>0 (0)</td>
<td>0 (1)</td>
<td>2 (1)</td>
<td>1 (5)</td>
<td>0 (0)</td>
<td>3 (8)</td>
</tr>
<tr>
<td>GH 5</td>
<td>0 (2)</td>
<td>0 (2)</td>
<td>0 (0)</td>
<td>1 (1)</td>
<td>0 (6)</td>
<td>1 (0)</td>
<td>2 (11)</td>
</tr>
<tr>
<td>GH 6</td>
<td>0 (2)</td>
<td>0 (3)</td>
<td>0 (3)</td>
<td>1 (0)</td>
<td>0 (1)</td>
<td>1 (2)</td>
<td>2 (11)</td>
</tr>
<tr>
<td>GH 7</td>
<td>0 (1)</td>
<td>0 (1)</td>
<td>1 (1)</td>
<td>1 (0)</td>
<td>1 (1)</td>
<td>1 (5)</td>
<td>4 (9)</td>
</tr>
<tr>
<td>GH 8</td>
<td>1 (3)</td>
<td>0 (3)</td>
<td>2 (0)</td>
<td>0 (0)</td>
<td>0 (4)</td>
<td>0 (1)</td>
<td>3 (11)</td>
</tr>
<tr>
<td>Total</td>
<td>6 (27)</td>
<td>2 (40)</td>
<td>6 (15)</td>
<td>12 (4)</td>
<td>6 (24)</td>
<td>7 (18)</td>
<td>39 (128)</td>
</tr>
</tbody>
</table>

Figures in brackets ( ) are the number of sterilizers
thought to be adequate budgeting. There are two possibilities considered for the donor organizations. First, the aid organizations should build a mechanism that enables them to assist and provide the necessary technical assistance rather than just waiting to be contacted by the recipient countries. The other possible option is that the maintenance expenditures can be included as part of the aid scheme for the technical assistance from the manufacturers or local agents for a certain period. As an example, there is a project between the governments of the Netherlands and Uganda in which a six-year maintenance contract separate from the warranty period for the medical equipment was included as part of the project contract (Simed 2006). The other mechanism is that DANIDA (Danish International Development Agency) and the Health Infrastructure Division jointly listed the essential medical equipment within the scope of appropriate technologies for HC II-IV in order to simplify their maintenance work. With respect to the medical equipment, initial investment is just the provision of hardware, which means that the software-oriented technical support by the donor countries is essential for their sustainable use throughout its lifetime.

Provision of medical equipment by the Japanese government is mainly carried out through the scheme of grant aid. This scheme only accepts aid for the recipient country when they have the capability to maintain the medical equipment in a sustainable way as one of the prerequisites. Therefore, it is expected that all medical equipment provided under grant aid will be used in a sustainable way throughout its lifetime in a “self-sustainable” manner by the recipient country. The medical equipment data from the recipient countries will be the evidence for clarifying the appropriate software-oriented assistance from the donor countries. Thus, submission of medical information including the medical equipment data from the recipient countries is highly important for analyzing the condition of medical equipment for both the recipient and the donor countries. Through the cooperation between the recipient and donor countries with the medical equipment data, it will be able to achieve cost-effective medical equipment aid that is in line with the current situation of the developing countries.

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Case Studies


The challenge of a sustainable and sound material recycling society by means of market mechanisms
—Attempt of Indonesian eco-labeling

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Director, Ground Water and Ground Environment Division, Environment Management Bureau, Ministry of the Environment

Abstract

The objective of environmental labels is, through the communication of verifiable and accurate information that is not misleading on the environmental aspects of products and services, to encourage the demand for and supply of those products and services that cause less stress on the environment, thereby stimulating the potential for market-driven continuous environmental improvement.

JICA has been supporting the establishment of an Indonesian eco-labeling system in order to make environmental criteria on several products. As a result of this cooperation, the first certificated product was launched in June 2006.

The eco-labeling system that utilizes economic instruments and market mechanism is one of the most effective technical skills for realizing a sustainable society.

This paper reviews the Indonesian eco-labeling system and discusses the environmental impact reduction effect by means of expanding the market share of eco-labeling products.

Introduction

The environmental labeling (hereinafter referred to as eco-labeling) system is one of the support methods aimed at changing Indonesian economic society, which is moving toward mass production, mass consumption, and mass disposal under circumstances in which environmental laws such as the Environmental Management Law (implemented in 1997) are not fully enforced, into a sustainable, sound material recycling society by using economic instruments and market mechanisms.

Since 2003, the Japan International Cooperation Agency (JICA) has provided full support from the initial phase of the consideration of the eco-labeling system, ranging from the establishment of the Indonesian eco-labeling system, the collection/selection/finalization of the logo, and the decision on product environmental criteria to the seminars held in various parts of Indonesia for spreading the eco-labeling system, the introduction of Japan’s advanced cases using JICA-Net, the exhibition of eco-labeled products, the announcement of the Indonesia eco-labeling system at the annual meeting of the Global Eco-labeling Network (GEN), and the Eco-labeling Capacity Building Project. As a result, the first Indonesian eco-labeled product (printing paper) was produced in June 2006 (table 1).

The objective of this study is to examine various environmental load reduction effects based on the hypothesis that the spread of Indonesian eco-labeled products in the market can reduce environmental load in Indonesia through market mechanisms.¹

I. What is eco-labeling?

The “eco-label” is an indicator attached to products and packages that informs buyers of the products’ or services’ characteristics focusing on environmental conservation and other environmental aspects. It is used not only for printed matter such as stickers,
Eco-labeled products can contribute to environmental conservation since they offer great advantages, such as having less impact on the environment at the stages of material resource collection, production, transportation, use and disposal compared to other products in the same category and reducing environmental load caused by other factors through their use. Eco-labeling is very clear as a method for environmental conservation and helps increase awareness among consumers. By popularizing responsible product development by manufacturers in society as a whole, we can promote the reduction of environmental load.

As just described, eco-labels are presented as accurate, verifiable environmental information. Through environmental communication activities that do not cause misunderstanding or falsehood, the eco-labeling system aims to help construct a sustainable society by making use of market mechanisms and promoting the supply of and demand for products and services that have little impact on the envi-

### Table 1  Chronological table of Indonesian eco-labeling

<table>
<thead>
<tr>
<th>Year/Month</th>
<th>Details</th>
</tr>
</thead>
</table>
| 2003       | November Eco-label kickoff workshop  
Logo collection started |
| January    | Discussion of product standards started (paper, detergent, textiles, leather products)  
Eco-label logo: first screening |
| February   | JICA-Net seminar was held (Japan’s Type I eco-label <Eco Mark>)  
Eco-label logo: final selection |
| March      | Eco-label logo: official announcement of its framework |
| June       | Eco-label workshop (framework, spread of standards) |
| August     | JICA-Net seminar was held (situation of Eco Mark acquisition by companies)  
Seminar for promoting the spread of eco-labels (Surabaya City <industrial city>)  
Seminar for promoting the spread of eco-labels (Yogyakarta City <leather and textile industries>) |
| September  | Seminar for promoting the spread of eco-labels (Pakanbaru City <lumber, paper and oil industries>) |
| October    | Seminar for promoting the spread of eco-labels (Medan City <industrial city>)  
Announcement of the Indonesian eco-labeling system at the Global Eco-labeling Network (GEN) annual meeting (Tokyo) |
| December   | Seminar for promoting the spread of eco-labels (Bandung City)  
Discussion of product standards started (sanitary paper, packing paper)  
Seminar for promoting the spread of eco-labels (Batikpapan City <oil industry>) |
| February   | Seminar for promoting the spread of eco-labels (Pakanbaru City <lumber, paper and oil industries>)  
Discussion of product standards started (battery) |
| June       | JICA-Net seminar was held (procedures for Eco Mark certification)  
Eco Mark products were exhibited during an environmental week (Jakarta)  
Seminar for promoting the spread of eco-labels (Bandung City) |
| July       | Seminar for promoting the spread of eco-labels (Balikpapan City <oil industry>)  
Eco Mark products were exhibited during an environmental week (Bandung City) |
| September  | Seminar for promoting the spread of eco-labels and related to international relations (Jakarta)  
JICA-Net seminars were held four times (Eco Mark standards / types, life cycle assessment, international consistency / GEN, operational activities) |
| October    | Seminar for promoting the spread of eco-labels (Denpasar City <tourism industry>)  
Eco-label acquisition training (textile industry) (Institute for Research and Development of Textile Industries, Bandung, Ministry of Industry and Trade) |
| November   | Seminar for promoting the spread of eco-labels (Batam City <industrial city>)  
The first eco-labeled product was produced (printing paper)  
JICA-Net seminars were held (Japan’s Type I eco-label <Eco Mark>)  
Eco-label logo: first screening |
| December   | Seminar for promoting the spread of eco-labels (Kota Makassar City <industrial city>)  
JICA-Net seminar was held (procedures for Eco Mark certification) |
| January    | Seminar for promoting the spread of eco-labels (Denpasar City <tourism industry>)  
JICA-Net seminars were held four times (Eco Mark standards / types, life cycle assessment, international consistency / GEN, operational activities) |
| February   | Discussion of product standards started (battery)  
Eco-label acquisition training (textile industry) (Institute for Research and Development of Textile Industries, Bandung, Ministry of Industry and Trade) |
| March      | Seminar for promoting the spread of eco-labels (Batam City <industrial city>)  
The first eco-labeled product was produced (printing paper) |
| May        | Seminar for promoting the spread of eco-labels (Denpasar City <tourism industry>)  
JICA-Net seminars were held (Japan’s Type I eco-label <Eco Mark>)  
Eco-label logo: first screening |
| June       | JICA-Net seminars were held four times (Eco Mark standards / types, life cycle assessment, international consistency / GEN, operational activities) |
| November   | Seminar for promoting the spread of eco-labels (Jakarta)  
JICA-Net seminars were held (Japan’s Type I eco-label <Eco Mark>)  
Eco-label logo: first screening |

Source: Prepared by the author
As for office automation equipment and household appliances, the international Energy Star Program Mark (international system supported by the US, Japan, and others), which is attached to products that meet the standards for standby power consumption, was found on 21 items such as printers, TV monitors, personal computers and facsimiles.

All eco-labeled stationery products were imported from Japan and Thailand. Since they are more expensive, up to 10 times more, than domestic products that have no eco-labels but have equivalent functions, it is difficult for general Indonesian consumers to purchase them. Therefore, in order to spread eco-labeled products in Indonesia, it is necessary to establish a domestic eco-label system and produce and sell low-priced, domestic eco-labeled products so that the general public can notice and purchase them in the market on a daily basis.

III. Background of the Indonesian eco-labeling system

1. Environmental background

In Indonesian urban areas in particular, the amount of waste products is increasing along with the increasing population and changes in consumption patterns, and the composition of this waste is also changing. In Jakarta, 6,000 tons of waste products per day are disposed of in landfills. They include a large amount of plastics, papers, and metals that are sufficiently recyclable as renewable resources. However, since there is no systematic separate collection, these renewable resources are mixed with products that are dirty and in an unsanitary condition, and in reality, many of them cannot be recycled. If they were separately collected in advance, it would appear that they could be sold as valuable renewable resources and the amount of waste taken to final disposal sites could be reduced.

On the other hand, although a system of environmental laws has been set up concerning water environment, atmospheric environment, environmental impact assessment, and other areas, including the Environmental Management Law, application of the legal system, so-called law enforcement, is considered to be weak. Also, despite the transfer of jurisdiction over environmental regulations from the cen-
tral government to local authorities amidst the flow of decentralization, the capacity of the environmental departments of local authorities is still insufficient. It is therefore believed that the laws themselves will have no direct bearing on the resolution/improvement of environmental problems, including the waste problem.

Under these circumstances, it is necessary to resolve various environmental problems using a variety of methods in order to overcome pollution caused by industry and urban living, change the economic society from a society based on mass production, mass consumption, and mass disposal to a sound material cycle society, and change from an energy-intensive society to an energy-saving society.

Eco-labeling is a very clear measure for reducing the environmental load at every stage of a product, including material resource collection, production, transportation, use, and disposal. Through economic means using market mechanisms such as the introduction of eco-labeling, voluntary efforts by businesses are encouraged and environmental load can be reduced.

2. Economic background

The textile industry, one of Indonesia's export/main industries, faces tough competition in the domestic market due to an influx of imported goods from China and other countries, and it also competes with cheap Chinese products in the export market. Since Indonesian products are no match for Chinese products in the price war, the need to formulate an eco-label for textile products in order to differentiate them and secure a market advantage was proposed by the textile industry.

Japanese, European, and American businesses, which are the main destinations for Indonesian textile products, started to demand, as conditions of trade, assurance of compliance of Indonesian businesses, manufacturing, and products with regard to environmental conservation, social responsibility, and securing credibility among consumers; the adoption of an environmental management system, such as ISO14001; and the acquisition of a product eco-label. This has meant that the implementation of various environmental conservation measures, such as the acquisition of an eco-label, have become essential to the survival of Indonesian businesses.

With regard to paper products as well, the main export destinations of Japan, Europe, and America started to demand that their trading partners show proof that they use products with a small environmental impact. Particularly concerning pulp, they demanded proof that pulp used as the raw material in paper products was not obtained from illegally logged trees but from legal and sustainable forests. Such developments made it necessary to establish an eco-label.

IV. Expected benefits of Indonesian eco-labeling

The problem of waste is one of Indonesia's serious environmental problems. It cannot be resolved without making lifestyle changes to switch from a society based on mass production, mass consumption, and mass disposal to a sustainable sound material cycle society. In other words, it is a structural problem that cannot possibly be resolved by methods that simply treat the symptoms.

The characteristics of the eco-labeling system are wide ranging, but the specific benefits that can be expected by establishing the system in Indonesia are as follows:

1. Recycling and a reduced amount of waste will be promoted. The consumption of natural resources will lessen in comparison to product manufacture from raw materials (= natural resources).

2. The establishment of standards for recycled paper will lead to a reduction in logging of natural forests used as the raw material of wood pulp.

3. The establishment of standards for the use of sustainable forest resources as raw materials will lead to a reduction in illegal logging.

4. The requirement for manufacturing and products to comply with environmental laws will lead to measures against industrial pollution.

5. Standards for energy conservation in manufacturing processes and products will lead to a reduction in the use of fossil fuels.

6. The system will lead to a reduction in toxic chemicals.

Also, assuming that standards in the event of the addition of eco-labels to devices that use electricity will include the amount of energy used, amount of recycled parts used, and the amount of chemical substances used, the spread of eco-labeled products among these devices will contribute to energy conser-
vovation, recycling, and reduction of toxic chemicals.

By promoting the manufacture of products that are environmentally friendly, the eco-labeling system will expand the market for environmental products. As a result, prices will drop causing the market to expand further in a virtuous cycle involving the environment and the economy. Many problems will be solved using market mechanisms and economic measures that lead to invigoration of socioeconomic activities.

V. Eco-labeling in Indonesia from system establishment to production of the first product

1. Logo

After being appointed as a JICA expert to Indonesia’s Ministry of the Environment in June 2003, the author specified support for establishment of Type I eco-labeling based on ISO14024 in a work plan, and after determining extensive support for the establishment/application of an Indonesian eco-labeling system, made various preparations as a result of repeated discussions with the parties involved. This led to a gathering of the relevant authorities, businesses, and consumers on November 19, 2003, for the Indonesian eco-label kickoff workshop.

Collection of logos began on the day after this workshop. The 362 logos submitted were narrowed down to 11 during the first screening and 5 during the second screening, and the selection committee finally determined the logo on March 9, 2004 (figure 1).

As a member of the executive office for eco-label logo collection, the author gave his support from logo collection until selection. The members of the selection committee and the executive office are shown in table 2.

2. The concept behind eco-labeled products

The selection criteria for a product (genre) for which creation of an eco-label is a priority are as follows:

- Products that are linked to resolving environmental problems that are issues in Indonesia (for example, items that are linked to resolving environmental problems such as water pollution in urban rivers, air pollution, waste, and loss of biodiversity due to illegal logging).
- Products that are invariably used in daily life and business activities and whose very use has a continued impact on the environment.

Figure 1  The Indonesian eco-label logo

![Figure 1: The Indonesian eco-label logo](image)

Note: Ramah Lingkungan means “environmentally-friendly.”

Table 2  Members of the Indonesian eco-label selection committee and executive office

<table>
<thead>
<tr>
<th>Selection committee</th>
<th>Executive office</th>
</tr>
</thead>
<tbody>
<tr>
<td>Chairman Indonesia’s Vice-Minister for the Environment</td>
<td>Representative Assistant division head of responsible division in Indonesia’s Ministry of the Environment</td>
</tr>
<tr>
<td>Vice-chairman Director of the National Accreditation Body of Indonesia</td>
<td>Secretary Assistant division head of responsible division in Indonesia’s Ministry of the Environment</td>
</tr>
<tr>
<td>Executive director Head of the division responsible for eco-labeling in Indonesia’s Ministry of the Environment</td>
<td>Member JICA expert</td>
</tr>
<tr>
<td>Member Division head of Indonesia’s Ministry of the Environment</td>
<td>Member Senior staff of Indonesia’s Ministry of the Environment (2 people)</td>
</tr>
<tr>
<td>Member Environmental NGO representative</td>
<td>Member Staff of Indonesia’s Ministry of the Environment (2 people)</td>
</tr>
<tr>
<td>Member The Indonesian Eco-Labelling Institute (LEI)</td>
<td></td>
</tr>
<tr>
<td>Member Indonesian Design Association</td>
<td></td>
</tr>
<tr>
<td>Member Consumers Union of Indonesia</td>
<td></td>
</tr>
<tr>
<td>Member Jakarta Academy of Arts</td>
<td></td>
</tr>
<tr>
<td>Member FEMINA Magazine</td>
<td></td>
</tr>
</tbody>
</table>

Source: Prepared by the author
Products whose sales, taken collectively, have a large impact on the environment because the sales volume is enormous and so a large reduction in the environmental load of the entire sales volume can be expected from just a small reduction in the environmental load of the individual product.

Products for which businesses are able to manufacture an eco-labeled product in the same category, or can be expected to be able to do so.

Products for which acquisition of an eco-label is requested in order to prove its environmental characteristics because overseas trading partners or consumers have doubts concerning the environmental characteristics of that type of product.

Products that require added value in terms of the environment to improve their quality/value in order to compete with foreign products.

Products for which the establishment of standards is relatively simple.

Products for which environmental standards have already been set under another overseas Type I eco-labeling system.

The following items were taken into account when considering the environmental standards for each product based on these requirements:

(1) **Paper products**

The adoption of product environmental standards whereby, if virgin pulp is used, the logging of the unprocessed wood used as the raw material complies with the law and the pulp is produced from a forest where sustainable forest management is practiced, is expected to have the benefit of controlling Indonesia’s problem concerning illegal logging. Also, by adopting product environmental standards whereby recycled pulp is used, the waste (paper waste) that presents an urban environmental problem in every region can be recycled, meaning that the waste paper that until now has been thrown away will have value as a raw material for paper products. This will promote the separation/collection of waste and the overall amount of waste will decrease. In addition, since paper mills consume a lot of electricity and discharge wastewater, various standards will lead to a reduction in the environmental load of the manufacturing process.

(2) **Textile products**

Textile products come into contact with the skin, so standards were adopted to restrict the chemical substances and dyes contained in the products. Further, because plastic bottles, which are widespread in Indonesia, are disposed of after use and cause an increase in waste, it is also necessary to consider environmental standards for textile products recycled from plastic bottles.

(3) **Leather products**

Chromium is used in the tanning process of leather products, and chemicals such as aromatic amines are used in dyes, so standards were adopted to restrict the amount of these substances used.

(4) **Detergents**

Detergents are used in large quantities every day and washing water is emptied directly into rivers causing water pollution. Therefore, it is necessary to restrict the amount used/content of phosphorous, which is a component of detergents. Standards on biodegradability were set in order to encourage decomposition in the water environment of surfactants, which contribute to the cleaning action of detergents. Because washing laundry by hand is the norm in Indonesia, it is assumed that application of the standards for phosphoric acid content used in developed countries, which presuppose washing machine use, would be problematic.

(5) **Batteries**

Batteries are disposed of or dumped illegally in places such as rivers after use. After disposal, there is a danger that toxic substances such as heavy metals will leak and be released into the environment. Therefore, standards were set concerning heavy metal content. At the same time, the manufacture of eco-labeled batteries is also desired in order to differentiate them from the illegal and inferior copies of European or Indonesian batteries that appear on the market. Since rechargeable batteries are expensive and not purchased by the average Indonesian, our considerations concerned non-rechargeable batteries.

3. **Formulation of product standards**

In order to formulate environmental standards for products, in addition to knowledge regarding products, raw materials, and manufacturing processes, it is necessary to have knowledge regarding the environmental load of each stage including raw material collection, production, transportation, use, and disposal, knowledge regarding eco-labeled products.
ners). Also, there was a great deal of concern regarding what Japanese businesses were expecting from the Indonesian eco-label, the level of the Indonesian eco-label's product environmental standards when compared to the level of worldwide eco-labels, and assessment of the Indonesian eco-label from overseas. We repeatedly explained that if the product environmental standards were low, the eco-label would have no meaning; that once low standards were set and overseas businesses lost confidence, it would take a long time to restore that confidence; and that if low standards were set so that application for an eco-label was indiscriminate inside and outside the country, it would also be possible for foreign businesses that are not enthusiastic about environmental issues to acquire an eco-label and this would have an adverse effect on Indonesian industry.

In January 2004, the formulation of draft product environmental standards for detergent, paper products, and textile products started. Technical meetings and meetings aimed at consensus formation were held by each stakeholder, more than 20 times for each standard, until all members reached agreement. In this way, the standards were determined one after another.

The product environmental standards are the

<table>
<thead>
<tr>
<th>Environmental load</th>
<th>Stage of product life</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Consumption of resources</td>
<td>A. Resource collection</td>
</tr>
<tr>
<td>2. Emission of substances that influence global warming</td>
<td>B. Manufacture</td>
</tr>
<tr>
<td>3. Emission of ozone-depleting substances</td>
<td>C. Distribution</td>
</tr>
<tr>
<td>4. Influence on ecosystem</td>
<td>D. Use and consumption</td>
</tr>
<tr>
<td>5. Emission of atmospheric pollutants</td>
<td>E. Disposal</td>
</tr>
<tr>
<td>6. Emission of water pollutants</td>
<td>F. Recycling</td>
</tr>
<tr>
<td>7. Generation and treatment/disposal of waste</td>
<td></td>
</tr>
<tr>
<td>8. Use/emission of hazardous waste</td>
<td></td>
</tr>
<tr>
<td>9. Other environmental loads</td>
<td></td>
</tr>
</tbody>
</table>

Note: The “selection table for environmental loads at stages of product life” is for selecting environmental loads in order to draw up qualitative or quantitative accreditation criteria at the stage of selecting environmentally friendly products.


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overseas, and a suitable period for the formulation of draft product environmental standards. (The lifecycle concept is shown in table 3).

Technical meetings on environmental standards for eco-labeled products were held in order to gather together businesses from the relevant industries for technical discussions aimed at extracting technical issues concerning the manufacturability of products, product quality, performance, etc., on the basis of the draft standards. However, the meetings closed time and again without reaching a conclusion, partly because each business argued for standards that could give their own products an advantage in the marketplace, or standards that would make production impossible or difficult for other businesses in the same industry, or standards that could be reached by all of their own products, or standards that could be reached by all products of all companies.

On the other hand, there were also many companies that wanted to acquire an eco-label as an advantage in export. These companies were naturally very concerned with the eco-label standards of foreign countries and always focused on consistency with the eco-labels of foreign countries, and in particular, consistency with the product environmental standards desired by foreign businesses (trading partners). Also, there was a great deal of concern regarding what Japanese businesses were expecting from the Indonesian eco-label, the level of the Indonesian eco-label’s product environmental standards when compared to the level of worldwide eco-labels, and assessment of the Indonesian eco-label from overseas. We repeatedly explained that if the product environmental standards were low, the eco-label would have no meaning; that once low standards were set and overseas businesses lost confidence, it would take a long time to restore that confidence; and that if low standards were set so that application for an eco-label was indiscriminate inside and outside the country, it would also be possible for foreign businesses that are not enthusiastic about environmental issues to acquire an eco-label and this would have an adverse effect on Indonesian industry.

In January 2004, the formulation of draft product environmental standards for detergent, paper products, and textile products started. Technical meetings and meetings aimed at consensus formation were held by each stakeholder, more than 20 times for each standard, until all members reached agreement. In this way, the standards were determined one after another.

The product environmental standards are the
backbone of the eco-label system. The formulation of the product environmental standards is the highlight of the eco-label system because the method of selecting the products (genre of goods) for which standards are created and the contents (scope, stringency, number of requirements) of the environmental standards of those products, influence whether or not it is possible to form a market for environmentally friendly products, change to environmentally friendly patterns of production and consumption, and achieve a sustainable, energy-conserving, sound material cycle society.

4. Status of determination of standards
Up to now, national standards have been established for 5 products, and national standards for 3 products are in the process of being established.

- Tanned leather (study began in January 2004, determined in December, KAN 814-2004)
- Leather casual shoes (study began in January 2004, determined in December, KAN 815-2004)
- Wrapping paper (study began in March 2004)
- Sanitary paper (study began in March 2004)
- Batteries (study began in December 2004)

Within the above standards, the environmental standards for paper (uncoated printing paper) are as follows. The standards are formed from the environmental load of the raw materials and the manufacturing process. (1) With regard to raw materials, virgin pulp (wood pulp or non-wood pulp), recycled pulp, or virgin pulp and recycled pulp are used. Virgin pulp (wood pulp) is produced from legal logging in forests where sustainable forest management is practiced. (2) With regard to the manufacturing process, the environmental standards cover the biodegradability of surfactants, the amount of adsorptive organic halogen compounds produced, the amount of water used, the amount of electricity used, etc.

Also, compliance by the manufacturer with environmental laws, implementation of an environmental management system, compliance with product quality standards, materials banned for use in product packaging, items to be written on packaging (manufacturer, address, telephone number, combination ratio of recycled pulp, etc.) are set as requirements.

5. Worldwide launch of the Indonesian eco-label
Following the announcement of the start of the Indonesian eco-label at the GEN annual meeting held in Tokyo in October 2004, Indonesia achieved acceptance into the group of global eco-labels when it was officially recognized as a member at the GEN annual meeting of November 2006.

6. The Eco-label Capacity Building Project
The Eco-label Capacity Building Project was put into practice in order to promote the businesses involved with the eco-label so that citizen’s lifestyles will become sustainable, as well as to change from a society based on mass production, mass consumption, and mass disposal to an energy-conserving, sound material cycle society. It also aims to strengthen the implementation ability of promotion of eco-labeled products, internationally consistent eco-label standards, accreditation procedures etc.

7. Eco-label acquisition support for businesses
Indonesia’s Ministry of Industry and Trade and JICA held “The In-country Training Program on ECO-LABELING for Textile and Garment Industries (February 13-25, 2006)” at the Ministry of Industry and Trade’s Institute for Research and Development of Textile Industries in Bandung City, the center of the textile industry. The training was aimed at eco-label acquisition by domestic textile-related businesses (including Japanese-owned businesses) by giving them an understanding of the necessity of the eco-label and its advantages for businesses. After this, it is expected that textile-related businesses will proactively acquire eco-labels.

8. Production of Indonesian eco-labeled products
In June, July, and December of 2006, Indonesia’s first, second and third certified eco-labeled products (all printing paper) were produced (photograph 1).

VI. Reduction in environmental load accompanying the spread of eco-labeled products – examples

The area of Indonesia’s forests is approximately 120 million hectares. However, every year, approximately 2.1 million hectares vanish as a result of legal and
illegal economic development activities (Indonesia’s Environment Ministry, 2003).

The amount of paper products manufactured in 1995 was 3.43 million tons, but had doubled to 7.68 million tons by 2004. The increasing amount of paper products manufactured is one reason for the deforestation, and the probability that paper products are manufactured using illegally logged trees as raw material has also been pointed out by NGOs.

The manufactured amount of printing paper, for which eco-label product environmental standards were drawn up, was 1.06 million tons in 1995 and the amount sold domestically was 0.68 million tons. However, in 2004, the manufactured amount was 3.16 million tons and the amount sold domestically was 1.40 million tons. The manufactured amount roughly tripled, exceeding the growth in the manufactured amount of all paper products, the domestic sales volume roughly doubled, and the exported amount exceeded the domestic consumption. This shows that overseas consumers importing/buying printing paper from Indonesia, including Japanese consumers, have a huge environmental impact on Indonesia through their consumption of printing paper. Conversely, purchasers of Indonesian printing paper overseas can contribute to Indonesia’s environmental conservation by buying Indonesian eco-labeled products.

Meanwhile, with regard to tissue paper, the manufactured amount was 53,000 tons in 1995 and the amount sold domestically was 43,000 tons. However, in 2004, the manufactured amount was 184,000 tons and the amount sold domestically was 128,690 tons. Both manufactured amount and domestic sales volume had roughly tripled, and approximately one-third of the manufactured amount was exported. Due to lifestyle changes in Indonesia, the consumption of tissue paper can be expected to continue to increase in the future.

1. Prevention of illegal logging and protection from deforestation

When we attempt verification based on data from fiscal 2004 and assume that the market share of eco-labeled products (printing paper) is 20%, the product environmental standards can cover a manufactured amount of printing paper using 100% virgin pulp of approximately 600,000 tons, which is a wood (virgin pulpwood) input (consumption) of 1.72 million m$^3$, ensuring that this amount comes from legal and sustainable forests.

Next, if we assume a similar 20% market share under the same standards (over 70% recycled pulp) as those for printing paper in designated procurement items under the Japanese law, “Law Concerning the Promotion of Procurement of Eco-Friendly Goods and Services by the State and Other Entities” (hereinafter “Green Purchasing Law”), the consumption of virgin pulpwood becomes 0.52 million m$^3$.

In this case, by using recycled paper, the amount of virgin pulp is reduced by 70% and it becomes possible to reduce the amount of deforestation by 1.2 million m$^3$. 
The consumption of printing paper by state institutions (in Japan) was 5,037 tons in fiscal 2004. If the entire Japanese government had procured the whole amount of Indonesian eco-labeled products (printing paper), they would have used 14,500 m³ of legal wood (specific effects shown in table 4).

Furthermore, the market share of Eco Mark products targeted at by the Japanese Eco Mark system is 5%-25%.

A combination of factors, such as pressure from international environmental NGOs, procurement of legally logged timber due to Japan’s Green Purchasing Law, and strengthening of checks on the legality of timber by large-scale consumers in Japan can be expected to accelerate the strengthening of the eco-labeling system.

2. Reduction in waste

In Jakarta, 6000 tons of general waste is sent to final disposal sites per day. In 2005, the waste composition was approximately 55.4% organic waste, approximately 20.6% paper, and approximately 13.3% plastic waste (table 5).

If 50% of the disposed paper (approximately 20% of the entire waste) was collected and made into recycled paper, assuming that the yield when produc-
VII. Considerations

In this way, it is clear that the spread of eco-labeled products in the market can help to promote legal deforestation, control illegal logging, and promote environmentally friendly, sustainable forest management.

Furthermore, by generating demand for paper waste discarded as trash as a valuable resource in the production of recycled paper, separate collection of paper will be implemented, leading to an overall reduction in waste.

Currently, Japanese measures against illegal logging in Indonesia and other countries are limited to indirect support through contributions to international organizations as Official Development Assistance (ODA). However, the recent establishment of an eco-label system and the formulation of product environmental standards is the first attempt/outcome of the implementation of direct support through economic instruments and market mechanisms, with direct international technical cooperation (bilateral aid) using Japan’s ODA, directed at the illegal logging problem in Indonesia. The Indonesian government has been tackling the illegal logging problem seriously, and Forestry Minister Kaban of the current Yudhoyono government, is giving priority to the illegal logging problem in terms of forestry policy.

In order to make good use of the eco-label scheme and reduce illegal logging in the future, it is necessary to increase the number of certified eco-labeled products using legally logged wood from sustainable forests as raw materials and to increase the amount of eco-labeled products manufactured. The

<table>
<thead>
<tr>
<th></th>
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<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Kitchen waste (food scraps)</td>
<td>79.49</td>
<td>73.99</td>
<td>65.05</td>
<td>66.08</td>
<td>55.37</td>
</tr>
<tr>
<td>Paper</td>
<td>7.87</td>
<td>8.28</td>
<td>10.11</td>
<td>8.21</td>
<td>20.57</td>
</tr>
<tr>
<td>Wood/Bamboo</td>
<td>3.65</td>
<td>3.77</td>
<td>3.12</td>
<td>4.08</td>
<td>0.07</td>
</tr>
<tr>
<td>Textiles</td>
<td>2.40</td>
<td>3.16</td>
<td>2.45</td>
<td>1.77</td>
<td>0.61</td>
</tr>
<tr>
<td>Rubber/Leather</td>
<td>0.47</td>
<td>3.15</td>
<td>0.55</td>
<td>1.42</td>
<td>0.19</td>
</tr>
<tr>
<td>Plastic</td>
<td>3.67</td>
<td>5.44</td>
<td>11.08</td>
<td>15.51</td>
<td>13.25</td>
</tr>
<tr>
<td>Metal</td>
<td>1.37</td>
<td>2.08</td>
<td>1.90</td>
<td>2.21</td>
<td>1.06</td>
</tr>
<tr>
<td>Glass</td>
<td>0.50</td>
<td>1.77</td>
<td>1.63</td>
<td>0.71</td>
<td>1.91</td>
</tr>
<tr>
<td>Other</td>
<td>0.48</td>
<td>0.95</td>
<td>4.11</td>
<td>0.01</td>
<td>6.88</td>
</tr>
</tbody>
</table>

Note: * Data up to 2001 is based on 2004 CDM/JI Project Study – Study Report on Collection and Effective Use of Biogas from Waste Disposal Facilities in Indonesia (Kajima Corporation, Yachiyo Engineering Co., Ltd. March 2005). Data for 2005 is based on presentation material from the Cleansing Department of the Special Capital Territory of Jakarta in October 18, 2005.

In 2005, 6,000 tons of general waste were sent to final disposal sites per day.
price of eco-labeled products includes an environmental cost and the amount of products manufactured in the initial stages of setting up the system is small. Therefore, they are generally expensive when compared to conventional products and so tend to be avoided by buyers who focus on price.

On the other hand, it has become common for most Japanese businesses to demand not only that procured products, parts, and raw materials comply with the law from the viewpoint of Corporate Social Responsibility (CSR) and Green Purchasing, but also to demand consideration of the environment, and some businesses publish their procurement standards. Paper products are no exception to this, with most businesses fixing regulations for the procurement of environmentally friendly raw wood and paper. For this reason, these potential buyers have been waiting eagerly for eco-labeled products that can be trusted in terms of environmental conservation to appear on the market. If they actively give preference to buying eco-labeled products and the market share of eco-labeled products increases, prices will fall as a result and the market share can be expected to increase even further.

By using recycled paper, it is clear that the amount of waste paper will decrease from current levels; however, in order to reuse the accumulated material as material for recycling, it is necessary to ensure the quality and amount. The collection of valuables currently carried out by the informal sector must be changed into a systematic separation and collection of paper. To begin with, in order to separate waste at its source, environmental education aimed at separation at the household and office level is important, but as paper traditionally discarded as waste comes to be recognized as a valuable resource, it is believed that the implementation of paper separation and collection will be relatively easy.

Conclusion

With a great quantity of paper being imported into Japan from Indonesia, the Japanese government and businesses are formulating procurement policies for products such as paper, which include the intention to procure materials that comply with the regulations or are obtained legally from sustainable forests. When buyers/consumers import paper products from Indonesia, they can contribute to the conservation of Indonesia's environment, control of illegal logging, and reduction of waste by preferentially choosing Indonesian eco-labeled products or by pressing their trading partners in Indonesia to acquire an Indonesian eco-label. The preferential purchase of Indonesian eco-labeled products also encourages the trading partners (manufacturers, etc.) themselves to contribute to improving the environment.

In addition, by combining changes in consumer consciousness, such as encouraging “green purchasing,” with building a “green supply chain,” the construction of a sound material recycling society is promoted through eco-labeling.

Three years have passed since consideration of the eco-label system began in 2003. The Indonesian eco-label system has been established, product environmental standards have been determined, and the first certified product has been produced. Currently, raw materials form the core of products for which standards have been created, and hereafter it is necessary to target equipment that uses electricity such as electric lights, computers, photocopiers, and fax machines. The establishment of standards for these products is more complicated than for raw materials, but these products have to be considered when thinking about environmental improvement. Tasks for the future include ensuring transparency/credibility of the eco-label system as well as harmony and mutual recognition of eco-label standards throughout the world.

Notes

1. An outline of the Indonesian eco-label system is presented on the following website, http://www.menlh.go.id/ekolabel-sm/.

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——. 2000. JIS Q 14024 kankyou raberu oyobi sengen. Taiyu 1 kankyou raberu hyouji, gensoku oyobi tetsuzuki [Environmental Labels and Declarations. Type I environmental labeling – Principles and procedures].


Kankyoushou sougoukankyouseisakukyoku kankyouseizaika [Environment and Economy Division, Envi-


Possibilities and Limitations of Multilateral Network Cooperation in Higher Education in a Knowledge-based Society
—Case of the ASEAN University Network/Southeast Asia Engineering Education Development Network: AUN/SEED-Net

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Abstract

As globalization advances in today’s world, the environment surrounding higher education institutions in developing countries is changing drastically. In the paradigmatic shift from a conventional “industry-based society” to a “knowledge-based society,” where knowledge is a major impetus for economic growth, the role of higher education has become more crucial than ever. Higher education institutions are expected to fulfill the following three functions: (1) creation of knowledge and technology through research; (2) development of human resources with advanced degrees; and (3) sharing developed knowledge and technology with society. However, many higher education institutions in developing countries, which face serious issues such as a lack of high-quality faculty staff and limited access to new knowledge, are not able to fulfill their expected role.

The international community has provided support for higher education in various ways. Among these, a JICA project entitled “ASEAN University Network/Southeast Asia Engineering Education Development Network: AUN/SEED-Net” takes the unique approach of building a cooperation network covering 10 countries. In a case study of this project, we have attempted to analyze and discuss the possibilities, limitations, and barriers to multilateral network cooperation in executing the above missions.

The results of our analysis show that a network-based higher education support system has great potential to contribute to missions such as development of faculty staff, formation of an academic network encompassing national and international researchers, and improving access to the most recent knowledge and technology. To that end, it also turned out that the conditions or factors which determine success are network building among universities with common issues and properties, division of roles among participating universities in accordance with their conditions and needs, and realizing human resource exchange programs in a practical manner.

On the other hand, a network system within a limited range cannot by itself sufficiently respond to issues such as developing the educational and research environment in individual universities, improving their management capacity, and raising the level of teaching and research capabilities of domestic universities other than member universities. These goals require the individual efforts of each country. Ensuring the sustainability of the network through the establishment of effective organizational and financial infrastructures was identified as another challenge.

I. Introduction – The environment surrounding higher education and the role of higher education institutions

As globalization advances in today’s world, the environment surrounding higher education institutions in both developed and developing countries is changing drastically. Recent changes, such as the paradigmatic shift from an industry-based society to a knowledge-based society (OECD 2000, World Bank 1999), globalization of society/economy/information, and greater demands for higher education, deeply inter-
Acting with one another, greatly affect the role of higher education (JICA 2003).

Among those changes, what especially influences the role that higher education should fulfill is the fact that production and utilization of “knowledge” became a major impetus for economic growth due to the emergence of a knowledge-based society, and the technological innovation and development of information communication technology is strongly supporting this trend (World Bank 2002). The sudden increase in the number of academic papers, patent filings, and academic journals (Task Force on Higher Education and Society 2000, 69) should be seen as supporting phenomena confirming the advent of this knowledge-based society.

By this emergence of a knowledge-based society, the role that higher education should fulfill is becoming increasingly important for the social and economic development of each country. In this knowledge-based society, it is crucial to create and disseminate knowledge and to effectively and efficiently implement their application; the higher education institutions are expected to fulfill the central role in all such activities. These institutions are expected to fulfill three functions: (1) the creation of knowledge and technology through research; (2) the development of high-level human resources, such as scientists/engineers, professional personnel, faculty and business leaders; and (3) provide access to the knowledge/technology accumulated inside/outside the country, as well as applying it to issues in local areas and sharing it with society in general. A higher education institution is also a unique and essential organization wherein the above three functions can achieve a synergistic effect by integrating their implementation (World Bank 2002).

II. Where the issue stands and the purpose of this paper

However, many of developing countries have not yet dealt sufficiently with the appearance of this knowledge-based society or the globalization of society/economy/information elements, while the higher education institutions in those countries are not able to fulfill their expected roles either.

In recent years, the developed countries have invested more capital in the development of soft versus hard resources that strengthen the knowledge base, such as R & D (research and development) and the development of computer software. However, developing countries continue to make significantly less investment in the former (World Bank 2002). This fact is manifested in indicators such as the total amount of investment for R & D, the numbers of researchers/engineers, patent filings, and academic papers. For example, the investment for R & D against GDP is 2.84% in Japan, 2.48% in Korea, but only 0.10% in Thailand, and 0.06% in Myanmar. Also, the percentage of researchers and engineers per million in the population is only 149 in Thailand and 10 in Myanmar; both being drastically lower than 5620 in Japan and 2818 in Korea. The ratio of “the number of patent filings by non-residents” vs. “the number of patent filings by residents” indicates the vitality of the research activities engaged in by the country’s citizens; the ratio for high-income countries is 3.3 to 1 while that for low-income countries is 690 to 1 (World Bank 2002, table 5.12). Also, only Western Europe, North America, Japan and the Newly Industrializing Countries in East Asia are producing 84% of the total scientific papers in the world (Task Force on Higher Education on Society 2000, 69).

As such, many developing countries have not yet constructed a capacity to deal with a knowledge-based society especially in the fields of science and technology, therefore the possibility has been pointed out that a disparity between the developed and developing countries continues to grow.

Therefore, higher education institutions are expected to fulfill the core role in halting any further increase in this disparity by fully carrying out functions mentioned above if the developing countries are to survive in such a knowledge-based society. In reality, however, higher education institutions have many daunting issues. The Task Force, organized by the World Bank and UNESCO at the end of the 1990s and comprised of experts in higher education, raised the following five issues in the field of science and technology as major obstacles facing higher education institutions in developing countries: 1) the lack of education and research equipment and materials, such as laboratory equipment, facilities, and teaching materials; 2) the lack of faculty and researchers with sufficient qualification and competence; 3) the lack of students with sufficient academic ability and motivation; 4) the lack of connections with international/regional research communities; 5) the lack of access to the latest knowledge achieved in other countries (Task Force on Higher Education and Society 2000, 69-82). Furthermore there are other issues, such as curriculum improvement, advancement in management and administration, and the formulation of evaluation systems (JICA 2003 and other).
Under such circumstances, what types of support can the international society provide to the higher education sectors of developing countries? Higher educational support by Japan has traditionally been centered on the area of establishing, or upgrading, departments or courses in the science and engineering fields. However, in recent years, support has been expanded to the management element of universities and higher education administration fields. Approaches have also become more diverse (JICA 2003). Among those projects to support developing countries, the ASEAN University Network/Southeast Asia Engineering Education Development Network (AUN/SEED-Net) is a project that encompasses a large geographical area that includes multiple countries, and has the unique approach of network-style cooperation.

Numerous inter-university networks or joint ventures exist in the world, including the universities of developing countries; one such case being GUNI (Global University Network for Innovation).4 Also, a network such as USHEPIA (The University Science, Humanities and Engineering Partnerships in Africa)5 was established as a network within developing countries themselves. However, studies on the effects or versatility of these network-type ventures have not yet been fully amassed.

That said, this paper makes a case study of the AUN/SEED-Net Project, wherein we would like to analyze and examine how such wide-area network-type cooperation in the field of higher education can potentially contribute to the resolution of issues faced by higher education institutions in the development of knowledge-based societies and what their limitations and problems are, and then attempt to provide some useful lessons learned to consider how best to develop inter-university networks that can develop in other areas, or how international cooperation in the field of higher education should be achieved.

In the following chapters, we will first introduce the background and overview of the AUN/SEED-Net Project, elucidate what types of policies and strategies were utilized to achieve project goals, and discuss what types of achievement are currently recognized as a result. From the perspective of resolving issues with a focus on the five stated above, we will next examine what is and what is not effective in network-type cooperation. We also analyze the factors and conditions of those efforts. Lastly, we conclude with a discussion of the future issues in network-type cooperation and support provided to higher education institutions.

Lest our intentions here be misunderstood, please note that the goal of this paper is not to conduct an elaborate evaluation of the AUN/SEED-Net Project from the perspective of the five criteria of evaluation, but to analyze the significance and issues of network-type higher education cooperation.

III. Overview, strategy and achievements of the project

1. Background and overview of cooperation

AUN/SEED-Net is an inter-university network of engineering fields established in 2001, with support from Japan, as a sub-network of the ASEAN University Network (AUN).

The sudden drop in the currency value in Asian countries that began in Thailand in July of 1997, led to the onset of the Asia Economic Crisis where the economies of countries in East and Southeast Asia were devastated. Experts in every field conducted assorted analyses on the background and causes of this economic crisis.6 One major problem revealed was a lag in converting industries to high value-added industries, particularly while foreign investment, attracted by cheap labor, flowed in profusely, and the human resources required for such value-added industry was falling behind.7 Also, as stated in the previous chapter, the issue of not being ready to deal with globalization and the transition to a knowledge-based society had been the paramount issue, not only for Southeast Asian countries, but - even before the Asia Economic Crisis - for all the developing countries. In other words, the economic crisis simply exposed the existence and seriousness of the situation.

Thus, then Prime Minister Hashimoto proposed support for fostering expert human resources in the field of higher education in his remarks, “Japan/ASEAN Cooperation Towards the 21st Century” during the informal Japan/ASEAN Summit talks in 1997. His initiative was based on the Japanese government’s position that fostering human resources is indispensable for adapting to economic globalization (Ministry of Foreign Affairs 2003) and avoiding the repeat of such economic crises. AUN-SEED-Net is a network established by ASEAN countries, with the support of the Japanese government, to implement such initiatives and to foster human resources and improve research abilities in the field of engineering.

The AUN/SEED-Net consists of nineteen universities (refer to table 1) representing their countries...
selected by the ministries of education of ten countries in the region, and eleven Japanese supporting universities; it was established with the aim of contributing to the sustainable social-economic development of the ASEAN region through: fostering human resources in the engineering field; improving research capabilities; and strengthening academic exchange within the region. As to Japan’s involvement, from its establishment in 2001, it has fostered cooperation utilizing a technical cooperation scheme, such as the dispatch of experts and accepting trainees, and beginning in March 2003, a five-year technical cooperation project that targets the “improvement of educational and research capacities of member universities by mutual cooperation as well as cooperation from Japanese supporting universities” was started. The project lists four points as expected outputs: (1) improvement of the qualifications of junior faculty members of its network universities through obtaining higher degrees (doctorates/mas-

Table 1 Role of the universities participating in AUN-SEED-Net, rate of staff with higher degrees, and number of faculty members sent

<table>
<thead>
<tr>
<th>Country</th>
<th>University</th>
<th>Role in AUN/SEED-Net</th>
<th>Rate of staff with higher degrees (%)</th>
<th>Number of faculty members sent out</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td>Host University</td>
<td>Sending University</td>
<td>Doctorate</td>
</tr>
<tr>
<td>Singapore</td>
<td>Nanyang Technological University</td>
<td>○ (All fields)</td>
<td>×</td>
<td>n.a.</td>
</tr>
<tr>
<td></td>
<td>Singapore National University</td>
<td>○ (All fields)</td>
<td>×</td>
<td>n.a.</td>
</tr>
<tr>
<td>Malaysia</td>
<td>Universiti Sains Malaysia</td>
<td>○ (Material Engineering)</td>
<td></td>
<td>57.7</td>
</tr>
<tr>
<td></td>
<td>University of Malaya</td>
<td>○ (Manufacturing Engineering)</td>
<td></td>
<td>50.5</td>
</tr>
<tr>
<td>Thailand</td>
<td>Chulalongkorn University</td>
<td>○ (Civil Engineering, Electrical/Electronic Engineering)</td>
<td></td>
<td>59.3</td>
</tr>
<tr>
<td></td>
<td>King Mongkut’s Institute of Technology Ladkrabang</td>
<td>○ (Information and Communication Technology)</td>
<td></td>
<td>27.9</td>
</tr>
<tr>
<td></td>
<td>Burapha University</td>
<td>×</td>
<td></td>
<td>6.3</td>
</tr>
<tr>
<td>Indonesia</td>
<td>Bandung Institute of Technology</td>
<td>○ (Mechanical/Aeronautical Engineering)</td>
<td></td>
<td>45.5</td>
</tr>
<tr>
<td></td>
<td>Gadjah Mada University</td>
<td>○ (Geological Engineering)</td>
<td></td>
<td>25.9</td>
</tr>
<tr>
<td>Philippines</td>
<td>De La Salle University</td>
<td>○ (Chemical Engineering)</td>
<td></td>
<td>22.1</td>
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<td></td>
<td>University of the Philippines Diliman</td>
<td>○ (Environmental Engineering)</td>
<td></td>
<td>24.8</td>
</tr>
<tr>
<td>Brunei</td>
<td>Institute of Technology Brunei</td>
<td>×</td>
<td></td>
<td>26.3</td>
</tr>
<tr>
<td></td>
<td>Brunei Darussalam University</td>
<td>×</td>
<td></td>
<td>76.3</td>
</tr>
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<td>Vietnam</td>
<td>Hanoi University of Technology</td>
<td>×</td>
<td></td>
<td>25.6</td>
</tr>
<tr>
<td></td>
<td>Ho Chi Minh City University of Technology</td>
<td>×</td>
<td></td>
<td>29.3</td>
</tr>
<tr>
<td>Cambodia</td>
<td>Cambodia Institute of Technology</td>
<td>×</td>
<td></td>
<td>7.1</td>
</tr>
<tr>
<td>Laos</td>
<td>National University of Laos</td>
<td>×</td>
<td></td>
<td>2.9</td>
</tr>
<tr>
<td>Myanmar</td>
<td>Yangon University</td>
<td>×</td>
<td></td>
<td>6.9</td>
</tr>
<tr>
<td></td>
<td>Yangon Technological University</td>
<td>×</td>
<td></td>
<td>4.6</td>
</tr>
</tbody>
</table>

Note: “Host University”: University in charge of a specific field that accepts international students from other member universities to its graduate level international programs, while being a host to the activities in the field of responsibility. ○ indicates pertinent university; the field of responsibility is in parenthesis.

“Sending University”: University that sends its faculty members out to other member universities for obtaining higher degrees. ○ indicates pertinent university.

“Rate of staff with higher degrees” is that of the engineering department and the figure is for the year 2001.

“Number of faculty members sent out” is the total from FY2001 to 2005

Source: Prepared by the authors based on the materials on the project [As for “Rate of staff with higher degrees”, the figure was derived from the AUN/SEED-Net and JICA (2002)].
Figure 1  Project activities (Conceptual scheme)

Table 2  Expected outputs, main activities/indicators/achievements

<table>
<thead>
<tr>
<th>Expected achievements</th>
<th>Main activities</th>
<th>Main indicators</th>
<th>Achievements</th>
</tr>
</thead>
<tbody>
<tr>
<td>(1) Improvement of the qualifications of faculty of member universities through obtaining higher degrees (doctorates/masters)</td>
<td>Implementation of a masters-level study-abroad program within the region</td>
<td>Number of scholarships</td>
<td>256 recipients</td>
</tr>
<tr>
<td></td>
<td>Implementation of a sandwich doctorate level study-abroad program,</td>
<td>Number of faculty members who obtained a masters degree</td>
<td>114 faculty members</td>
</tr>
<tr>
<td></td>
<td>doctorate level study-abroad program to Japan</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>Number of scholarships</td>
<td>89 recipients</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Number of faculty members who obtained doctorate degrees</td>
<td>4 faculty members</td>
</tr>
<tr>
<td>(2) Improvement of doctorate and masters-level international programs at host universities</td>
<td>Implementation of collaborative research, provision of equipment, joint supervision through the dispatch of Japanese faculty members and ASEAN faculty members’ visits to Japan</td>
<td>Number of collaborative research projects</td>
<td>140 projects</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Number of research papers published in academic journals by master and doctoral course students</td>
<td>36 papers</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Number of presentations of research papers by master and doctoral course students at conferences, etc.</td>
<td>108 presentations</td>
</tr>
<tr>
<td>(3) Implementation of joint activities among member universities and stronger human linkages</td>
<td>Holding regional field-wise seminars in the region</td>
<td>Number of seminars (number of participants)</td>
<td>61 times (total of 3,000 participants)</td>
</tr>
<tr>
<td></td>
<td>Implementation of visits within member universities</td>
<td>Number of visiting faculty members</td>
<td>15 faculty members</td>
</tr>
<tr>
<td></td>
<td>Strengthening cooperation among universities</td>
<td>Number of inter-university agreements between member universities/Japanese universities initiated by the project</td>
<td>3 agreements (preexisting agreements 44)</td>
</tr>
<tr>
<td>(4) Establishment of management and administration system of the network and information management system</td>
<td>Construction of management and administration system of the network, establishment of information management/dissemination and communication systems</td>
<td>Number of website accesses</td>
<td>20,575 hits (after March, 2005)</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Establishment of operations administration by steering committee and secretariat</td>
<td>Completed</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Number of monitoring activities at member universities</td>
<td>Minimum 9 times each year</td>
</tr>
</tbody>
</table>

Note: Only quantitative indicators are presented here for “Main indicators.” Numbers shown in “Achievements” is as of the end of August, 2006 (except for the number of research papers and presentations, which includes results up to November, 2005).

Source: Prepared by the authors.
Case Studies

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divided into nine fundamental fields of engineering. Target fields for project cooperation were broadly based on the activities, which could also strengthen the network program in the region as the core of the network. Subsequently, they decided to start and set this study-abroad program at the host universities, and enable them to receive a sufficient amount of direct instruction from their co-supervisors in Japan.

2. Strategy

Through discussions between related parties, starting from the preparation phase of the network startup, various strategies were formulated and implemented for achieving the aforementioned project goals and outputs.

(1) Construction of the study-abroad program in the region

For many higher education institutions in developing countries, significant issues have been that faculty members lack sufficient qualifications and educational/research abilities (Task Force on Higher Education and Society 2000), and the situation was the same for engineering departments of AUN/SEED-Net member universities. The rate of staff with higher degrees in Singapore, Thailand and Malaysia was already high, but for Indonesia, the Philippines, Cambodia, Laos, Myanmar, and Vietnam, even at the AUN/SEED-Net member universities - which are top universities in each country - the rate of staff with higher degrees was not necessarily significant (refer to table 1 for the rate of staff with higher degrees of each university), therefore, the improvement of education/research abilities by having more faculty members obtain higher degrees was recognized by related parties as one of the top priorities. What was suggested and constructed to deal with such issues was the “study-abroad program” in the region that sends university faculty members to graduate programs of other member universities within the region to have them obtain higher degrees. For ASEAN countries, the major destinations for their study-abroad programs used to be advanced countries such as Europe, the U.S. or Japan, but AUN/SEED-Net saw that some universities in the region were now able to provide graduate level international programs. Subsequently, they decided to start and set this study-abroad program in the region as the core of the network’s activities, which could also strengthen the network within the region.

(2) Construction of a host structure by field

Target fields for project cooperation were broadly divided into nine fundamental fields of engineering, and the university that plays a leading role in the activities in each field was designated as the “host university.” The system was set up so that these host universities fulfill a central role as “hubs” of the regions in various activities, such as accepting the international students of their particular fields to their graduate programs, hosting seminars in their pertinent field, implementing collaborative research, etc. (Refer to table 1 for host universities and their field of responsibilities).

(3) Construction of collaborative research structure

For most host universities, except for the two universities in Singapore, it was the first time for them to accept such a large number of international students to their graduate-level international programs. Therefore, it was acknowledged that it is important to improve the quality of the graduate programs at the host universities by providing various support centering on the academic technical guidance and advice from Japanese supporting universities. What is thought to be a strategy for effectively implementing this was the construction of a collaborative research structure. In other words, the member universities will jointly select research areas in each field that have higher priorities for ASEAN countries. The research topics of international students are determined within this area of collaborative research. It was structured with the aim of maintaining a certain level of research quality by requiring a faculty member from Japanese supporting universities always participating as a joint supervisor/researcher in these collaborative research activities. Also, for the doctorate programs, the “sandwich” system was introduced, where a student was provided with a chance to spend a maximum of one year in Japan within their 3 years of study, so that the students could continue their research utilizing the most advanced equipment not available at the host universities, and enable them to receive a sufficient amount of direct instruction from their co-supervisors in Japan.

This collaborative research structure was also an attempt to further research that is truly needed by the ASEAN region and its member countries by selecting and implementing the prioritized research areas jointly. Also, it was an attempt for Japanese supporting universities to strengthen the education/research capacities as an organization by technical instruction provided through collaborative research, which does not merely end in the support to individuals through co-supervision.

By constructing both study-abroad program in...
the region and collaborative research structures simultaneously, a mechanism was constructed that could realize two purposes at the same time: supporting faculty members without masters or doctorate degrees to obtain higher degrees by sending them to study abroad, and improve the education/research abilities of host universities by accepting those students.

3. Outputs from the ongoing cooperation

We can summarize the major outputs that were generated from the ongoing project so far in the following three points (Refer to table 2 for the main indicators and outputs).

(1) “Consortium of Graduate Schools of Engineering” that have master/doctorate level international programs in the region was established

Eight host universities established international programs by hosting nine fundamental fields in engineering and formulated a consortium, therefore realizing one “graduate school of engineering” in the region as an aggregate that covers broad areas of engineering while having multiple bases in the different geographical locations. This allowed them to foster the human resources that can solve the problems prevalent in the ASEAN region and its member countries without having to rely on the traditional method of studying abroad in Europe, the U.S. or Japan, but to remain within their own area.9

(2) Fostering young faculty members of the member universities by having them obtain higher degrees within the region and in Japan

By the end of August 2006, a total of 256 masters level and 89 doctorate level study-abroad opportunities were made available to faculty of the member universities (or future faculty members). There had already been 114 masters and four doctorates awarded, while a total of 160 in the region and twenty-seven in Japan were still studying at that time. Including the future number of new awards, we estimated that the total would exceed 300 faculty members to be given opportunities to study abroad at the masters level and 110 at the doctorate level by the end of the five-year project period. Some of the graduates of masters programs were given further support by this project to proceed to the doctorate program, aiming for even higher degrees. However, others returned to their countries and teaching posts at the universities that sent them. By these measures, the rate of staff with higher degrees rose, and the education/research capacities of the member universities were improved.

(3) Formulation of an academic network in the engineering field through study abroad by faculty members, and participation in collaborative research and seminars

Faculty members studying abroad in the region and in Japan, and participating in collaborative research and seminars created human linkages between ASEAN region universities, and with world-class universities in Japan. Also, by having both member universities and Japanese supporting universities participating in the network, where each university participates as an organization, thus the network did not end in individual-based connections, but formulated a solid web of relationships between universities.

IV. Discussions

1. Contribution to resolving issues higher education institutions currently face

First, we would like to examine how the AUN/SEED-Net Project contributed to resolving the problems stated at the beginning of this paper as the issues that are faced by higher education institutions of developing countries, especially i) the lack of education and research equipment and material, such as laboratory equipment, facilities, and teaching materials, ii) the lack of faculty members and researchers with sufficient qualification and competence, iii) the lack of students with sufficient academic ability and motivation, iv) the lack of connections with international/regional research communities, and v) the lack of access to the latest knowledge achieved in the other countries.

(1) Strengthening the connections with international/regional research communities and gaining access to the latest knowledge achieved in the other countries

The biggest contribution focused upon the lack of connections with international/regional research communities (iv), and the lack of access to the latest knowledge achieved in the other countries (v). Member universities have formulated connections with other universities in the ASEAN region through participation in this network, while creating a network with world-class support universities in Japan. In those connections, the faculty members of the network universities gained access to the latest knowledge achieved in the other countries, including
Japan, through participation in intra-regional seminars and/or collaborative research (Task Force on Higher Education and Society 2000, 43, 79) while providing them with opportunities to review the educational and research standards of their own universities and revitalize their research activities. These are all areas wherein network-type cooperation can best perform because its nature is to promote the formulation of networks with other universities.

(2) Fostering faculty and researchers with sufficient qualifications and competence
Furthermore, for the circumstance of a lack of faculty members and researchers with sufficient qualification and competence (ii), the network contributed greatly through the fostering of junior faculty members with study-abroad programs within the region and in Japan. Also, this project was successful at efficiently achieving outputs with available resources by utilizing the characteristics of network-type cooperation from two perspectives. One was the realization of study-abroad programs that cost less. Compared to the traditional study-abroad programs to Japan, Europe, or the U.S., the study abroad in the region costs less in all aspects, including living, travel and educational expenses, and the total cost for the whole program is only about 1/3 that of traditional programs. Also, it is studying abroad in neighboring countries that have relatively similar cultures, and in some cases, even the spoken languages were similar, e.g., Malaysia with Indonesia and Thailand with Laos. The time spent on “adaptation to a different culture” by students could be relatively less compared to a program to other cultures, thus a shortening of the whole program can be expected as a result.

Also, what is remarkable about this network is that it incorporates a “host university system” that assigned the one responsible field to each host university, and focused investment on such areas. In other words, if the target were to be all the fields in the whole engineering department of a specific university, it would require significant time and funds. However, this project aimed at the formulation of a “COE (Center of Excellence)” in each field within the whole region, not within a country, by selecting a department in each field that was already relatively strong among member universities and focused provision of resources on that specific department. This enables students to obtain higher degrees in all these fields within and for the ASEAN region as a whole.

As described above, this project was able to efficiently deal with this issue by the effective utilization of the resources by maximizing the characteristics of network-type cooperation versus cooperation only to individual universities.

(3) Improvement of abilities to deal with common issues and assets
Also, it is noteworthy that this regional network also heightened the capacities to deal with common problems in the region through collaborative research, such as the prevention of disasters and environmental degradation. For example, areas always susceptible to disasters from earthquakes or volcanic eruptions,

<table>
<thead>
<tr>
<th>Countries</th>
<th>GDP per person ($)</th>
<th>Agriculture</th>
<th>Mining and manufacturing</th>
<th>Service</th>
<th>Poverty under 1 US dollar (%)</th>
<th>Gross higher education enrollment ratio (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Brunei</td>
<td>12,973</td>
<td>1.9</td>
<td>58.7</td>
<td>39.4</td>
<td>n.a.</td>
<td>13</td>
</tr>
<tr>
<td>Cambodia</td>
<td>305</td>
<td>35.6</td>
<td>27.9</td>
<td>36.5</td>
<td>34.1</td>
<td>3</td>
</tr>
<tr>
<td>Indonesia</td>
<td>977</td>
<td>16.1</td>
<td>43.4</td>
<td>40.5</td>
<td>7.5</td>
<td>16</td>
</tr>
<tr>
<td>Laos</td>
<td>364</td>
<td>50.2</td>
<td>24.6</td>
<td>25.1</td>
<td>26.3</td>
<td>5</td>
</tr>
<tr>
<td>Malaysia</td>
<td>4,141</td>
<td>8.1</td>
<td>41.6</td>
<td>50.4</td>
<td>2.0</td>
<td>32</td>
</tr>
<tr>
<td>Myanmar</td>
<td>179</td>
<td>42.9</td>
<td>17.3</td>
<td>39.7</td>
<td>n.a.</td>
<td>11</td>
</tr>
<tr>
<td>Philippines</td>
<td>978</td>
<td>20.1</td>
<td>33.8</td>
<td>46.2</td>
<td>15.5</td>
<td>29</td>
</tr>
<tr>
<td>Singapore</td>
<td>21,829</td>
<td>0.1</td>
<td>32.9</td>
<td>67.0</td>
<td>0</td>
<td>n.a.</td>
</tr>
<tr>
<td>Thailand</td>
<td>2,241</td>
<td>10.2</td>
<td>44.7</td>
<td>45.1</td>
<td>2.0</td>
<td>40</td>
</tr>
<tr>
<td>Vietnam</td>
<td>481</td>
<td>21.8</td>
<td>37.4</td>
<td>40.8</td>
<td>3.8</td>
<td>10</td>
</tr>
</tbody>
</table>

Note: Based primarily on the numbers of 2003. For “Industry structure,” the number is based on 2002. `Poverty under 1 US dollar` is the percentage of the population that is forced to live under 1 US dollar per day.
Source: Prepared by the authors based on the database of the ASEAN Secretariat (2004) and UNESCO Institute of Statistics
such as Indonesia, the Philippines, and Malaysia are proactively pursuing collaborative research in the field of geological engineering to share one another’s experiences and knowledge as well as supplementing technologies. On the other hand, the ASEAN region is a rich storehouse of next-generation natural resources, including geothermal and solar energy that are candidates for next-generation energy alternatives and natural raw materials that are of minimal environmental load, such as cassava, palm, rubber, and melaleuca. The role that the inter-university network can play is to implement collaborative research with countries in the region in order to put these common “assets” to practical use. In fact, collaborative research on the application of solar energy to food processing in the mechanical engineering field, and the utilization of natural fibers for reinforced plastics in the material engineering field have already been conducted. As described above, the response capabilities of the countries in the region to common issues and assets are more effectively and efficiently prepared by working on them together through the AUN-SEED-Net.

(4) Enhancement of education and research equipment and material, such as laboratory equipment, facilities, and teaching materials, the fostering of students with sufficient academic ability, motivation, etc.

On the other hand, for the issues that include rectifying the lack of education and research equipment and material, such as laboratory equipment, facilities, and teaching materials (i), and fostering students with sufficient academic ability and motivation by enhancing primary and secondary education (iii), we cannot find any specific index that would indicate the efficacy of any direct contribution under the current situation, and they need to be monitored as secondary effects of other issues that make major contributions as described above. Also, the improvement of management and administrative capacities of each university also remains as a difficulty for the network to directly assist in.

2. Factors for success

We think that there are multiple factors that actually functioned and generated the results, but here we would like to list three factors that could be most helpful to other networks or future cooperation.

(1) Existence of common issues within the ASEAN region

As noted above, the fact that multiple countries in the region possessed common issues and assets and the network enabled those countries to cooperatively and effectively deal with them is one of the more significant aspects of this network. This fact can also be pointed out as one of the major factors for a network to function properly. In other words, the existence of common issues and assets generated merits for them to share in each other’s experience and knowledge by formulating a network between universities that transcends the boundaries of countries and conducting collaborative research and projects. As a result, we can conclude that the motivation for and meaning of network formulation were heightened, and that the formulated network would continue to function.

(2) Division of roles depending upon the development phase of each country

As described above, ASEAN countries shared a certain number of common issues. However, it is also a fact that the countries were also very diverse at the economic/social development level; included in this regard is the research/education level due to historical backgrounds of each country (Refer to table 3 for economic index and education index of each country).

Under such a situation, this project assigned a different role to each university based on the situation, level, and needs of each country within the network; it is most clearly evident in the main program: obtaining higher degrees. While member universities from the original ASEAN member countries of Singapore, Malaysia, Thailand, the Philippines, and Indonesia (except for Brunei) became host universities, member universities from the late-comer countries, Cambodia, Laos, Myanmar, and Vietnam became “Sending-out universities.” At the same time, four original countries, except Singapore, also sent out their faculty members to other countries, while functioning as a host university. The number of students sent out for study abroad varies inversely to the rate of staff with higher degrees, and the highest number is from Indonesia, then the Philippines, Thailand, and Malaysia in that order, which reflects the needs of each country (Refer to table 1 for the number of faculty members sent out by country).

Therefore, opportunities are given to the university and countries where the higher study abroad need exists as indicated by a low rate of higher degrees held by university faculty. Meanwhile, if the countries and universities that already have graduate schools in their institutions seek to internationalize and enhance their graduate education by accepting international students, technical support is provided.
by Japan to help improve their quality. Furthermore, depending upon the financial capability of each country/university cost sharing started, as seen in the two universities in Singapore that provide their own scholarships and other host universities exempting a portion of their tuitions. As seen here, each participating country and university - according to its needs and capacities - takes its appropriate role in sharing and fulfilling each role sufficiently, and mutually supplementing and reinforcing each other, resulting in the maximization of achievement in the network’s activities.

(3) Substantive human exchanges
Another important point is that this program accomplished substantive exchange activities by setting intra-regional study-abroad programs as a core of the network activities. A five-year total of over 400 faculty members stayed an extended period of 2 or 3 years in member universities, interacting with: professors in host universities; co-supervisors from Japanese supporting universities; and/or other international students from other member countries. Meanwhile, for collaborative research projects and intra-regional seminars, active professors were positioned as leaders of the activities and faculty of member universities gained opportunities to know one another deeply through study-abroad programs and other supplemental collaborative research programs, thus generating further joint projects, including more new collaborative research. Also, those AUN/SEED-Net students, having “eaten from the same bowl” for 2 or 3 years through studying abroad, are strong partners for the future and the network is strengthened by those alumni. While in other academic networks, short-term exchange programs of personnel or students, or short-term research programs are at the center of their projects, AUN/SEED-Net placed its core in a long-term study-abroad program, therefore creating very strong human relations and inter-university connections that produced substantial results.

V. Conclusion and remaining issues
As we have discussed so far, this case study of the AUN/SEED-Net demonstrated that network-type cooperation covering a wide region has a high potentiality of contributing to solving several important issues faced by developing countries in the current knowledge-based society, especially in the area of fostering faculty and researchers with sufficient qualifications and competence, creating networks with international/regional research communities, and gaining access to the latest knowledge achieved in the other countries. The factors and conditions for success are concluded to be: to create the network among countries/universities that share common issues; participating countries/universities should be able to appropriately fulfill the role suited to each country/university’s needs and conditions; and to realize substantive exchanges of human resources.

On the other hand, the issues in the areas such as fostering students with sufficient academic ability and motivation, and enhancing education and research equipment and material remain difficult issues to which the network cannot directly contribute. Also, each country needs to separately work on and solve various other issues, including the upgrading of their curricula and the improvement of management and administrative skills.

Also, in order to foster researchers/engineers with high-level knowledge and technology, it is indispensable to establish graduate programs in their own country. For participating universities of the AUN/SEED-Net, it is expected that each member university own high-level graduate programs, lead engineering education/research of one’s own country, and be able to catch up with knowledge/technologies of advanced countries, thereby developing into the COE of their country. It is extremely important to construct the capacities to foster researchers and engineers needed by their own nations using the network as a foundation, and establish “Scientific Self-reliance” (Task Force on Higher Education and Society 2000, 79).

Also, the above discussion is only related to the fostering of the network’s participating universities. When the perspective is moved to the level of each country, it is essential to improve the capacities of other domestic universities, other than the network’s participating universities, and to enhance the general level of the whole of their engineering education/research. These issues cannot be solved only by a regional network. Each country, while receiving international support, needs to continue its efforts centering on a COE. Numerous other issues need to be reviewed and dealt with by each country, including its relationship with and measures vis-à-vis the industrial world, containing brain drain, and the selection of a field that is relatively advanced appropriate for concentrated investment of resources.

Also, the sustainability of the network itself should also be pointed out as an issue. In particular, factors such as the establishment of an organizational base by founding a regional academic society and a
financial foundation with cost sharing by participating universities and countries would be important conditions for securing sustainability for any network.

As discussed in this paper, in order to achieve the final goal of establishing higher education institutions that nurture needed researchers/engineers for their countries and raising the general level of all the domestic higher education institutions takes an enormous amount of time and effort, requires strong commitment and steady dedication, while it is absolutely necessary to acquire support from advanced countries and neighboring countries. Actually, it may appear, in the short term, that it would be less expensive and cumbersome to simply “buy” necessary technologies from other countries. However, as stated at the beginning of this paper, we can forecast that the role that “knowledge” plays in social and economic development will become increasingly stronger as the knowledge society progresses. For developing countries to survive in such an environment, it is indispensable to establish strong higher education institutions in their own countries, create knowledge and technologies on their own, and have the ability to appropriately make choices regarding the cutting-edge technology that is produced in the global society.

Acknowledgement/additional statement

We would like to take this opportunity to express our respect and gratitude to all the related parties of this project in the past and present. Also, we would like to thank the project expert team and related parties of the JICA headquarters who gave us many beneficial comments during the writing of this paper. Please note that the opinions expressed in this paper are the individual personal views of the authors and do not necessarily represent the views of organizations to which we belong.

Notes

1. The knowledge-based society is one where the amount and utilization of knowledge, including technical knowledge or knowledge about attitudes, became the major decisive factor in economic development versus physical capital value, this last traditionally avowed as a major factor in economic development. After the late 1990’s, institutions such as OECD and World Bank pointed out the transition of the world from a industry-based to knowledge-based society
2. For example, the publication of scientific papers in the world has doubled in speed in the last 20 years, and the number of academic journals doubles every 5 years. The number of patent filings in both advanced and developing countries are also steadily increasing. Comparing 1986 and 1996, the number of patent filings by residents in Brazil, India and the U.S. each increased by 42%, 66%, and 71% respectively.
4. It was established by UNESCO and Technological University of Catalonia in 1999 after the World Higher Education Conference in 1998. The network consists of over one-hundred research institutions, universities and other higher education institutions. It conducts the creation of annual reports, hosting of conferences, and the implementation of investigation and research related to global higher education. http://www.guni-rmies.net/.
5. The network consists of eight universities within 7 countries of the African Continent. It supports programs such as study abroad for faculty members of the member institutions at the master and doctorate levels. Originally, it was limited to the science and engineering fields, but subsequently has expanded its activities to the field of Humanities. http://web.uct.ac.za/misc/iapo/ushepia/bg.htm.
6. Please refer to (Takei and Fukushima 1998), (Keio University Regional Research Center 2002) as examples.
7. “Infrastructure Improvement and Human Resources Development towards Sustainable Development in East Asia,” Keynote speech by Shozo Kitta, Executive Director of the JBIC Institute at the seminar hosted by the Pacific Resource Exchange Center.
8. Eleven universities: Hokkaido University, The University of Tokyo, Tokyo Institute of Technology, National Graduate Institute for Policy Studies, Waseda University, Keio University, Tokai University, Shibaura Institute of Technology, Toyohashi University of Technology, Kyoto University, Kyusyu University.
9. The inaugural class is now in the final review period for intra-regional doctorate degree awards, but, for example, universities in Thailand often include Japanese advisors as external committee members and the quality can be said to be guaranteed.
10. Task Force on Higher Education and Society also
pointed out the importance of interchanges with researchers in other countries, exchange programs of faculty members and master and doctorate students, international conferences, participation in collaborative research, construction of a higher educational institution network, regional level cooperation in order to fortify the connections with research institutions and researchers in other countries. The Task Force also pointed out the necessity of “supernational public investment” for achieving such goals.

11. This figure is for the total cost for the whole study-abroad program (average), including: living, educational, and book expenses comparing the master degree study-abroad program in Japan by the JICA Long-term Training Program to the AUN/SEED-Net study-abroad program in the region; the figures are merely a comparison of expenses only and not that of cost-effectiveness.

12. On the other hand, there are implicit merits to studying in different cultures, including the acquisition of diverse research cultures, improvement of adapting abilities through adjustment to different cultures, etc., though we cannot necessarily judge which is better. The comparison in this paper is solely that of costs.

13. Chulalongkorn University is responsible for two fields.

14. After the earthquake occurred in the Indian Ocean in December, 2004, there was a workshop themed to discuss and exchange knowledge regarding disaster prevention from the tsunami that hit the countries in the region such as Indonesia, Malaysia and Thailand. This reconfirms the significance and necessity of a regional network.

15. Cassava is a raw plant material for plastic, palm is for palm oil and activated carbon, rubber for natural rubber, and melaleuca has recently gained attention as an environment-friendly natural material that is usable for woody biomass fuel.

16. Two universities in Brunei are participating in the network, mostly by their participation in the seminars.

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Possibilities and Limitations of Multilateral Network Cooperation in Higher Education in a Knowledge-based Society  
—Case of the ASEAN University Network/Southeast Asia Engineering Education Development Network: AUN/SEED-Net


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Abstract

A women’s association in Bantayan-Town, Cebu province, Philippines, has attempted to generate income through sausage production with guidance on blending and processing given by a domestic administrative agency. However, the women were not able to adapt to external changes, such as increases in the unit price of materials due to inflation and increases in costs associated with the provided building and equipment, and their financial condition remained poor.

The Japan Overseas Cooperation Volunteers (JOCV) involved in this income generation activity analyzed the gap between ideal conditions and the current reality in terms of various management methods and held a workshop on cost accounting methods as their prioritized support activity.

At the workshop, about 20 members who participated in sausage production learned the basic method of cost accounting through lectures, practical training, and exercises, and they have been able to use it for management of this association.

As a result, this women’s association can now respond to changes in external factors such as increases in the unit cost of materials, increases in expenditures, etc. They voluntarily calculate the prime cost of a newly developed product and set the sales price above the breakeven point, becoming more motivated about improving their cash income.

This activity revealed that assistance for income generation requires not only the provision of the technology and equipment necessary for production, but also training in management methods. In particular, cost accounting relates directly to cash income, which is the ultimate goal of any income generation activity, and has proved to be a management method that must be given high priority.

I. Introduction

"Income generation activity" is one of the most popular community development approaches in developing countries. Many of these activities utilize local material and process them into new products, and then sell them in order to generate participants’ cash income. Today, many development organizations adopt this approach and encourage these activities by providing financial and technical assistance. This approach provided more opportunities to rural villages that struggle to develop local industry and helps local residents increase their cash income.

However, many examples revealed that these efforts eventually ended in failure. Even when these activities received equipment and technical assis-
tance, their business collapsed after support from the donor agency ended. It is said that the cause of this situation is an over-emphasis on production, focusing on production know-how and providing equipment only, while operational skills and business management skills were left behind.\(^1\)

Although the term “management method” may sound simple enough, it does, in fact, connect to a broad range of aspects of business management, including some that are quite complicated and which require expertise. Therefore, it would seem that local residents may have difficulty learning these skills.

Two Japan Overseas Cooperation Volunteers (JOCV) worked for an income generation activity (photo 1), a sausage production and marketing project in a local women’s cooperative called the Ban-tayan Rural Improvement Club Multi-Purpose Cooperative (BRIC-MPC).\(^2\) It is one of 67 identified projects of “The Cebu Socio-Economic Empowerment and Development Project,” a technical cooperation project implemented by JICA in 1999. The two JOCVs thought they would be able to cooperate with the BRIC-MPC through grassroots activities as JOCVs. Eventually, they found that cost-accounting is the most important management method for the organization, and they conducted a series of training activities so that its members could learn this accounting method.

I. History of the income generation activities

In August of 2001, the BRIC-MPC started the income generation activity, which is sausage production and marketing. In the beginning, the BRIC-MPC members received training in sausage processing conducted by the Technical Education and Skills Development Authority (TESDA) and received its recipe. Then they launched their venture using these skills. In October of 2003, about two years after beginning the business, the Japanese government supplied a building and processing equipment to the organization under the JICA technical cooperation “Cebu Socio-Economic Empowerment Development Project.” In April of 2004, a JOCV was dispatched to assist them.

A range of issues became clear after the JOCV began working closely with the BRIC-MPC members. In fact, the products were highly in demand by local residents and sold well,\(^3\) but the BRIC-MPC accounting notebook showed that their bank balance\(^4\) kept decreasing. The BRIC-MPC members complained about their diminishing wages, and they were always arguing with the BRIC-MPC officials.\(^5\) The JOCV started to coordinate with a JOCV who was assigned to a different region under the situation.\(^6\)

II. Background of the issues

The sausages are a traditional processed-meat product locally known as “longanisa” (photo 2). When the income generation activity started in August of 2001, each pack of ten sausages (250g) was sold for 32 pesos. This price was suggested by TESDA during the training. While members learned how to make the sausages, the matter of cost-accounting was ignored.

Moreover, their financial condition had been changing ever since JICA provided a building and processing equipment in October of 2003. Until that
III. Approach taken to resolve the issues

As mentioned above, the BRIC-MPC managed to overcome the immediate crisis, but the next necessary step was to promote the self-reliance of the organization. Firstly, JOCVs analyzed obstacles in its development. They identified all the contents for each different management method, and analyzed the gap between ideal conditions and the current reality by comparing each of the listed contents. Then, they identified specific steps that could bring the BRIC-MPC closer to the ideal condition (table 1). Secondly, JOCVs prioritized cost-accounting among the broad-ranging management methods.

JOCVs decide their priority based on the BRIC-MPC’s self-reliance and the sustainability of this income generation activity. And they thought that would be the one they have to take action on. As for now, the most critical issue is that the BRIC-MPC members can not accurately calculate the production cost. They cannot deal with any of the external changes in the business environment without cost-accounting. This is not just about an ongoing drop in the deposit balance, as was the case this time, but also about a range of adverse side effects including a deterioration in money-related fairness and transparency, eventually leading to a collapse of confidence and trust amongst their members.

And even if they wish to develop new products—this is actually very important for sustainable operation—they would not be able to set an appropriate sales price. The JOCVs therefore thought that the BRIC-MPC members must learn cost-accounting in order to promote self-reliance in the organization.

Based on the analysis, the JOCVs set up a cost-accounting workshop. The workshop was not just for officials, but for all members involved in sausage production. The JOCVs checked data such as the amount of ingredients and materials used, the unit price for each, and the amount of production, and then carried out calculations. As a result, it became clear that a sausage pack that sold for 32 pesos actually cost 42 pesos to produce. The officials explained this to the members, and decided to fix the price at 42 pesos.7 Fortunately, the rise in the sales price did not lead to a drop in sales, and effectively applied the brakes to the decline in the deposit balance.8
### Table 1 Problem analysis

<table>
<thead>
<tr>
<th>Management method</th>
<th>Current state of the BRIC-MPC</th>
<th>Ideal condition</th>
<th>Actions for approaching the ideal condition</th>
</tr>
</thead>
<tbody>
<tr>
<td>Safety management</td>
<td>Fairly low awareness of work and food safety.</td>
<td>Ensure work and food safety.</td>
<td>Gain basic knowledge about work and food safety.</td>
</tr>
<tr>
<td>Procurement</td>
<td>Insufficient examination and comparison of suppliers. Sometimes the purchasing price is higher</td>
<td>Select the optimum suppliers, and buy ingredients and material at the appropriate price.</td>
<td>Learn how to select suppliers in conjunction with cost accounting.</td>
</tr>
<tr>
<td>Production management</td>
<td>Processing was conducted only twice a month. There is no set format for recording data such as</td>
<td>Use a daily production journal to manage production. Efficient production with a suitable layout.</td>
<td>Learn data collection methods. Learn data recording methods. Design an appropriate layout.</td>
</tr>
<tr>
<td></td>
<td>material consumption, material unit cost, and production quantity. The layout of the working space is inefficient.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Quality control</td>
<td>Sausage length is not uniform. Taste is slightly different with every production run.</td>
<td>Process products of a uniform quality.</td>
<td>Formulate a quality control standards statement, and carry out regular checks.</td>
</tr>
<tr>
<td>Labor management</td>
<td>Members’ wages were determined by a completely arbitrary method: “divide the weight of the processed swine(kg) by the number of participating members and the resulting value is the number of pesos.” They tried an hourly wage system and a commission-based system, and decided to adopt the commission-based system.</td>
<td>Implement a wage determination method that is acceptable to all members.</td>
<td>Review commission-based wages regularly.</td>
</tr>
<tr>
<td>Machinery and equipment management</td>
<td>The meat grinder often clogs up. The members don’t know proper method of using plastic sealer** which causes faulty seals.***</td>
<td>Proper equipment maintenance and management. Use the equipment properly.</td>
<td>Learn how to maintain and manage the equipment. Learn how to use the equipment properly.</td>
</tr>
<tr>
<td>Stock management</td>
<td>The BRIC-MPC has one industrial freezer capable of storing about 900 sausage packs.</td>
<td>Monitor stock to prevent waste and unnecessary production.</td>
<td>Learn how to draw up, record and maintain stock management notebooks.</td>
</tr>
<tr>
<td>Cost-accounting</td>
<td>The deposit balance continually declined. There was some suspicion that the officials may have been embezzling funds. JOCV members undertook cost accounting for existing products with the officials. After careful examination and discussion of the sales price, the BRIC-MPC members raised the selling price.</td>
<td>Resolve the declining deposit balance, and clear up any suspicions. The BRIC-MPC members learn cost-accounting, and work out their own solutions to the various problems.</td>
<td>Learn the cost accounting method.</td>
</tr>
<tr>
<td>Sales and marketing</td>
<td>The BRIC-MPC members bring the products back home and sell them to neighbors. The BRIC-MPC promoted their product to several beach resorts. Their products were considered to be “too sweet,” so they do not market them at those beach resorts.</td>
<td>Increase sales and lift cash income.</td>
<td>Find a new market and new target customers. Learn sales know-how.</td>
</tr>
<tr>
<td>Legal matters</td>
<td>The BRIC-MPC does not have a food production permit. It does have a business permit.</td>
<td>Carry out legal production and sales.</td>
<td>Make enquiries at the appropriate government office, and complete the various procedures.</td>
</tr>
<tr>
<td>New product development</td>
<td>The BRIC-MPC has been developing ham and other products. The BRIC-MPC is continuing trials in a hazardous way without thinking about the balance between quality and cost price.</td>
<td>Develop marketable new products and conduct production continually.</td>
<td>Learn trial production methods. Learn sensory evaluation methods. Learn trial production methods in conjunction with cost accounting.</td>
</tr>
</tbody>
</table>

**Notes:**
- * For example, if the BRIC-MPC procures a 200kg swine, and ten members are involved in production, the wage for each person comes to 200 ÷ 10 = 20, so each person receives 20 pesos.
- ** Equipment for sealing plastic wraps using electric heat.
- *** Plastic wraps are not sealed properly because of tears or holes in the seal.

### Source:
Handwritten notes by the authors.

In the workshop, participants learn cost-accounting for all secondary products of the production process (swine’s head and trotters, processed products using fried skin, blended meat before processing into sausages, and ice produced using empty freezer space). Initially there were no plans to include these calculations on secondary products in the programs because it would result in too much content and possibly create confusion. However, as the workshop progressed, it seemed very important to clearly explain how these secondary product costs affect the BRIC-MPC accounts.
Record data such as blending quantity and procured unit price in the predetermined column, and then calculate. Transcribe the calculated figure in the different notebooks, and do additional calculations. Finally, the total cost for a single production run (expenses) and sales (revenue) were entered in the expenses and profit notebook for easy comparison. The values shown in the figure, such as blending quantity, are not actual values, but simply hypothetical values for the purpose of explanation.

Source: Drawn up by the authors.
Otherwise, the officials could not clear up the doubts. So these contents were quickly added to the training program.

As for cost-accounting for the main product, sausages, the JOCVs selected nine essential contents from the scope of daily production, and prepared notebooks on each so that participants could learn recording and calculation methods (figure 1).13 Specifically, participants calculate material costs, monthly operational expenses such as electricity and water charges, commission-based wages, the prime cost of secondary products, etc., and write them down in separate notebooks one by one. The figures obtained in each notebook are then transcribed into other separate notebooks. Each figure in a different notebook is integrated in “Expenses and Profit notebook,” and participants are able to compare income and expenses from a single production run.

Participants were given some drills to complete. They were given various detailed assumptions (for example, a 170kg swine is bought at 80 pesos/kg; the head of swine weighs 20kg and the trotters weigh 5kg), and rather than discuss among themselves to come up with a single group answer, the participants were each required to calculate individually and find the result and write it down on a piece of paper as if it were a page from the nine notebooks explained previously. This method was adopted. If calculations were done as a group, only the more talented or forceful participants would answer, and thus deprive the others of the chance to learn from the drills.

Finally, participants were given the answers to the drills so that they could check their own result, ask questions, and find mistakes or problems. With this the workshop came to an end. Other than careless errors such as pressing the wrong keys on the calculator, rounding off mistakes, and misunderstanding the assumptions, there were no major deviations from accounting principles. It is therefore believed that all the workshop participants could learn the cost accounting method.

### IV. Output of the activities

The achievements of the workshop are summarized in Table 2.

Before the cost-accounting workshop, they didn’t have an idea of how to find the cause of their financial crisis, even if the members had some sense that their deposit balances were steadily decreasing. After the workshop, the members learned cost-
accounting methods by practicing calculation and now they fully understand the cause of this crisis: The BRIC-MPC kept selling their products without raising the price, and even production costs increased due to the escalation of operational expenses and raw material costs. This lead to the declining deposit balance.

Members also started collecting data on material consumption, unit price of material, and production quantities, and began keeping their own cost-accounting records. They also began comparing standard cost and actual cost in an effort to identify problems and their cause on their own.

And they began actively calculating the production cost of the newly developed product (different blending of sausage) under their own initiative.

There were some careless mistakes in the calculation results, and so monitoring and advice is necessary from the JOCVs or other outsiders, but at least the members have begun to realize the importance of cost-accounting, and are able to do the actual calculations on their own. If such activities continue, they will be able to accumulate a massive amount of data. These accumulated data will then enhance an awareness of external factors such as inflation and deflation of materials. This will encourage the members to think and take action on various issues, and eventually they will seriously think about how to increase their own cash income.

Moreover, all members who attend to processing were involved in this workshop so the suspicions regarding money transparency for officials were all cleared up.

The major output of the workshop is enhancing the awareness of all members. In short, income generation activities used to be simple and fairly casual activities for producing and selling products to earn cash income. But it was changed into an economic activity for which they themselves address issues and manage operations.

V. Recommendations and lessons for development cooperation

As indicated in recent reports, assistance for income generation activities in developing countries requires not only provision of skills and equipment for making products, but also effective training in management methods. The case detailed in this paper added further weight to this idea. The output of the workshops indicates that those providing assistance need to take the following three points into account for management methods training.

(1) Prioritization management methods

Even if effective methods such as PCM are implemented to identify problems and solutions, it would seem that members couldn't identify what they have to do because they neither have the background knowledge nor any idea of what cost accounting is, as well as what results can be expected from its implementation and what kind of management method they should learn. This was because cost-accounting itself was like the “Egg of Columbus” to the BRIC-MPC members. This case indicates that it was best to make clear the ideal condition from the viewpoint of technical know-how and experience from the donor and choose the required management method to bring about organization that is close to the ideal condition, rather than adopt the PCM kind of participatory method.

(2) Training contents

In case participants do not have any idea of or knowledge about training contents (such as how to work out material costs), training starts off with explanations on break-even point analysis, because participants will probably not be able to understand the cost-accounting method or its necessity. This is due to a defect in the learning procedure and its planning; it is something like teaching multiplication before addition. It is important that the training program be designed based on consideration of the background knowledge of the target participants first.

Moreover, in the case where there are deficiencies in the scheduled program, even mid-way through the training the program should be modified as required so that the full understanding of the participants can be given priority.

(3) Training participants

It is common that this type of training targets officials only. Then they bring back what they have learned and pass it on to the members.

This method must be efficient and make it easier to promote self-reliance among the officials. However, if the workshop is conducted for the officials only, it will not be able to clear up the suspicions that officials may possibly be embezzling the organization’s funds. It means that other members will hear about the training from the officials—the subject of the doubt. Therefore, it was decided that rather than be just for the officials, the training should be extended to all members.
Cost-accounting is a broad-ranging management method, and relates directly to cash income, which is the ultimate goal of income generation activities. Therefore, it was given high priority. If participants who wish to improve their cash income and are able to learn the cost-accounting method, we can expect it to have the impact of promoting a new awareness among members in various aspects.

Notes


2. This is the parent organization that consolidated Rural Improvement Clubs (RIC) formed to promote pig fattening activities among housewives in 17 barangays (villages) within the Municipality of Bantayan, Province of Cebu starting in the 1990s. The organization’s name was changed from the Rural Improvement Club Federation (RICFED) to the present BRIC-MPC in 2004. 35 out of 200 members are actually involved in sausage production. About 20 took part in the cost-accounting workshop.

3. Most customers were neighbors of the BRIC-MPC members. The BRIC-MPC members who attend sausage processing would bring the products home and sell them to their friends and neighbors in each village.

4. The BRIC-MPC deposits its money in its bank account. This consists of capital investment of 600 pesos a year paid by each member who are participating in sausage production, a five-year interest-free loan for operating funds of 100,000 pesos from the Municipality of Bantayan, and money earned by the BRIC-MPC itself from sale and profit of the sausage processing. The BRIC-MPC members were aware of the steadily declining balance, and realized their operations were facing a financial crisis.

5. The BRIC-MPC is run by three officials (President: M.Kaquilala, Vice-president and treasurer: C.Espina, Secretary: C.Maricuero). The officials receive a monthly salary, while all other members receive wages as a percentage of production.

6. The JOCV assigned to the Municipality of Bantayan had no experience in the food industry, so she coordinated with a JOCV who is assigned to a different region and has appropriate experience in the food industry. Two JOCVs with different backgrounds of expertise worked together to plan and implement this workshop.

7. The main concern about pricing was the drop in sales volume because of new selling prices. Taking into account the market value of other sausage prices, members set the selling price at the lowest possible level that would not drop below the production cost, including their own wages. They could keep the price rise to a minimum. As a result, the members decided to set the selling price at 42 pesos, the same as the production cost, and while this would not bring any profit to the venture, they believed it would at least stop the fall in the deposit balance.

8. One of the main reasons there was no drop in sales due to the new price is that the sausage product itself was very popular among customers. Most of them are the BRIC-MPC members’ neighbors, and they are regular loyal customers. Another is that consumers were well aware of the reasons for the necessity of the price rise. As the price of various processed meat products was rising with the increase in the price of feed for swine, only these sausage products remained at the same price, so rather than feeling disgruntled about the price rise, consumers seemed to be aware and accept that the rise was only natural. And the regular customers continued to buy the products despite this price jump of more than 30%, so there was no major fall in the amount of sales.

9. The head and trotters are left over because the organization buys the whole swine. These are sold without processing to a nearby market.

10. This is a fried pig rind product called chicharon in the Philippines. It is a parched fried product eaten as a snack, and can be stored at room temperature.

11. This is a frozen product of blended meat wrapped in a polyurethane bag instead of the casing tube for sausages. The organization is producing these to order.

12. About 500g of tap water is poured into a polyurethane bag, the opening is tied up, then the bag is placed in the freezer.

13. See (Otsuka 2000, 3: Table 1-1-2).

14. This new product was highly significant for the BRIC-MPC. Santa Fe, the neighboring municipality to the BRIC-MPC’s home of Bantayan, has about 20 restaurants and hotels, and a beach resort frequented by foreign tourists. One of the restaurants in the beach resort, which is a new target market, became a regular customer of the BRIC-MPC’s new product. The BRIC-MPC members along with a JOCV had been marketing their existing products at these restaurants and hotels. After sampling the products, restaurant and hotel owners and managers thought that the products were “too sweet for foreigners’ liking, and they wouldn’t eat them,” so no sales materi-
alized. The BRIC-MPC then began experimenting with different blends, and finally developed a product with much improved flavor. At this point, members looked at the selling price based on cost-accounting they learned at the workshop. They held price negotiations based on the results of cost-accounting, and prepared responses to counter demands for price discounts. The quality and price of the new product was accepted, and this was the first step in their efforts to find new markets. This output shows a potential for sales to other shops, and also for an increase in the organization’s sales volume. Having experienced this process of developing, marketing, and selling a new product, the BRIC-MPC members are now much more motivated about developing new products and finding new markets, but above all else, they are now much more confident about their own skills and business potential.

15. (Tsumagari 2004).

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Fostering Ownership Through Field Capacity Empowerment:  
The Case of Local Telecommunications Network Expansion Technology Improvement in Bhutan

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Abstract

JICA’s technical cooperation project, Local Network Expansion and Human Resource Development (June 2003-October 2005), was launched in Bhutan with the objectives of providing technical guidance and training for building a subscription telephone infrastructure, which is in short supply in Bhutan, and establishing a training program for employees of Bhutan Telecom.

In general, information and telecommunications is considered to be a high-tech area, given the accumulated digital technologies involved such as computers. However, the success of a telecommunications network depends upon the subscription telephone lines (communication cables, telephone poles, utility holes, outdoor cabinets, etc.), which constitute the infrastructure for the information and telecommunications sector. Since most of the installation is placed outdoors, it is directly affected by the surrounding environment (terrestrial formation, road conditions, etc.), and is prone to occasional breakdowns due to meteorological factors such as heavy rain and wind. Therefore, it is important to select a design and construction method that works best under a given set of environmental conditions. The author of this paper participated in the project as a JICA expert on such installations. At the project site, it soon became clear that the site was facing various issues, as in other developing countries. The biggest problem was that the telecommunications network system had been inappropriately constructed in urban areas (the installation did not follow the standard construction procedures but was unauthorized and unstable), causing inconvenience to the general public in terms of safe traffic and telecommunications quality. Furthermore, despite the existence of such unstable installations, field managers provided no instructions for improvement and top level officials were not aware of the problems. With such a management organization, it was difficult to foster ownership. Under these conditions, no matter how much technical cooperation was extended, it could all turn out to be pie in the sky.

In response, the author tried out a plan to activate the field, focusing on key persons at various levels, with the aim of improving their organizational inclination and mentality. Specifically, various approaches were taken to (1) motivate field workers to work proactively; (2) make top level officials aware of the field conditions; (3) encourage both groups to proactively determine and make necessary improvements through mutual communication.

The author defined this impetus to promote field-based management as “Genbaryoku” or “field capacity,” and applied it in the project. This paper introduces the activities developed in the field as a specific case of the kind of capacity development which has been proposed by JICA.

Introduction

In order to foster self-help efforts in developing countries, I think it is indispensable for each level of employees, from top level officials to the field workers, to comprehend the true situation in the field and independently conduct the necessary improvements through mutual communication.

In this paper, we call such impetus to promote field-based management “Genba-ryoku” or “field capacity,” and applied it in the project. This paper introduces the activities developed in the field as a specific case of the kind of capacity development which has been proposed by JICA.

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capacity.” This stems from the author’s experience of working for a company about 25 years ago, and actual business experience inside and outside Japan since then.

I also committed myself to JICA’s technical cooperation project, “Local Network Expansion and Human Resource Development in Bhutan” (June, 2003 – October, 2005), with a conviction that an organization would grow and develop as long as “field capacity” is vitalized. Here, in this paper, I would like to describe the content of those activities.

I. Situation and major issues in the information and telecommunications field in Bhutan

Bhutan is located at the eastern edge of the Himalaya Mountains and has a very precipitous terrain with about half of the land being surrounded at an altitude of over 3000 meters. The countries’ toll line network was significantly improved as a result of Japan’s grant aid project for “the Development of the Domestic Telecommunications Network in Bhutan (1991 – 1997).”

On the other hand, the telephone network in each region was still in poor condition, and it was a difficult situation to provide communication service to the level of ordinary citizens due to the frequent occurrence of failures such as: disconnection, noise, crosstalk, and a lack of a sufficient number of facilities. Development of the communication infrastructure was listed as the most important issue in the ninth 5-year national development plan of Bhutan that started in July 2002. As a concrete enforcement of the policy, Bhutan Telecom (BT) asserted that the construction work for the goal was “to eliminate non-telephone areas and promptly satisfy the telephone waitlisted subscribers” in major cities such as the capital city of Thimphu.” However, there were various issues for implementation such as limited financial resources, insufficient construction equipment, a lack of skilled technicians, etc.

II. Background of the issues

Due to the situations stated above, the Bhutan government requested technical cooperation by Japan, and based on such a request, the author was sent to BT. In the beginning, the BT management team often made comments in a detached manner, such as “What the JICA expert, who was sent this time, would do for us or would provide for us.”

The telephone office storage room where I was located was no place to conduct business efficiently because of carelessly placed tools, materials protruding from broken cardboard boxes, and everything in a mess. As for the communication facilities in urban areas, CATV lines and electric power lines were attached to the poles in a tangle, and the wires were sloppily placed or in a cobweb-like state (photo 1), which not only disrupted the landscape view, but also implied serious issues regarding a safe working environment.

Also, the training room that was supposed to be used for the training of staff was turned into a shared miscellaneous work space; some of the training equipment was left broken, and dusty instruction manuals were scattered carelessly about.

The BT training manager told me that “some ten years ago, Western experts were dispatched and built a training room,” but there was not even a trace of it being a training room. The background for such a working environment and staff consciousnesses were: 1) BT management does not comprehend the reality of the situation; 2) the structure does not allow voices in the field to be heard; and 3) the mental attitude of staff members, who do not take pride and have the confidence to think that the cutting edge in the field is the key to business. The author thought that having these three points fully understood could lead to an awakened independence, a vitalization of the organization, and a fostering of ownership. I, therefore started to develop related activities toward these goals.

Photo 1 Communication cables that are tangled

Source: Photo taken by the author.
III. Actual approaches taken to solve the issues

JICA has been advocating Capacity Development (CD) as the method for conducting aid to developing countries. CD is defined as the “Endogenous process of enhancing developing countries’ capacity to deal with issues as a whole, including at multiple levels, such as at the individual, organizational, and societal levels,” and concretely, “aid to developing countries should not be executed by the donor countries, but should consist of activities that foster, sustain and reinforce developing countries’ independence through processes based on their ownership.” According to such a philosophy, for the technical cooperation project in which the author was involved, the approaches — described in Figure 1 — that provided various advice and suggestions to upper management and field technicians were found to be most effective.

In implementation of these approaches, the author developed the activities making sure that the author remains a facilitator in order to induce 1) inclusiveness of capacities and 2) spontaneity of capacities that are characteristics of CD.

1. Approach to upper management

Many higher officials in developing countries, including Bhutan, typically have little practical OSP experience even though they are educated and trained overseas, have collected the latest information, and are strongly elitists. Therefore, they do not have very much practical know-how on how to actually develop projects. They also do not understand what kinds of issues exist in the actual field of OSP, and how these issues should be improved. Thus, as a transition to implement the above-mentioned approach, I listed each factor that was inadequate in the current situation of the OSP facilities using specific examples and photographs to make them understand the necessity of creating standards of operations and specifications.

As a result, their consciousness was changed, especially for BT staff members who have studied or were trained overseas, and they started to participate more voluntarily as seen in their actions to collect related communication technology materials. Because of such changes, the production of specifications for goods and standard construction method manuals that were not yet prepared was begun and the momentum to systematically foster the human resources was heightened.
2. Approach to field technicians

In the actual BT fields, tools and equipment were not fully available to field-technicians due to a lack of financial resources. Field technicians lamented such situations, but also used them as excuses for conducting inappropriate work (the work that is their own unauthorized method and, thus, unstable). Introducing the latest equipment from Japan would have immediately allowed them to work efficiently, but that would not be a transfer of sustainable technology.

Also, considering the long-term futures of host organizations, we need to conduct technology transfers that are cognizant of the methodology and tools suited to their area. Thus, I started a production campaign to innovate/improve their tools and equipment with their ideas and utilizing materials available around them, as well as a claim-proposal activity of the goods. I visited every regional office, from north to south, despite difficulties with bad roads and landslides, in order to explain the purpose of the campaign and activity to their staff members.

As a result, in the first year, seven innovative proposals were submitted and the excellent participants were awarded “travel clock, tools set, notebooks, etc.” that were brought from Japan after discussing the topic in the national telephone station chief meeting at the end of the fiscal year. These were small goods brought from Japan, but turned out to be extremely effective incentive as there is a very strong yearning for Japanese products. This activity later expanded to include the entire BT as a company and developed further.

IV. Result of implementation of the approaches

While developing the inclusive activity that involves those from upper management to the field level, as described above, we continued the activities that attempted to induce more spontaneity and obtained achievements such as the following:
(1) Germination of consciousness to propose improvements

The innovative improvement proposal campaign was lead and planned by the author for the first year. However, from the second year, the BT managing director proposed that “it should be developed as a program driven by BT from FY2005, and each telephone station master should have all the employees understand its purpose and further expand it.” That, therefore, became the BT program.

The top performer was awarded an “Award Certificate of Best Innovation Design” and a “Special bonus cash reward (equivalent to one month’s salary for a young technician)” from BT (See photo 2). They were, therefore, well motivated and this strengthened the innovative improvement activity while becoming a driving force behind the improved consciousness of technicians.

This program also worked as a tool to discover the issues in the field, to absorb their feedback, thus prompting management’s interest about the field.

(2) Expansion of the system and regulations

The electric company, CATV business operator, road authority, city government, etc. were each installing and attaching their own wire cables (bare electric cable, CATV cable, exclusive wire) separately to locations under the road or on utility poles, causing obstacles to each other’s work. They also were not favorable from a city landscape and safe operations point of view. Therefore, I proposed to a BT executive to invite all related organizations concerned in Bhutan to hold a coordination meeting and regulate the installation location of facilities. Originally, there were a barrier to each ministry, and improvements did not go forward for a while. However, there occurred a huge injury of a BT technician who touched the naked electric cable while working on a utility pole. We held an evaluation meeting about this accident, and I explained that “unless we regulate the installation locations and distances between each utility line from electric power cables, etc., we would face further serious situations in the near future. There were also several serious injury cases in Japan in the past,” and appealed for prompt discussion and creating agreements among related organizations. In the end, it took a total of two years, but a “separation of utility wire/cables owned by each related organization” was finally concluded.

(3) Improvement of city landscape and failure rate

Since telephone service lines to congregated housing were installed as aerial cables separately, they often failed by touching eaves of buildings or trees, etc. I proposed that having telecom cables laid underground would provide for the easy installation of telephone cables since the telephone cables only need to be added inside the pipes, and it would also greatly improve the city landscape.

Following the proposal, BT conducted some trials by placing telecom cables underground. As a result we now see fewer cases where telephone lines are severed after touching the eaves of buildings and being used as handy laundry lines, which constituted failure factors.

Bhutan’s telephone failure rate5 used to be higher than the average of neighboring countries (India,
Also, BT increased the number of staff members for the Human Resources Development division and enriched the in-house training courses while expanding the training courses available to staff outside BT (staff of the Bhutan Post Office, Electric Power Corporation, etc.).

V. Conclusion

This project was implemented by only one expert. I often receive questions such as “Did you really complete this much?” or “How could you complete so much?” regarding activity deliverables that are listed in the project TOR6 (More than 10 Instruction manuals, Training Curriculum, construction of training facilities). I believe that what lies beneath such achievements is a lesson, namely, “allied management between the field’s hands-on workers who know the reality in the field and who can implement improvements with top-level managers who comprehend...
those situations.” This I learned from my work experiences when I was a freshman (experience of lead caulking work), and the lessons learned as a field manager of the injury case occurrence caused by defective facilities). Instead of just proposing high-brow plans made on the desk, the main emphasis was placed on activities from the field workers’ standpoint, and I often visited construction sites to communicate with the engineer/technician/worker about issues such as my experiences, and tried to share the values in the field; I believe these efforts resulted in such achievements.

Here are other supplemental success cases.

(1) Sharing field information
The author traveled around the regional telephone offices, and took pictures of any improvement cases of communication facilities using workers’ ideas and ingenuity found in the field, then posted these in the OSP NEWS (figure 4), published periodically and distributed to telephone offices nationwide via e-mail. It assisted lateral development of good cases while encouraging the person who came up with those innovation ideas. Such efforts were developed into the “National Innovative Improvement Campaign” and were implemented for the whole of the BT organization.

(2) Measure to tightening the sense to seek an easy way out
There is a tendency in developing countries to solely rely upon the support from donor countries. In many cases, there is also often a gap in attitude and consciousness between experts and counterparts (C/P). Also in this project, dependence and slack habits of C/P started to appear and the activity schedule started to fall behind for reasons such as “we cannot help due to busy routine work” On such occasions, the author communicated that “if the equipment is to be provided or not depends upon the progress of the project,” and warned them (providing equipment may stop due to the delay of the project) to guard against signs of seeking the easy way out.

(3) Timely support system
On the other hand, timely support from the JICA Bhutan office and JICA headquarters were an important factor in the success. For example, there was a tragic car accident during this project where a construction vehicle fell off a cliff when the car was driving on mountainous roads at an altitude of 2800m (to the valley 200m below), and all 5 BT technicians who were in the car (Sub C/P and young employees whom the author trained) died. The construction vehicle (equipment provided by Japan) was also wrecked. JICA officials who learned about this accident immediately responded (an alternative vehicle was delivered through follow-up cooperation). These prompt responses lead to the appreciation not only by BT managers, but also by all the BT employees, and reconfirmed the importance of the JICA technical project. Such timely equipment provision at the time of an emergency was very effective and heightened a relationship of trust.

I believe that a synergistic effect, such as having them understand that the source of the company management lies in “Genba-ryoku – field capacity,” and actually implementing it in daily activities to foster ownership, was achieved through mutual communication with upper management and field technicians as the facilitator, which resulted in the gradual understanding and cooperation by BT employees and prevented delays in the project.

Notes
1. When Nippon Telegraph and Telephone Public Corporation was being privatized, Mr. S who became the first president of NTT said in the Headquarters meeting that “I will decide when we go on safety patrols of our company.” It drastically changed how safety patrols were subsequently conducted. He knew what it takes to grasp the true field situation by himself.
2. Waitlisted subscribers are users who are waiting to receive service since there are many applicants for new telephone connections, but it takes time for telecom network installation work.
3. It is also called a coordinator or expediter, and means the person who coordinates progress of a program by considering the participants or surrounding situations.
4. Outside communication facilities plants (as examples: poles, closures, cabinet cables, joint boxes, trench, etc.)
5. Telephone failure rate is calculated as (number of telephone failure cases ÷ number of telephone subscription) x 100 (cases/year), namely, it means how many failures occurred per 100 telephone lines.
6. Terms of Reference – Documentation that lists the details of technical cooperation activity contents.
7. Before cable joint closures are developed (made of synthetic resin), the enclosing sheath to protect connection points of communication cables was pro-
duced by “lead caulking work.” This method is a highly trained hand skill that shapes a lead tube into an enclosing sheath by first “caulking” both ends of the tube with a wooden hammer to fit the shape of the cable, then melting solder to fill the gap using a gas burner. I mastered this technique when I was young while getting burns and singed work clothes. The level of workmanship was learned in that process.


9. The timing and content of provided equipment are mostly decided at the time of technical cooperation project infusion planning by necessity, and it is necessary for an expert to grasp the progress of the project, timing of provision, and methods of procurement while fully explaining the situation to and obtaining understanding from the JICA local office since input of equipment at an unplanned time causes complicated clerical paperwork.

References


JICA kokusaikyouryoku sougoukenshusho [Institute for International Cooperation], JICA. 2006. Tojoukoku no shutaiei ni motozuku sougouseikikadaitaishouyouryoku no kouhou o mezasite-kyapaciti diberopumento [Toward capacity development (CD) of developing countries based on their ownership – concept of CD, its definition and its application in JICA projects]. JICA kokusaik youryoku sougou kenshusho [Institute for International Cooperation, JICA].


Background and aim

It is generally thought that because the quality of medical care services in the U.S., Europe, Japan and other developed countries is superior to that in developing countries, there is nothing to learn from the developing countries, but the spate of medical errors in the U.S., U.K., Japan and other countries has shaken the confidence that people felt toward their medical care services. On the other hand, despite constraints of a complete lack of medical care resources, some developing countries have successfully improved the quality of their medical services. We in Japan can learn from aspects of their activities as we strive to improve our medical services, and these lessons can also be a valuable reference to other developed countries.

This research systematically summarizes the current state of medical care services in four Asian countries, one African country and countries in Central and South America, as well as measures adopted by Japan based on local surveys in Thailand and Sri Lanka and reports by experts who have been engaged in activities to improve medical care in developing countries, and analyzes trigger events and success factors with a view to examining a more practical approach to the use of JICA’s Total Quality Management (TQM) in the medical sector.

Implementation structure

This research was carried out by visiting researcher Toshihiko Hasegawa, then Director of the Department of Policy Sciences, National Institute of Public Health between July 2005 and March 2006, with the assistance of Shuichi Suzuki, another researcher from the same department.

For his report, visiting researcher Hasegawa primarily (1) analyzed existing material relating to TQM, (2) interviewed researchers in Japan promoting TQM, (3) reviewed and carried out on-site inspections of Japanese hospitals implementing TQM, (4) examined local surveys in Thailand and Sri Lanka, (5) reviewed reports by experts engaged in activities to improve medical care in developing countries, and (6) reviewed reports by health ministry officials relating to the quality of medical care and hospital management in developing countries.

In the implementation of the research, the Survey and Research Group in the JICA Institute for International Cooperation was responsible for administrative matters, and, along with Group 3 of the Human Development Department, confirmed the state of research progress, and offered comments and proposals regarding the content of the report.

Outline of the report

Before sorting out TQM in hospitals and the health and medical care field, the group put together a general concept of what TQM is. By way of a brief historical background of TQM, Japan developed the bottom-up quality control (QC) method consistent with Japan’s industrial characteristics based on statistics quality control (SQC) developed in the U.S., and promoted its wide adoption throughout industry. It is a small-scale responsive quality control method centering on the production site, and its fundamental principle is to eliminate “MURI=strain,” “MUDA=waste,” and “MURA=unevenness.” Focus later turned to the importance of quality control throughout the entire company, not just in the production sites but in back-office areas and marketing as well, so it evolved into Japanese-style Total Quality Control (TQC). This covered not just product quality but service quality as well, so it was also applicable to the service industry, and with this, it later developed into TQM from a business quality control perspective. In the U.S. the top-down quality control method known as $6\sigma$ (six sigma) was developed based on the Japanese-type TQC, giving rise to the balance scorecard concept to improve business quality, and the concept is adopted by some companies and organizations in Japan.

International trends in health and medical care quality entered the period’s second round of evaluation and accountability in what can be described as the “tertiary medical care revolution III” as medical safety and patient safety took center stage in the face of the many medical errors that occurred in developed countries over the same period. Forming a backdrop to this was a growing awareness by patients of their rights, technical and institutional reform in such areas as law and information technology, and the newly developed capacity to measure the quality of medical care.
In Japan the administrative authorities regulate quality through legislation and the social insurance system (medical treatment fees), while independent assessment bodies, medical practitioners and patients' groups are also engaged in activities relating to the quality of health and medical care services (for example, drawing up of clinical guidelines, and analysis of clinical indicators).

In considering the use of TQM in the health and medical care field, there is first a need to clarify the definition of health and medical care services. Service products are characterized by their intangibility, inseparability, variability, and immediacy, and while the method of eliminating strain, waste, and unevenness, characteristics of Japanese-style improvement, is considered to be effective, the health and medical care field has the character of being nonprofit, a professional body, individual-oriented and merit based, and as such, it may not be suited to the bottom-up method, a strength of Japanese-style improvement. It is therefore important to clarify what the “core competence” (core technical components) of the health and medical care service is, and in terms of the quality of hospital services, the ideal is to first clarify “core competence” in quality assurance, and aim to improve quality through the effective use of practical TQM and enhance clinical governance. This is becoming a worldwide trend.

Hospitals in Japan have been implementing TQM since the 1980s, but in 1999 the National Network on TQM for Health was established, and with this, a quality improvement network was formed. What triggered quality improvement in Japan was the series of medical errors, but comprehensive quality improvement came to be advanced based on the awareness of the need to balance quality improvement in both the clinical and management aspects, which traditionally are said to be in a trade-off relationship, to ensure medical care safety and patient safety. The Nerima General Hospital is a pioneer in this, and their activities are still being promoted under the title of MQI (medical quality improvement).

Regarding TQM measures in developing countries, Professor Uehara of the Tohoku University Graduate School effected a shift in the traditional view that “quality = high level medical care and advanced technology,” and is striving to bring in and extend “Japanese-style quality control,” highlighting the importance of choosing appropriate technologies and pursuing quality across the medical care system. This method was structured systematically under the title EPQI (Evidence Based Participatory Quality Improvement), and is being introduced in Central America and other regions through training and seminars.

This report looks at examples of measures to improve the quality of health and medical care services in Sri Lanka, Thailand, the Philippines, Bangladesh, and Zambia. Health and medical care in developing countries face major issues different from those faced in developed countries, including a severe lack of resources, difficult access to medical services, low capacity for users to pay, poor motivation among medical care workers, and an epidemic change from communicable diseases and injury to non-communicable (chronic) diseases. TQM was implemented within this constraint.

This report conducted a cross-sectional comparison and analysis of the common factors derived from the above example from the three perspectives of “background and history,” “trigger event” and “success factors.” “Background and history” gives a background on the need for qualitative improvement in the health and medical care field in the country in question, and identifies why TQM is necessary. “Trigger event” describes the catalyst that started the qualitative improvement. Normally a breakthrough is necessary for a change in the current situation, and the phenomenon that induces the breakthrough is the trigger event. “Success factors” are the factors that steer the qualitative improvement activities to success.

A characteristic of the above is the diversity of the “background and history,” and common to all countries is the fact that the emergence of an awareness of the issues within the health and medical care field is the trigger, but improvements here will only be initiated with the surfacing of a pioneering organization, so “success factors” are considered to be “leadership,” “process management,” “system approach” and “peer review.”

“Leadership” indicates that strong leadership is essential for success, while “process management” indicates that those pushing ahead with qualitative improvement are managing not the objectives, but the process in line with the context of each hospital. “System approach” means improving the functions and systems of the hospitals rather than improving the capabilities of individuals. And “peer review” is not improvement activities by one person one group, but the promotion of application and close cooperation through the formation of multiple similar groups.

Although there are differences in the dynamics, the above four items function as success factors in all
examples, and can be said to be primary factors (core competence) in promoting TQM.

Though the TQM is in the health and medical care field, the fact that it is introduced from areas that are common to other industries, such as management, rather than from the technical areas of health and medical care such as clinical work and research, makes success more achievable.

In the implementation of TQM, Japan is more experienced in medical care safety and safety management, while the Thai approach regarding the building of processes for improving general hospital services provides some very useful information. The Sri Lankan approach also serves as a good reference for the introduction of the quality control concept to hospital services. The Philippines approach has some good lessons for countries promoting decentralization, and the Zambian approach is helpful for understanding and implementing the concept of quality. However, considerations regarding the quality of health and medical care services required from now on must include all of the above issues, and this itself is essential for TQM in hospitals. The approach must therefore make effective use of the above information in line with the situation in the country in question, and ultimately, must include the establishment of a quality structure for health and medical care services and national health and medical care services including medical care safety and hospital management.

When conducting examinations into improving

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<th>Background and history;</th>
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Notes: HA-Thai=Thailand Hospital Accreditation Agency  
HNQA=Hospital Network Quality Audit  
SLIDA=Sri Lanka Institute of Development Administration  
QA=Quality Assurance  
5S=Industrial housekeeping campaign to improve the workplace environment through the five principles of on-site (factories, shops, institutions, etc.) Seiri [properly sorting out necessary equipment and material], Seiton [all equipment and material properly stored and accessible], Seiso [cleanliness of all facilities and equipment], Seiketsu [cleanliness and sanitation of the work environment], and appropriate Shitsuke [self-discipline].
the quality of hospitals for JICA projects, it is preferable that JICA first look into improving training programs. However, Japan alone cannot cover all TQM resources needed in hospitals, so preferably JICA should examine this with a view to collaboration with various other countries.

Qualitative improvement of hospitals must be considered from a comprehensive perspective, and for this approach, JICA, and by extension, Japan, must examine what kind of cooperation is feasible. For this, the recipient country must take the initiative. That is, it is preferable to provide assistance for improving hospital quality first to countries that can independently examine their own health and medical care policies, then promote their successful experiences in other areas as the next step.

(Published in June 2006 by IFIC, JICA)

* This report can be viewed at the following website. http://www.jica.go.jp/branch/ific/jigyo/report/field/healthcare.html
JICA’s Future Assistance for the Clean Development Mechanism (CDM)
— How can JICA confront the CDM?

Background/Objectives

Climate Change due to global warming, a recent global problem caused by human civilization’s advancement and modernization, as well as the increase in energy consumption, is a matter of life and death for all humanity since it has caused ecological changes, abnormal weather and an increase in disasters. Since the United Nations Framework Convention on Climate Change (UNFCCC), an international framework convention on global warming prevention, was adopted in 1992, the international community has been continuing discussions and examinations in an effort to establish frameworks and systems for the efficient/effective reduction of greenhouse gases. The Kyoto Protocol adopted at the Third Conference of Parties to the UNFCCC (COP3) held in Kyoto in 1997 came into effect in February 2005.

The Clean Development Mechanism is one of the “Kyoto Mechanisms” established as flexibility measures for effectively reducing greenhouse gases (hereinafter called GHGs) in the Kyoto Protocol negotiation process. CDM projects generate incentives, such as the promotion of investments and technological transfer from developed countries and the increase in revenue resources for developing countries achieved through the occurrence of carbon credits, among developing countries to implement projects geared toward GHG emission. It is expected that their base will continue to expand in the future.

In the international community, actions are being taken rapidly, such as the enforcement of the Kyoto Protocol, the establishment of specific rules for operating the CDM and the arrangement of the Carbon Fund for implementing projects in the global society, and the approval of specific CDM projects.

As it is thought that GHG emissions in all developing countries combined will exceed those in developed countries in the future, it is necessary to implement some measures even in developing countries. Measures should be implemented at an early stage so that financial strains on developing countries can be reduced. Since a CDM project is implemented in collaboration with a developing country, it is effective not only in reducing GHG emissions but also in enhancing the developing country’s ability to combat global warming through the promotion of investments from the developed country, the introduction of advanced technology and the implementation of technological innovation.

Based on the background described above, the objective of this report is to suggest possibilities and directions in terms of how JICA, an organization that provides technical assistance through the Japanese government’s ODA, can become involved in and contribute to CDM projects.

The following matters are sequentially explained in this report.

Chapter 1 : Outline of the CDM and its interface with JICA’s assistance

- Global warming and Kyoto Mechanisms / Explanation of the structures, types and implementation flow of the CDM.
- The CDM is a system which, as its philosophy, focuses on “assisting in the achievement of sustainable development,” a task to be accomplished in order to promote the CDM in developing countries and as a benefit for such countries. The interface between JICA’s assistance to developing countries and the CDM are: (1) contribution to sustainable development of developing countries and (2) contribution to efforts to address global warming.
- For many developing countries, organizations involved in the promotion of CDM projects face problems such as lack of human resources and funding, low recognition or understanding of the CDM and high business risks for those in developed countries who conduct projects. In order to enhance the capability for smoothly implementing CDM projects, it is important to understand what abilities are required for which stakeholders to remove or weaken the impeditive factors.
- The significant points of JICA’s assistance related to CDM projects are: (1) contribution to sustainable development in developing countries, (2) contribution to efforts to address global warming and (3) indirect contribution to supporting the Japanese government’s achieving its GHG emissions reduction targets.
Chapter 2: International trends surrounding the CDM

• The foundation for implementing the “Kyoto Mechanisms” was established thanks to the adoption of the Marrakesh Accord, and many bodies such as international organizations, the Carbon Fund, bilateral aid agencies, the private sector and NGOs are taking actions related to the CDM. The Japanese government and related organizations are also implementing various related projects and support measures for the private sector, including the support for capacity development of developing countries, the support for project formulation study, investments and financing for potential projects, and the development of a system for the purchase of acquired carbon credits by the Japanese government.

• JICA’s assistance related to the CDM can be divided roughly into the following two categories: (1) improving the implementation system that enables the countries concerned to smoothly implement CDM projects / supporting capacity development of related organizations and (2) supporting review and study related to the possibility and applicability of CDM applications. Its focus has been on the promotion of implementing CDM projects, including supporting the development of systems and environments for facilitating the entire cycle of CDM projects, providing project formulation materials, and conducting feasibility study.

• For many developing countries, organizations involved in the promotion of CDM projects face problems such as lack of human resources and funding, low recognition or understanding of the CDM and high business risks for those in developed countries who conduct projects. In order to enhance the capability for smoothly implementing CDM projects, it is important to understand what abilities are required for which stakeholders to remove or weaken the impeditive factors.

Chapter 3: JICA’s approach toward the CDM

• The situations where JICA assists the CDM as a “facilitator of CDM” are: (1) the development and facilitation of implementation environments by supporting the host countries’ capacity develop-
ment and (2) establishing a system for introducing CDM consideration in each project.
• The directions and possibilities of JICA projects as well as the items to be kept in mind when providing assistance are explained according to each sector. As for the assistance to developing countries and JICA’s assistance, more details of the report are explained below.

Interface between assistance to developing countries and the CDM and significance of assistance provided by JICA

The interface between assistance to developing countries and the CDM are: (1) contribution to sustainable developments of developing countries and (2) contribution to efforts to address global warming. The significance of assistance related to CDM projects provided by JICA, a development aid agency, is also largely to make a contribution to these two aspects (see figure 1). In addition to these points, another significant point exists: (3) indirect contribution to supporting the Japanese government achieving its GHG emissions reduction targets through the assistance mentioned in (1) and (2). These points (1) to (3) are explained below.

(1) Contribution to “sustainable development”
GHG reduction/absorption projects lead to multiple benefits such as the lessening of environmental pollution, the restoration of forest environments and the maintenance of natural environments through these improvements, making a contribution to sustainable development not only for residents and society in target areas but also for all global citizens. Such assistance for the sustainable development of developing countries shares the common direction with the goals of JICA’s assistance. In order to smoothly implement a CDM project, a wide variety of stakeholders involved in the project must have abilities to fulfill their different roles. Assistance for capacity development through technical assistance using human resources is one of JICA’s main aid activities, and we are able to make contributions using diversified past experience and a broad range of assistance options and schemes.

(2) Contribution to efforts to address global warming
Along with the economic growth and the increase in population, GHG emissions in developing countries have been increasing substantially in recent years. In order to effectively control global warming, it is essential to promote measures to reduce GHG emissions in developing countries, too. However, in many cases, developing countries face many difficulties due to restrictions in terms of human resources, funding and technology when they try to promote voluntary environmental measures. The CDM is a framework for promoting environmental measures, which are not necessarily the priorities in developing countries, by additionally providing secondary benefits such as an increase in economic benefits through carbon credits corresponding to the amount of GHG emissions reduced, cost reduction through energy conservation, and the improvement of economic efficiency.

The assistance aiming to facilitate the implementation of the CDM not only promotes GHG reduction through the implementation of CDM projects but also contributes to the promotion of future measures against global warming by developing countries themselves and the enhancement of their capacities to address global warming.

(3) Contribution to supporting the Japanese government to achieve its GHG emissions reduction targets
Japan is also given responsibilities for GHG reduction due to the enforcement of the Kyoto Protocol. However, it is difficult to achieve reduction targets only through domestic efforts. Therefore, the Japanese government has made a policy to use “Kyoto Mechanisms” in a complementary manner in order to achieve its targets. There is a framework called JKAP (Japan Kyoto Mechanism Acceleration Programme) established to promote CDM/JI projects by domestic organizations concerned. It is expected that JICA would also indirectly contribute to Japan achieving goals by yielding results through its technical cooperation projects.

Basic concept of JICA’s assistance for the CDM and its approach to assistance
For JICA, making efforts toward strengthening its assistance for the CDM in terms of technological transfer and human resources development and supporting the promotion of implementing CDM projects in developing countries accord to its operational purposes. As already explained in Chapter 2, the CDM is considered to be an effective assistance mechanism for JICA as one way to improve developing countries’ capacities to deal with domestic issues and achieve sustainable development and as part of JICA’s effort to prevent global warming.

In this study, in order to clarify how JICA can
get involved in CDM projects, including the scope of its involvement, details and matters to be kept in mind when providing assistance, we reexamined the specific directions and assistance options. As the CDM is a rather new mechanism, there are not many examples of assistance by JICA. However, JICA has already provided assistance by utilizing schemes such as development studies, technical cooperation projects, dispatch of experts, and acceptance of trainees. When the flow of CDM projects is viewed broadly, it can be classified roughly into the following two types: (1) improving the system for facilitating CDM projects in developing countries concerned and providing support for capacity development of related organizations and (2) supporting the examination and study related to the possibility of CDM applications as components of JICA’s assistance. JICA has been focusing on the promotion of CDM project implementation, including establishing systems and environments for facilitating the cycle of CDM projects as a whole and conducting a study that contributes to the provision of project formulation materials and the examination of possibilities (see figure 2).

When JICA faces a situation where its assistance for the CDM is required, it mainly studies the reinforcement of the initial part of a CDM project cycle, that is to say, the development of the CDM project’s system environments and foundations, the indirect support ranging from CDM project identification and feasibility studies to the preparatory stage of the project implementation, and the establishment of structures for ensuring the sustainability of the project. In other words, this means that JICA plays a role as a “facilitator of the CDM.” To be specific, the following two points are the main pillars of its activities:

(1) Establishing the environment for the CDM and facilitating its smooth implementation by assisting in the capacity development of a host country

JICA’s assistance, ranging from the capacity development of a wide variety of stakeholders related to the CDM, including government ministries and agencies, people concerned in the private sector, research institutions, financial institutions and local residents, to the establishment of organization foundations and the improvement of environments, help remove various obstacles that those who formulate and implement projects face and strengthen the foundation for implementing CDM projects. Since JICA has many experiences geared toward institutional capacity building through human resources development,

such assistance is one of the basic fields necessary for becoming involved in the CDM.

(2) Introduction of CDM consideration in each aid project

The CDM is a framework that potentially enables greenhouse gas reduction projects, which were not feasible in developing countries before, to be implemented in these countries by offering economic incentives such as the provision of carbon credits. When examining the feasibility of development plans or individual projects in fields to which the CDM can be applied, it is advisable to actively include the examination of the possibilities of CDM applications as a way to increase the plans’ or projects’ independent expansibility and the feasibility of proposals.

Additionally, this report summarizes the possibilities and directions of JICA’s assistance by sector (renewable energy, energy conservation, waste, transportation, agricultural and rural development, afforestation, etc.). The summary is shown in table 1.

(Published in July 2006 by IFIC, JICA)

* The original text (in Japanese) can be viewed on the following website: http://www.jica.go.jp/branch/ific/jigyo/report/field/200607_env.html
Figure 2  Achievements of JICA’s assistance corresponding to the flow of CDM projects

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<td>Study of CDM project potentials</td>
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<td>Implementation/monitoring/verification</td>
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<td>2. Provision of project formulation materials and examination of possibilities</td>
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<tr>
<td></td>
<td>• CDM project potential study</td>
</tr>
<tr>
<td></td>
<td>• Assistance for the creation of PDD (project design document)</td>
</tr>
<tr>
<td></td>
<td>• Estimation of GHG (greenhouse gas) emission reduction</td>
</tr>
<tr>
<td></td>
<td>• Examination of utilization, application, commercialization and possibilities of the CDM</td>
</tr>
</tbody>
</table>

Source: Data from the original text (in Japanese) partially modified.

Table 1  Possibilities of CDM-related assistance corresponding to JICA’s developmental tasks

<table>
<thead>
<tr>
<th>Field</th>
<th>Contents of feasible assistance</th>
<th>JICA’s experience</th>
</tr>
</thead>
<tbody>
<tr>
<td>Renewable energy</td>
<td>• Creation of hypothetical project design document (PDD)</td>
<td>Yes</td>
</tr>
<tr>
<td></td>
<td>• Incorporation of CDM-related components, such as human resources development, into projects</td>
<td></td>
</tr>
<tr>
<td></td>
<td>• Prioritization of CDM projects through potential assessment study</td>
<td></td>
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<tr>
<td>Energy conservation</td>
<td>• Economic efficiency evaluation of CDM introduction</td>
<td>No</td>
</tr>
<tr>
<td></td>
<td>• CDM potential study related to energy conservation</td>
<td></td>
</tr>
<tr>
<td>Waste</td>
<td>• Organization of CDM-related data and examination of CDM project feasibility (especially in projects related to final disposal sites)</td>
<td>No</td>
</tr>
<tr>
<td></td>
<td>• Incorporation of CDM-related components, such as human resources development, into projects</td>
<td></td>
</tr>
<tr>
<td></td>
<td>• Potential survey</td>
<td></td>
</tr>
<tr>
<td>Transportation</td>
<td>• Since there are many technical problems, it is difficult to provide assistance directly linked to the CDM at this point</td>
<td>No</td>
</tr>
<tr>
<td></td>
<td>• There are needs for the provision of assistance that contributes to measures against global warming in terms of thorough environmental and social considerations and traffic demand control</td>
<td></td>
</tr>
<tr>
<td>Agricultural and rural development</td>
<td>• Educational campaigns targeting local residents</td>
<td>No</td>
</tr>
<tr>
<td></td>
<td>• Potential study, potential assessment</td>
<td></td>
</tr>
<tr>
<td>Afforestation and reforestation</td>
<td>• Establishment of foundations for CDM forestation and assistance for capacity development of people concerned</td>
<td>Yes</td>
</tr>
</tbody>
</table>

Note: Prepared by the secretariat of the original report (in Japanese)
Background

The phenomenon of the aging of the population combined with a lower birthrate, such as that being experienced by Japan, Europe and the US, is rapidly spreading among low-income societies as well. In many East Asian countries, the institutional foundations for medical care, pensions and welfare are still weak, yet the rate of the aging of their populations and rate of decline in their birthrates is much faster than was experienced in Europe, the United States or Japan.

Summary

The report is organized into five chapters, following a forward by Dr. Toshio Watanabe, Dean of Takushoku University.

Chapter 1: Population dynamics in developing countries: current situation and outlook
(By Keiichiro Oizumi, Senior Economist, Economics Department, the Japan Research Institute, Limited)

Chapter 1 presented an overview of the trends in the world population in recent years. The rate of the population growth is in decline, from 1.8% in the period 1950-2000 to 0.8% in the period 2000-2050. This slowdown in the population growth is due to the global decline in the birthrate. That is expected to accelerate the aging of the global population.

The aging of the population will take place first in East Asia, as this region has seen its birthrate fall considerably ahead of other regions of the world.

Chapter 2: Population aging with a declining birthrate in selected countries and their economic growth
(by Professor Hirokazu Kajiwara, Faculty of International Development, Takushoku University)

Chapter 2 offered an analysis of the demographic transition, which involves an aging population with a declining birthrate, and economic growth in various parts of the world.

Chapter 3: An aging population with a declining birthrate and economic development in developing countries
(By Keiichiro Oizumi)

Chapter 3 discussed the influence of changes in the demographic structure upon economic development. Countries that have successfully lowered the birthrate are able not only to escape from the trap of a low-income equilibrium, but also acquire the “potential” to achieve high economic growth. This is called the “demographic dividend” and it is obtained through an increase in labor inputs and domestic savings.

Chapter 4: Aging of the population in Asia and Japan’s community-based welfare
(Professor Natsumi Aratame, Faculty of International Development, Takushoku University)

In Chapter 4, an attempt was made to extract from Japan’s “community-based welfare,” some exemplary cases that might be useful as a reference point when the policymakers of the Asian developing countries consider how to provide the minimum life security to their elderly citizens.

Chapter 5: Recommendations with a focus on countermeasures to deal with the problems of an aging population
(Keiichiro Oizumi and Koji Yamada, Associate Senior Researcher, Institute for International Cooperation, JICA)

Chapter 5 discussed the future course of Japan’s assistance, based on the reviews made in the preceding chapters. “Aging in the developing countries,” which is characterized by the progress of aging while still at the stage of a low-income society, has a high risk of jeopardizing the lives of the elderly since the issues related to the aging of the population are aggravated by the problem of poverty. Japan has accumulated considerable experience and learned lessons as a developed country with a uniquely rapidly aging population. There are high expectations for Japan to extend assistance to its East Asian neighbors in relation to the aging issue.

(Published December 2006 by IFIC, JICA)

“The full text of this report is available of JICA’s official website, “Facing up to the Problems of Population Aging in Developing Countries: New Perspectives for Cooperation.”
Users Fees Policy and Equitable Access to Health Care Services in Low- and Middle- Income Countries
— The Case of Madagascar

Background

Providing all people with access to basic health services is one of the fundamental challenges faced by governments worldwide. This problem is critical in lower income countries where health systems struggle with scarce and inequitably distributed resources. User fees which involve partial or complete payment for health services by health consumers is one of the policy options that many developing countries have implemented in order to generate funding to meet the increasing demand for health care services. User fees are theoretically expected to help lower income countries solve the problems faced by the health sector by generating revenue to improve health service provision.

In January 2004, Madagascar instituted a new user fees policy that recovers costs from medicine sales at public health centers. The policy creates “Equity Funds” at public health centers which are used to provide free medicines to the poor. After one and a half years of operation, the policy has confronted several challenges in generating revenue and providing equitable assistance.

In the light of challenges faced by low- and middle-income countries in the implementation of user fees policies for health care, this report aims to review the past experience of user fees policies in low- and middle-income countries and to assess the present performance of the policies. The report discusses fee exemption measures for the poor in low- and middle-income countries, including Madagascar, in order to develop policy implications to inform effective implementation of user fees policies.

Objectives

This report has the following specific objectives: (1) Review the literature regarding the past experience of user fees policies in low- and middle-income countries; (2) Review the literature regarding equitable access to health care services under user fees policies in low- and middle-income countries; (3) Examine the current implementation status of the Equity Fund in Madagascar as an example of accompanying protection measures for the poor within the scope of a user fees policy for health care; and (4) Draw implications for international development cooperation concerning user fees related issues in the health sector.

Summary

The report is composed of eight sections. The first four sections discuss user fees policies in low-and middle-income countries based on the literature review. After the introduction, Section 2 discusses the background to the introduction of user fees policies in low- and middle-income countries.

Section 3 discusses the empirical evidence of those policies by looking at the impact on health utilization, cost recovery, quality of health care services and health care access among the poor.

Section 4 highlights the issue of equitable access to health care services within the scope of user fees policies.

The following three sections illustrate the newly introduced user fees policy, while accompanying exemption measures in Madagascar. Section 5 describes the contents and structure of the newly user fees policy (Financement pour l’Approvisionnement Non-stop en Me_dicaments: FANOME) and the accompanying protection measures for the indigent (equity fund).

Section 6 discusses the implementation status of FANOME and equity fund by looking at the monitoring data of Boeny region, Mahajanga province.

Section 7 illustrates other user financing schemes including various pilot initiatives and research activities supported by donors and NGOs in Madagascar.

Based on the literature review and the review of recent experiences of user fees policy with accompanying exemption measures for the poor in Madagascar, the last section (Section 8) discusses the implications for international development cooperation concerning user fees for and equitable access to health care.

(Published September 2006 by IFIC, JICA)

“The full text of this report is available of JICA's official website, "Users Fees Policy and Equitable Access to Health Care Services in Low- and Middle- Income Countries -- The Case of Madagascar.”

International Labor Migration and its Effect on Poverty Reduction: Critical Review on the Current Literature

Background

International labor migration, crossing borders for the purpose of looking for better employment opportunities, has been considered an important element in international development. In particular, since around the International Conference on Financing for Development at Monterrey, Mexico, in March 2002, there has been a growing interest in utilizing as a source for financing development the remittances generated by international labor migration. This is due to the fact that the amount of remittances from More Developed Countries (MDCs) to Less Developed Countries (LDCs) has grown from US$ 30.4 billion in 1990 to at least US$ 93 billion in 2003. This is double the amount of the total Official Development Assistance (ODA) of the member countries of the Organization for Economic Cooperation and Development (OECD) and is the second largest flow from MDCs to LDCs after Foreign Direct Investment (FDI). In addition, the figure is probably greatly underestimated because many of the flows are through informal channels rather than official or bank transfers.

As Millennium Development Goals (MDGs) have become a global agenda, various parties in international development field, in both the public and private sectors, perceive migration remittances as a gold mine to be mobilized, not only for economic development in general terms, but also, specifically for poverty reduction in LDCs.

Such expectations and optimism prevailing in the international community are enhanced by studies conducted by experts, mostly development economists in and around the development agencies and research centers in the international organizations and the OECD member countries. In fact, many experts, as introduced in the following chapters, argue that international labor migration, through remittances, could contribute to economic development and thus alleviate poverty in LDCs.

In addition, assertions are well reflected in often cited indexes such as the Commitment to Development Index (CDI) in so-called “Ranking the Rich” report. The report ranks how well the “rich” countries are committed to help the “poor” countries, based on seven sub-components that measure various performances of MDCs in contributing to the development of the LDCs.

Among the seven evaluation indicators there is international migration, which includes migrant labor, students, and refugees. According to the CDI, the more migrants an MDC accepts, the more the country is regarded to be helping the LDCs.

Nevertheless, the volume of migrants in the MDC could not necessarily be translated into the degree of its commitment to the development of LDCs. As poverty is defined in a more multidimensional manner, more comprehensive measurement on the impact of remittances will be needed, especially on that in Asia, where there is a lack of empirical studies.

Objectives

Through revealing and summarizing what is known and what is not known in the previous studies, this report tries to provide concise and practical knowledge to assist JICA personnel in becoming familiar with the latest studies and possibly be prepared for their future involvement in the issues of international labor migration.

The specific objectives of this report include: (1) Overview of current migratory trends and policies in selected OECD countries; (2) Assessment of policy coherence among migration, aid, and trade; (3) Presentation of political contexts surrounding the interests in remittances; (4) Review of previous studies on the relationship between international migration, remittance and poverty reduction; (5) Identification of the gaps in literature; (6) Critical review of the flaws in CDI’s migration component and suggestion of the alternative ideas for improvement; (7) Report of the local opinions and experiences in the case study of Thailand; and (8) In conclusion, identifying possible areas of Japanese future contribution, providing some ideas for the Japanese involvement, and offering rational ways of understanding to the problem of brain drain in the context of local staff and counterparts leaving JICA and the country respectively.

Summary

The report is organized into six chapters which include an introduction as Chapter 1. The introduction gives an overview of the study’s background and objectives.

Chapter 2, “Current Migratory Situations and Migration Policy,” discusses global trends, particularly those in OECD member countries with several
The chapter also takes a closer look at the immigration policies of three countries, such as Australia, Germany, and UK, since these countries accurately reflect the general trends of immigration policies of the host countries, especially other OECD countries.

Chapter 3, “Role of Remittances,” explains a summary of recent international conference on remittances and remittance in political context. Causal relationship between remittances and poverty reduction and the issue of brain drain are also spotlighted in the chapter. In addition, it is pointed out that there has been a lack in migration research on Asia. Recently, the research network among international migration such as Asian Pacific Migration Research Network (APMRN), a part of UNESCO research network project, has been formed in order to bring scholars of different disciplines to set up a common research agenda in both sending and receiving countries.

Chapter 4, “Critical Examination of Commitment to Development Index,” critically reviews a newly developed ranking system which rates the OECD migration policies in the context of commitment to development in LDCs. The new system is known as a migration sub-component of the “Commitment to Development Index (CDI),” which was proposed by the Center for Global Development (CGD) and Foreign Policy magazine in 2003.

Chapter 5 is “Case Study: Impacts of Migration on Thailand.” There is a growing volume of literature reflecting the interests in international labor migration and its impact on poverty reduction. However, past studies have mostly stemmed from migration destination countries of OECD, especially Western Europe and North America. Perspectives from migration sending countries in Asia have not been fully articulated. Also, past research relies mostly on quantitative analysis, often initiated by development economists, hiding the complexity of the issues, such as causal relationships.

The chapter, presenting Thailand as a case study, aims to fill in those gaps in the research community.

Chapter 6, “Conclusion,” offers important clues for the direction that JICA could take into considerations in the future programs regarding labor migration, while presenting consensus and disagreements in the international community on international labor migration and its impact on development and poverty reduction.

(Published January 2006 by IFIC, JICA)

Capacity Development (CD) Case Analysis Series

What is Capacity Development (CD)?

“Capacity Development (CD)- Towards Capacity Development (CD) of Developing Countries Based on their Ownership” (November 2006)

In this case study, CD is defined as the ongoing process of enhancing the problem-solving abilities of developing countries by taking into account all the factors at the individual, organizational, and societal levels. Considering capacity as a complex of elements including institutions, policies and social systems (comprehensiveness), the concept of CD attaches great importance to proactive and endogenous efforts (ownership) on the part of the developing countries.

When JICA projects are organized from the viewpoint of entry points in CD support based on these perceptions, the projects can be classified into the following three types: (1) “community/local society empowerment,” (2) “core function development,” which promotes human resources development and technological diffusion, and (3) “policy and institution development,” which strengthens the formulation and application of national-level policies and systems.

Past JICA cooperation projects were classified and analyzed from the above perspectives, and as a result “Case Study Report on Capacity Development” has been prepared. Here, the results of respective analyses are organized according to three entry points as follows.

Findings from the analysis of the “empowerment type” case

“Comprehensive Study on Family Planning and Women in Development Projects in Jordan” (November 2006)

In this case study, an analysis was done in particular from the perspective of empowerment of local women, taking the projects in the same field in Jordan as the case (Phases I, II, and former Community Empowerment Program). The sense of ownership among community leaders is developed by involving local social resources through baseline surveys, etc. The main messages were conveyed through participatory workshops, by involving both men and women through an integrated implementation of reproductive health activities and local income generating programs.

Local volunteer women were trained to take initiative in the activities, aiming to build a system to influence all women in the region. By implementing these activities in stages, from an individual / family level to a target group level and the entire community level (three-layer approach), CD effects were shown not only among individuals but also in the entire local community.

“The Project for Strengthening of District Health Management Services in Morogoro Region” (scheduled for April 2008)

This case strengthened health management in the region as an entry point in terms of health sector reform in Tanzania, which also led to strengthening the comprehensive health system at the national level. The characteristic point is the strengthening of vertical and horizontal collaborations, targeting the region and district level as a bottleneck which was positioned between bottom-up and top-down.

Another major characteristic of this case is catalytic support, which develops the partner country’s leadership and ownership. Japanese experts at times served as an intermediary of various stakeholders or presented ideas from different perspectives. Through such efforts, the partner country tried to use the sector fund and institutionalize or systematize the project model.

Findings from the analysis of the “core function development” case

“A Study of the Effectiveness and Problems of JICA’s Technical Cooperation form a Capacity Development Perspective – Case Study of Support for the Advancement of Ghana’s Irrigated Agriculture” (September 2006)

This case study analyzes long-term support for a little less than 20 years from 1988 to 2006 in this field from a critical viewpoint. A series of cooperation was classified into four phases, starting with strengthening the organization of the irrigation development center and developing its human resources, but a long-term strategy could not be fully established for any phase, due to the approach toward project-level goals and achievements, which was regarded as a point to be improved.

Further, major directions in respective phases were determined by Japanese experts, which led to
the partner country’s related parties’ dependency—this was also regarded as a problem. On the other hand, the Japanese-type “progressive approach,” which was to succeed the results of past cooperation (assets) by establishing a long-term road map, can be a strategic and flexible cooperation approach. Based on the approach, this case proposes the necessity of building JICA’s entire system aimed to develop projects on organization, policy and society levels, by using the advantages of experts’ cooperation in human resources development.


This case study analyzes the factors for a firm establishment of in-service training for teachers as a system, targeting this project, which has been implemented since 1998, and Phase II, which has been implemented throughout Kenya and widely in Africa since 2003. A major characteristic is that project activities were engaged to meet the needs of a wide range of stakeholders, including not only teachers, who are the direct target, but also personnel in charge of policy at the Ministry of Education, principals’ association, and local PTAs, and that commitment was drawn from each party.

As a result, the government budget was prepared for central-level training, and the SMASSE fund, which was a reserve fund that corresponds to 1% of the tuition fee, was prepared for local-level training—this is a point to be noted. Another major characteristic is that Japanese experts took a “waiting” stance while anticipating the partner’s capacity improvement from a long-term perspective and appealed visible results, which developed the partner’s ownership.

“Asia-Pacific Development Center on Disabilities Project” (scheduled for June 2008)

This case study analyzes the CD case, which is developed in the Asia-Pacific region based on this center. The project centered on persons with disabilities as resourceful persons with strong commitments to the future, and gave them consistent support from training to follow-up after returning home. Those stances led to the effect of empowerment among persons with disabilities.

The project also facilitated collaboration with various stakeholders, including not only persons with disabilities, but also the community and the central/local governments. Those effects reached even non-disabled persons and influenced the aspects of policy, institution, and society that realized a barrier-free society in general. Furthermore, provision of an opportunity for regional-level networking brought about a CD effect of promoting competition and collaboration among respective countries.

“Energy Conservation Sector” (February 2008)

This case study analyzes each of the cases of Turkey, Thailand, Bulgaria, and Argentina, as CD support with consideration on establishment of a system that was designed to affect private companies, while essentially targeting technology transfer to the core organization—the energy conservation center. Technology transfer and institution development have not necessarily been realized in a balanced way in every case, but as a lesson from each case, it is proposed that a road map be prepared for strengthening the counterpart on an organizational level, influencing the private sector, and then developing the institution as an entire nation; each case also presents the need to clarify the order of activities to be tackled based on a program approach.

Findings from the analysis of the “policy and institution development” case

“Program on Capacity Building of Thai Local Authorities” (scheduled for April 2008)

This case study analyzes the program as one implemented in association with the strengthening of a local administration that was considering the empowerment of the local community, while basically aiming to build a local administration system in Thailand. Because support for local administration was a sensitive issue that also steps into the partner country’s governance system, first, Japanese and Thai researchers shared recognition of a wide range of issues through joint study. This program was characterized by implementation of technical cooperation with clarified results of specific issues, after upgrading the partner country’s recognition and ownership. Because this case was related to the local area, it was proposed, as a lesson, to involve both central and local stakeholders and effectively combine local resources with Japanese resources.
Overall findings

As overall findings from the above case analysis, the following points can be presented. From the viewpoint of comprehensiveness, CD impact on policy and social levels is created by paying attention to various stakeholders, including direct counterparts, personnel in charge of policy and community residents, and effectively connecting respective parties, in each case.

From the perspective of endogenuity, the recipient’s ownership is realized in every case, and further study reveals a characteristic that advantages are sought out according to respective standpoints of diversified stakeholders, and a commitment is obtained from them. Towards this end, the importance of the role of Japanese experts is also indicated. They are required to play a role in bridging various stakeholders’ collaboration and having an attitude of respect for the other party to think through the issue together.

In order to provide CD support as JICA, the importance of the partner’s capacity assessment is also pointed out. “Supporting Capacity Development in Solid Waste Management in Developing Countries” (June 2005) inserts a checklist of capacity assessment in the solid waste management.

*Reports related to capacity development including the above reports are presented at the following website.
| JICA | is one of Japan’s Official Development Assistance (ODA) implementing bodies, mainly responsible for implementing technical cooperation in order to facilitate the autonomous, sustainable development of developing countries. JICA has turned into an independent administrative institution as of October 2003, which enables it to pay more attention to grass-roots cooperation, peace building, cost performance, faster decision-making and visibility. JICA’s new mission statement is:  
We, as a bridge between the people of Japan and developing countries, will advance international cooperation through the sharing of knowledge and experience and will work to build a more peaceful and prosperous world. |
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<tr>
<td>IFIC</td>
<td>was established in 1983 as one of the JICA’s affiliated organs. It aims at undertaking recruitment of senior advisors, training qualified Japanese experts, research and study, and collection and dissemination of information of technical cooperation.</td>
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