Technology and Development

No.13 January 2000

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ARTICLE

On the East Asian Economic Crisis

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The economic crisis in East Asia that took place in the summer of 1997 originated and deteriorated in the process in which the development-oriented economic system, which had realized the "miracle," was swallowed by global capitalism expanding at unprecedented speed and magnitude. While the East Asian countries were achieving economic growth, their government-business relations were evaluated positively as the factor in the economic miracle because they successfully prevented a coordination failure of investments. The present crisis, however, has started to change this view, holding governments responsible for generating nothing but "crony capitalism," which lacks transparency.

Was the East Asian economic crisis really caused by government intervention lacking transparency? The current crisis may have resulted from the globally moving money capital rather than from defects in the East Asian-model economic system. In either case, we must acknowledge that interpreting the East Asian economic crisis is fundamentally inseparable from interpreting the basic characteristics of the market economy. In doing so, it will be important that we abandon the paradigm of a completely competitive market under the neo-classical school, which is not a model that reflects reality, but is only a model for reorganizing reality. In order to survive this age of globalism, we must take a good look at the real market economy and abandon "extreme simplification and ideology." The present economic crisis in East Asia may be a reminder of this simple, but crucial fact.

I From Rapid Economic Growth to Currency/Financial Crisis

1. East Asian Miracle

From the beginning of the 1980s, East Asian countries began to compete against each other to attract foreign capital. In response to the stronger yen and currencies of the newly industrialized Asian counties after the Plaza Accord, the Association of Southeast Asian Nations (ASEAN) members, in particular, attempted to draw foreign direct investment into the production of exportable goods which they could not fully develop by themselves. These countries attempted to create economic enclaves, or "export platforms," by inviting multinational cooperation, in the ocean of traditional economy, which was considerably vulnerable and not necessarily compatible with capitalistic, global economic activities.[1] In addition to implementing policy measures such as establishment of export processing zones, bonded warehouses, and refunding of export tax, they liberalized trade through drastic reductions in the import duties on manufactured products and parts. Each government promoted this strategy through a series of macroeconomic policies including the realistic adjustment of exchange rate to give incentives for exporting labor-intensive products.

Frankly speaking, East Asia became a borderless, single economic area because of the economic liberalization policies employed by each country in the region. The wage differentials that had existed among these countries became more apparent as a profit-rate differential, the sole indicator of capitalistic economic activities. As a result, shifts in direct investments occurred on a massive scale. A "self-circulation mechanism" was developed in the East Asian region, seeking not only further mutual-dependency of exports, but investment funds supplier within the region. Savings accumulated in the region were optimally invested within the region, leading to the region's rapid economic growth. This "East Asian miracle" drew worldwide attention. During this period, East Asian countries shared the same optimism that economic prosperity could be achieved by virtue of universal strengths intrinsically endowed in the market as long as the economy was freed from inefficient government interventions.

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* This article was first published in Japanese in *Kokusai Kyoryoku Kenkyu*, Vo. 14 No.2 (October 1998).

1. Radelet, S., and J. Sachs, "Asia's re-emergence," *Foreign Affairs* (November/December 1997).

2. To Currency/Financial Crisis

After entering the 1990s, East Asian countries further proceeded with economic liberalization under this belief. In an attempt to attract funds from the global market, the countries rapidly carried out international liberalization of their financial transitions. As their economies started booming, international investors injected funds without thoroughly investigating how the funds were being used. This kind of behavior by some investors lured other investors into believing that there was a lot of money-making opportunities, and kept the economic boom going. This is a typical phenomenon of the so-called self-fulfilling expectation formulation. People began to believe that making money was honorable and business chances were unlimited These unrealistic expectations were destined to be unfulfilled when they came up against the realities in East Asia, where political power, family and personal connections are highly influential. The currency crisis started when the expectations of investors proved to be unrealistic.

The funds that flew in from the international market during the miraculous economic growth were not applied to strengthening the economic fundamentals in order to sustain the economic growth. Funds were not invested in the manufacturing industry that requires longer-term investment, but were invested in real estate and consumer credit business. It is undeniable that this distribution of funds was primarily induced by the financial policies of the authorities to continue to buy US dollars at a fixed rate and stabilize the various exchange rates against the US dollar. Particularly in Thailand where the current currency crisis originated, these foreign exchange rate policies caused an increased domestic money supply and appropriate real exchange rate. As a result, a relative price system, in which the price of traded goods such as exportable goods was low and that of non-traded goods such as real estate was high, was formed in the country. Under this distorted incentive-structure In this unbalanced system, funds were allotted primarily to real estate.

As currency instability spread, it gradually became apparent that there were various problems in the way banks in East Asia accommodated loans. Because governments, although not explicitly, indicated that they would not allow any banks to go bankrupt, banks' loan operations became morally hazardous, and their bad debts accumulated. As a result, Southeast Asian countries lost their credibility in the global market, which accelerated the selling of currencies. The domestic financial market in these countries had not matured enough to create a completely competitive market. Because of this immaturity, liberalization of the financial system resulted in the worsening of the economy. This is the phenomenon which is implied in international financial transactions as the" second best proposition " in welfare economics.[2]

3. The End of the Development-oriented Economic System in East Asia?

The current East Asian economic crisis took place in the big wave in which the development-oriented economic system that had produced rapid growth began to be swallowed by the global capitalistic system expanding at unprecedented speed and in magnitude.

In May of 1998, almost one year after the monetary crisis began, the Suharto administration in Indonesia collapsed. The Indonesian currency, rupiah, continued to be sold in global markets, because the global market hated the non-transparent policies and government-business relations. Unemployment and inflation rates accelerated, provoking frustration among the people, which resulted in the resignation of President Suharto. The market rocked the nation to the extent that the dictatorial administration collapsed. This was the beginning of phasing out any economic institution or system that was unfit to stand up to ongoing economic globalization.

When East Asian countries were running at top speed on the turnpike of economic growth, government and business relations in those countries were positively regarded as a primary factor in the miraculous growth. For example, in South Korea, the government was actively involved in the loan operations of banks. The government extended loans at low interest and allocated scarce foreign exchange to entrepreneurs who they judged to be running promising businesses. In many developing countries, interventions by the government resulted in facilitating rent-seeking activities. By contrast, in South Korea, loans and foreign exchange were allotted based on its export performances. As a result companies were motivated to improve management efficiency, and government intervention proved to be successful. Government and business relations in East Asia were evaluated positively as the factor that prevented a coordination failure of investments.[3]

The present crisis, however, has started to change this view, holding governments responsible for generating nothing but " crony capitalism", which lacks transparency.[4] Because the global Monetary Fund (IMF) required that domestic institutions and structures be reformed, the international market began to think that East Asian countries could not resolve the private sector's bad loan problems, without carrying out fundamental structural reform. The global community has gradually formed the consensus that the East Asian economic system was inefficient and unfair crony capitalism.

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2. Krugman, P., " What Happened to Asia, " Mimeo (1998).
3. World Bank, *The East Asian Miracle* (The Johns Hopkins University Press, 1993).
4. Stiglitz, J., " Sound Finance and Sustainable Development in Asia, " Mimeo (1998).

Robert Lucas, a laureate of the Nobel Prize for economics, once called the East Asian-model of economic development the " Michael Jordan model. "[5] His argument was that government interventions in East Asian countries and Michael Jordan were essentially the same in the sense that they are both exceptions, that is, they produce excellent outcomes no matter how much they go against common practice (the common practice of market economies in the case of East Asia, and the common practice of basketball in the case of Jordan). Lucas must be chuckling to himself that East Asia was not a genius like Jordan.

II Reconsideration of the Market Economy

1. Neoclassical Economics as an Ideology

With the beginning of the economic crisis in East Asia, neo-classical economics, which serves as a basis for the liberal political-economic order advocated by the United States, gained popularity worldwide. Neo-classical economics presents an ideological model not for understanding current events but for putting them in order. Some economists deprecate the current situation in East Asia, where political authorities have influence over economic matters. They argue, based on the neo-classical model, that it is necessary to restore the market economies to its ideal condition through thorough deregulation. They also claim that nepotism, a custom widely practiced, especially among ethnic Chinese, should be rectified, and that all economic activities must be regulated by global standards.

Neoclassical economists believe that actual economic systems could be reconstructed according to a completely competitive market model that has been proved, from the formative theory perspective, to be successful in achieving efficient allocation of resources. [6] One does not need to read an entire textbook on the neoclassical approach to realize that the premises, upon which a completely competitive market can exist, are both numerous and strict. The area where all premises overlap is so narrow, almost like a pinpoint. Neoclassical economists claim that every country in the world should look for this minute common ground.

Neoclassical economists apparently pay little attention to the factors which could cause a failure of a market economy, such as incompleteness of information and economies of scale. If one had paid close attention to the economic boom in East Asia, it would have been easy for one to realize the following facts: A large amount of capital flew into newly liberalized financial markets attracted by expectations of short-run high profit-rate. As a result, asset inflation occurred, which facilitated further inflow of capital. By contrast, the manufacturing industry experienced capital shortage. Because the manufacturing industry requires long-term fixed capital, manufacturing is not likely to generate a high profit ratio in the short-run. A harmonious relationship cannot be easily formed between the financial sector, a" home of capitalism", and the manufacturing sector," a stranger to capitalism." Such disharmonious relations between the two sectors have been repeatedly observed during the long history of capitalism. The neoclassical approach, however, does not accurately grasp this divergence as it depends on the false premise that a market is complete. One who pays enough attention to the realities of a market economy could easily see that an economy does not reach overall equilibrium even if each market of every sector moves into its equilibrium through its own mechanism and at its own time axes. Neoclassical economics, therefore, presents only an unrealistic view that all sectors and variables can be coordinated at once and full-scale equilibrium can be effectively reached.

2. Incompleteness of a Market Economy

It is evident that a completely competitive market economy does not exist even in the developed world. Under realistic conditions, each individual has to make a strategic decision, taking the presence of others into consideration, and carry out economic activities based on that decision. In such a situation, it is inevitable for a non-linear order to appear in decisions made by individuals. As a result, the performance of an economy as a whole portrays complex and unstable patterns woven by individuals' activities. A market economy cannot escape from this complexity.

Neo-classical economists argue that the more option each individual is given through deregulation, the better the outcomes that can be achieved. It is necessary to remember that this view is plausible only in a neo-classical model.[7] In the Walrasian model of a completely competitive economy, each individual receives information from an auctioneer, and makes a decision completely independent from others. The ideal outcome that is promised by this model is implausible in real socioeconomic life where one has to decide one's own action depending on the behavior of others. The Walrasi model can be effective for "a model for market socialism." However, as"a model for market economy," it is utterly impractical.

As non-cooperative game theory has taught us, Nash equilibrium exists in the sense that the expectations of an individual can be realized. Nash's equilibrium means a lack of incentives for any player to

5. Lucas, R. E.,"Making a Miracle," *Econometrica* 62 (2) (March 1993).
6. Hara, Yonosuke, "Tasoteki Jiyu Shugi Rulu no Kozu" *Kaihatsu to Bunka Dai 7 Kan* (Portrayal of Multi-phased Liberalism, Development and Culture Volume 7) (Iwanami Shoten, 1998).
7. Kandori, Michihiro,"Game Riron Niyoru Keizaigaku no Shizukana Kakumei," K. Iwai and M.Ito (eds.), *Gendai no Keizai Riron* (Silent Revolution of Economics Based on Game Theory, Contemporary Economic Theory) (Tokyo Daigaku Shuppankai, 1994).

alter his decision because everyone's expectation is fulfilled in the course of reciprocal interactions with others. The process of a certain custom becoming dominant in a society can be appreciated within the scope of evolutionary game theory. In this process, a kind of Nash's equilibrium is also reached in a sense that everyone opts to follow a custom if others choose to do so. However, realizing Nash's equilibrium is, in most cases, inefficient unless one considers the pros and cons of pursuing one's own interests.

The market economies of industrialized countries are far from being completely competitive. Even in affluent countries, a market economy formed on the interactions of self-interest pursuits among individuals is not free from incompleteness.[8] It is extremely difficult, even in a mature society, to coordinate decisions made by individuals so that they bring efficient outcomes to the society overall. In developing countries that are trying to catch up with affluent industrialized countries, if each private entity makes and executes its own investment plan separately, the entire economy is unlikely to benefit from the investments. Therefore, the author believes that governments should play a key role in development-planning. Holding governments responsible for creating crony capitalism is not totally misdirected criticism. However, putting too much emphasis on this point and denying the government's role in development is inappropriate. It is necessary to learn from cases in which government intervention proved to be successful.

3. Market Economy and Cultural Beliefs

In discussing market economies further, it is important to remember that non-cooperative games cannot have one unique equibria. Which equilibrium is chosen in a particular society depends on the history and the cultural beliefs and values shared by the members of that society. [9] It is most likely that the economic institution emerging in a society which values kinship is different from that of a society which emphasizes individualism. No matter what equilibrium is chosen, it is certain that there is no completely competitive economy, contrary to what neoclassical economists claim. People must carry out their economic activities in imperfect market economies. Each imperfect market is imperfect in its own way, even though all perfect markets are alike. Therefore, the measures to cope with this incompleteness need to be diverse. Actions universally applicable to all economies simply do not exist.

As the economic crisis deepened, it became apparent that banks in East Asia extended loans intensively to the firms belonging to the same kinship. Some international investors argue that this non-transparent practice, and not liberalization of the financial system, was the cause of the economic crisis in the region. International financial organizations, including the IMF, advocate establishing regulatory systems which meet global standards immediately.

The reform of the financial systems in East Asian countries is recognized to be necessary. However, it is dangerous to make hasty decisions about this matter. Since the cultural beliefs of a society has relevance to the way of conducting financial transactions, it is extremely important to be aware that each society has its own way of forming and devolving its market economy. [10] It is most urgent to accept that each market economy has its own characteristics and to be free of the idea that restructuring laws in an economy to meet global standards will, without question, improve the economic efficiency of the country.

III A Policy for Overcoming the Crisis

In this section, the author would like to draw your attention to conditionalities that the IMF imposed on Thailand and Indonesia. Although fiscal deficits were not the primary reason for the crisis in those countries, the remedies applied by the IMF were the same as those once applied in Latin America: a combination of tighter budgets and credit. This policy, however, is expected to slow economic recovery. The domestic economy is likely to go further into a recession because of tax increases and cutbacks in spending. In addition, there is a danger that even promising companies that have fallen temporarily into liquidity crisis may go bankrupt because of unnecessary hikes in interest rates and drastic depreciation of exchange rates.

The IMF, in exchange for its financial aid, imposed certain conditions on Thailand and Indonesia. It can be said that those conditions are not like the ones the IMF introduced in Latin America to stabilize macroeconomics, but are rather like the ones imposed on Russia in an attempt to implement comprehensive structural reform and cope with corruption. It is undeniable that structural reform is good for these economies in the long-term. However it is problematic that, because the IMF put too much emphasis on it, global investors have begun to believe that in these countries, especially in Indonesia, private foreign debts cannot be paid back without carrying out structural reform. It is very likely that the Indonesian economy failed not because of an excess of debts, but because of insufficient liquidity, or a temporary shortage of foreign exchange. The IMF should not force pro-

8. Matsuyama, Kiminori, "Economic Development as Coordination's Problem," M. Aoki et. al. (eds.), *The Role of Government in East Asian Development* (Claredon Press, 1997).
9. Grief, A.,"Economic History and Game Theory: A Survey,"*Handbook of Game Theory* (North-holl, forthcoming).
10. Hara, Yonosuke, "Shonin to Kokka no Keizaigaku" *Sekai Rekishi* 15 (Economics for Merchants and Nations,World History 15) (Iwanami,1998).

grams that require the fundamental reform of financial, economic, and political systems, even though these programs may be good in the long run.[11] It can be said that the IMF's proposal of too much larger-scale programs, based on an incorrect approach of neoclassical economics, has worsened the economic crisis in East Asia.

Neoclassical economists completely ignore the fact that rapid industrialization in East Asia has resulted in the over-production of labor-intensive goods around the world, which is contributing to the current economic crisis. The unrest in East Asian economies since the summer of 1997 must be understood not as a short-term cyclical recession, but as an intermediate- to long-term recession in investments.[12] In ASEAN member countries, the income distribution became more unequal during the rapid growth. In addition, consumption did not increase very much, which enlarged the gap between production and effective demand. As a result, East Asian countries experienced a hike in exports to Europe and the United States, which triggered the rise of protectionism in western countries. The world economy as a whole is entering a cyclical recession. There is a great danger that pursuing export-promotion policies after the crisis may force East Asian countries, as in the 1930s, to devalue their currencies.

In ASEAN member countries, the domestic income distribution is rapidly becoming uneven. This is one of the biggest problems which economic globalization has caused in this region. Neoclassical economists argue that the widening gap between the rich and the poor will cease once labor-intensive industry is back on track, thanks to various economic measures including exchange rate adjustment. However, the gap between those who are able to take advantage of opportunities in the booming financial and real-estate industries due to economic globalization, and those who do not have such capabilities, like farmers and blue-collar workers, is not likely to be corrected easily. Increase in part time employment in many corporations is also contributing to the unfair income distribution.

As argued in the "new economic" argument that is gaining popularity in the United States, is it really possible that Southeast Asia can achieve full employment through increasing the flexibility of its labor market? It is very likely that workers, stripped of opportunities to improve their skills and trapped in a vicious cycle of low income and productivity, will ultimately lose a stable basis for their lives. Krugman pointed out that technological advances and productivity increases do not take place as much as anticipated in the manufacturing industry of ASEAN countries.[13] The reason is that the traditional social infrastructure in these countries was not compatible to a global labor market due to the lack of worker's sense of commitment to the firm. To survive in global competition, workers must be committed to improving their skills and maintaining loyalty to their company. These countries do not have the necessary social structures, including educational systems and social customs, to raise productivity that would enable them to win severe competition in the global market. In short, cheap labor is the only reason why these countries were once internationally competitive. There is a great possibility that ongoing restructuring of the labor market in the region may weaken the region's economic production capability in the long run.

East Asia must escape from the spell of market-fundamentalism that idealizes drastic globalization. In response to the increasing speed of communication fueled by advances in information technology , the circulation of global money is also becoming very rapid. As long as short-term speculative capital inflow continues, stock prices will rise, and economic activities will remain brisk. However, once capital begins to flow out, interest rates will increase, exchange rates and stock prices will plunge, and economic activities overall will head toward stagnation. Mobile global money is not likely to flow into the manufacturing sector, which takes long time to realize the profits. The current economic crisis was caused not because the East Asian-model of economic systems has ended, but by global money capitalism, in which money circulates all over the world too rapidly. There is no complete market economy anywhere on the planet. Contrary to what the IMF believes, it is impossible for political and economic systems to become complete in a short period of time even if forced to carry out structural reforms. Each country's political and economic systems must evolve individually, based on the history and the social structure of that country. In order to survive this age of globalization, we must take a good look at the real market economy and abandon "extreme simplification and ideology."[14] It is also, now, time to reevaluate the idea of J. M. Keynes, who clearly recognized the strengths and weaknesses of capitalism. He said "Knowledge should be international. Produce goods domestically. Finance especially should be domestic." [15] East Asian countries should seriously reconsider his idea. It is necessary for every country to establish a system which encourages long-term capital flows into the manufacturing industry, while learning how to tame a rough animal, namely, the global money market. Obviously,

11. Feldstein, M.,"Refocusing the IMF,"*Foreign Affairs* (January/February, 1998).
12. Shinohara, Miyohei,"Higashi Asia Keizai no 21 Seiki wo Kangaeru"(East Asian Economy toward 21st Century), *This is Yomiuri* (June 1998).
13. Krugman, P.,"The Myth of the Asia's Miracle,"*Foreign Affairs* (November/December 1994).
14. Stiglits, *op. cit.*
15. Keynes, J. M., "National Self-efficiency," *The Collected Writings of John Maynard Keynes*, Vol. XXI (Macmillan, 1933).

Southeast Asian countries have no other way but to nurture their export industry to acquire foreign exchange. The most pressing issue today is to formulate the most effective policy for realizing this goal.

ARTICLE

The Current Situation in Vietnam and Japan's ODA

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Japan is currently the biggest ODA donor country to Vietnam. In 1992, Japan resumed full-scale economic assistance to Vietnam. Since then, assistance has been implemented based on new policies on the Japanese side, such as the ODA Charter. At the same time, it has also been carried out by taking in claims and opinions from the Vietnamese side, which has been proceeding with Doi Moi through political dialog.

At present, the rapid growth that Vietnam experienced during the mid-1990s is slowing down due to a decrease in foreign investment and the stagnation of exports arising out of the economic crisis in Asia. In these circumstances, one reaction of the Vietnamese government to the crisis is that it is finally attempting to seriously tackle long-neglected issues such as how to mobilize " domestic resources " thoroughly and carry out rural and agricultural development. Although the importance of these problems had long been recognized, they had been left virtually unsolved because of abundant foreign direct investment. In this sence, the current economic crisis in Asia has helped to deepen and facilitate Doi Moi.

ODA to Vietnam has been growing relatively smoothly and its role, especially from Japan, is becoming increasingly important. The basic principle which Japan drew up in the 1990s for its economic assistance to Vietnam is also gaining in significance: 1) it relies more on government intervention instead of simply liberalizing and privatizing the economy in order to nurture a market economy; and 2) it attaches importance to performing sustainable development that is stable and well-balanced rather than focusing on rapid growth.

Introduction

Since the Official Development Assistance (ODA) Charter was enacted in 1992, Japan has supported the democratization and promotion of market-oriented economies in developing countries by extending ODA whenever movements favorable to the spirit of the ODA Charter have taken place. The ODA White Paper in 1997 cited Vietnam as an example of a typical "positive linkage," where the implementation of Japan's ODA Charter positively influenced the changes in the recipient country.[1]

In November 1992, Japan resumed full economic assistance to Vietnam. Since then, Japan has considered Vietnam to be a priority and has actively extended assistance with the aim of supporting Doi Moi (innovation). Up to the fiscal year of 1997, Japan extended 391.804 billion yen in loan assistance, 37.769 billion yen in grant aid cooperation (both based on the Exchange of Notes), and 14.837 billion yen in technical cooperation (based on the real term of JICA's expenditure).[2]

At the same time, starting with the Fist Economic Cooperation Policy Council held in January 1992, Japan and Vietnam had repeated policy dialogs at a high level regarding economic assistance. In January 1994, the Committee on the Country Study for Japan's Official Development Assistance to the Socialist Republic of Vietnam was established at the Institute for International Cooperation, JICA. The committee was responsible for establishing the basic principles of Japan's assistance to Vietnam, and examining the areas of priority for assistance. Based on the outcome of committee deliberations, the Japanese government dispatched a comprehensive study mission for economic cooperation to Vietnam in October 1994.

Based on the study carried out by the Japanese side and policy discussions with the Vietnamese government, Japan's assistance to Vietnam has come to be based on the following four points: (1) Stability and economic development in Vietnam is essential to achieve regional stability and prosperity not only of East Asia, but also of Asia and the Pacific as a whole; (2) Following the Cambodian Peace Agreement in

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1. Economic Cooperation Bureau, Ministry of Foreign Affairs, *Waga Kuni no Seifu Kaihatsu Enjo: ODA Hakusho Jokan* (Japan's Official Development Assistance: The ODA White Paper Volume 1) (Kokusai Kyoryoku Suishin Kyokai, 1997) p. 75.
2. Economic Cooperation Bureau, Ministry of Foreign Affairs, *Waga Kuni no Seifu Kaihatsu Enjo: ODA Hakusho Gekan* (Japan's Overseas Economic Assistance: The ODA White Paper Volume 2 (Kokusai Kyoryoku Suishin Kyokai, 1998) p. 42; In the fiscal year 1998, loan assistance 88 billion, grant aid cooperation 8,186 billion, technical cooperation 4,636 billion. Economic Cooperation Bureau, Ministry of Foreign Affairs, *Wagakunino Seifu Kaihatsu Enjo: ODA Hakusho Gekan* (Japan's Overseas Economic Assistance: The ODA White Paper Volume 2) (Kokusai Kyoroku Suishin Kyokai, 1999) p.44.

October 1991, Japan-Vietnam relations entered a new era when yen loans were resumed. Through talks at the highest level, the relationship between the two nations has started to see anew phases of advancement in the political and economic arenas, as well as in the fields of security and culture; (3) Since 1986, the Vietnamese government has facilitated the implementation of a market economy under Doi Moi, and striven to improve and expand its relations with other countries, including Japan; (4) With a population of some 76 million, Vietnam's per capita GNP is still low and the country needs assistance. Based on these points, actual assistance has been carried out with an emphasis on forming a foundation for sustainable development and securing a fair distribution of economic resources among different social strata. The areas of assistance include: (1) human capital development and institutional development (especially to support the efforts toward a market economy); (2) electricity and transportation; (3) agriculture; (4) education and public health; and (5) environment.[3]

Japan's assistance to Vietnam in the 1990s is distinctive in that it has been carried out based on Japan's new policies which include the ODA Charter, and it has been extended by incorporating opinions and needs proposed from the Vietnamese side through policy dialogs. This article is intended to present an outline of the current situation in Vietnam during the Asian economic crisis since 1997, and to note the challenges facing Japan's ODA to Vietnam.

I Vietnam and the Asian Economic Crisis

The economic crisis which has prevailed since 1997 is seriously affecting Vietnam. Since the country, where there is no established stock market and the level of financial liberalization remains low, has not suffered from either the outflow of short-term capital or a fall of its currency like many other countries in the region. However, this does not mean that Vietnam is untouched by the economic crises in Asia.

First of all, one of the major impacts of the Asian economic crisis has been that foreign investment in Vietnam has plunged. Foreign exchange, which increased steadily after 1990, began showing signs of stagnation in 1997 and ended at 60% of its 1995 level. This downward trend became even more visible in 1998. By the end of 1998, foreign investment totaled 1.795 billion dollars, which is a 23% drop from 1997. If compared to 1996 when it reached its peak, foreign investment fell by almost 60%.[4]

The decrease in foreign investment started even before the influence of the Asian economic crisis was perceived. It is thought that factors particular to Vietnam, including delays in developing a favorable environment for foreign investment, must have contributed to the drop in investment. However, it is also quite obvious that the regional economic crisis accelerated this trend. Asian countries account for a high percentage of foreign investment to Viet Nam. Before September 1998, when it was calculated cumulatively, 19.7% of investment came from Singapore, 13.3% from Taiwan, 11.6% from Hong Kong, 11.4% from Japan, 9.8% from South Korea, 4.5% from France, 4.4% from United States, 4.3% from Malaysia, and 3.4% from Thailand.[5] Among the major investors, Hong Kong, Japan, South Korea, Malaysia, and Thailand were all severely hit by the economic crisis, which had a huge impact on investment in Vietnam.

Cheap labor was the largest incentive Vietnam had to attract foreign investment. However, the country lost its comparative advantage when neighboring countries drastically devalued their currencies in response to the economic crisis in the region and the average per capita income in Vietnam surged to 40-50 dollars, which making the country less attractive to foreign investors.

Another major impact of the Asian economic crisis on Vietnam was a stagnation in exports. Vietnamese exports grew by 25% on average per year (on a monetary basis) over the 12 years between 1986, when Doi Moi started, and 1997. However, starting in 1998, this growth began to slow. As of October 1998, exports had increased by only 3.6% over 1997 levels (on a monetary basis).[6]

According to 1997 statistics, exports to East Asia accounted for 44% of all Vietnamese exports, followed by 22% to Southeast Asia, 19% to Western Europe, and 3.8% to North America. Obviously, the focus is on the Asian region, and the economic stagnation in the area had a direct negative impact on the country.[7] Moreover, due to the currency devaluation in neighboring countries, the competitiveness of Vietnamese exports saw a relative decrease, and the price of exports dropped 20-22% on average, overall. This caused the previously mentioned stagnation in exports on a monetary basis despite the fact that in 1998 Vietnamese exports increased by 9% in volume over that in 1997.

Besides foreign investments and exports, the Asian economic crisis caused severe damage to the Vietnamese economy in the service industry in aviation

3. Economic Cooperation Bureau, Ministry of Foreign Affairs, *Waga Kuni no Seifu Kaihatsu Enjo: ODA Hakusho Gekan* (Japan's Overseas Economic Assistance: The ODA White Paper Volume 2) (Kokusai Kyoryoku Suishin Kyokai, 1997) pp. 43-44 ; Economic Cooperation Bureau, Ministry of Foreign Affairs, *op. cit.*, Note 2, pp. 41-42.
4. Legal capital excluded from the projects, VIETSOVDETRO. General Statistical Office Socialist Republic of Viet Nam, *Statistical Yearbook 1998* (Statistical Publishing House, 1999) p.247.
5. Vietnam Investment Review (December 1998) pp. 7-13.
6. Vietnam Investment Review (November 1998) pp. 2-8.
7. Dau Phi Thuan, "Xu Huong Chuyen Dich Co Cau Thi Truong Xuat Khau Cua Vietnam," *Nghien Cuu Kinh Te* (4) (1998) p. 63.

and tourism which have close connections with the outside world. As a result, the economic growth rate, which reached 9% between 1995 and1997, is expected to decrease to 5.8% in fiscal 1998 according to estimates by the Vietnamese government (and even lower according to international organizations).[8]

II Reaction of the Vietnamese Government to the Crisis

The Vietnamese government is obliged to review its ambitious goal to double the per capita GDP of 1990 before the year 2000 now that the rapid economic growth of the mid-1990s is obviously slowing. Initially, it was estimated that Vietnam needed a total of 41 billion dollars in investments over the five years from 1996 to 2000 in order to achieve its goal. From 1996 to 1998, it gained 21 billion dollars. However, as of the beginning of October 1998, only 16 billion dollars are anticipated for 1999 and 2000, 10% less than the original projection.

A breakdown of the original projection shows 48.5% in public investment (including ODA funds), 15.5% in private investment, and 36.0% in foreign direct investment (FDI). A revised estimate shows 52.7% in public investment, 20.5% in private investment, and 26.8% in FDI. In other words, FDI is expected to be lower by almost 25% from the original estimates. Private investment needs to increase close to 10%.[9]

Under these circumstances, the Vietnamese government stresses the importance of maximizing "domestic resources."[10] The percentage of total investments against GDP in Vietnam which registered 10.9% in 1987 when Doi Moi was implemented, has increased steadily, and went up to as high as 29.4% in 1997. By contrast, the domestic savings rate dropped to 19.9% in 1996 after reaching a peak of 21.4% in 1995. It improved slightly to 20.5% in 1997, but did not recover to its 1995 level. Similarly, the percentage of domestic capital investment against GDP declined to between 16 to 17% in 1997 after reaching a peak of 19% in 1996.[11] While this means that economic development in the country was highly dependent on foreign capital, the importance of fully mobilizing domestic capital was neglected under a smooth inflow of FDI and ODA.

The Asian economic crisis, especially decreases in foreign capital inflow, brought the vulnerability in the Vietnamese rapid economic growth during the mid 1990s into sharp focus. Mobilizing "domestic resources" is not a new issue but one that has long been recognized. People now realize that the resolution of this pressing issue not be further delayed.

The government has finally launched upon privatization, which has long been proposed as a remedy to transform inefficient government enterprise. It is anticipated that 134 state enterprises will be privatized by the end of 1998. In 1992, the public sector accounted for 30.6% of the GDP while the private sector amounted to 69.4%. However, in 1997, the public sector increased to 38% of GDP. The same trend is also observed in the growth rate of the public sector. In 1997, the public sector grew by 12.26%, while the private sector increased by only 7.8%. The private sector potential has not been fully developed.

There are four possible ways to rectify this situation: (1) enhance the public sector; (2) implement drastic privatization, and minimize the extent of the public sector; (3) improve the efficiency of the public sector while maintaining its size, and expand the private sector as much as possible; (4) scrutinize the size and role of the public sector, develop the private sector, and nurture a mutual supplemental relationship between the two sectors. Remedies (1) and (2) are not plausible in Vietnam. The government and the communist party are currently taking the third approach. Some economists argue that the time has come to opt for the fourth path.[12]

Approximately 80% of the entire population lives in rural areas in Vietnam, where in mobilizing "domestic resources" how to develop rural areas and the agricultural industry is a vital issue. The importance of this issue has often been discussed within the country; however, little action has been taken. Ten percent of total social investment was allocated to agriculture, forestry, fisheries, and irrigation projects in 1991. However, that percentage fell to 7% in 1997.[13] The price indices of 1997 increased to 103.4 as a whole, 104.4 for non-food products, and 108.1 for the service industry from the previous year. By contrast, the indices for agriculture-related products did not grow as much, for instance, 100.4 for staples, and 102.1 for other types of food. Evidently, the prices of agricultural products are unfavorable for producers compared to the prices of industrial goods and services. In 1991, GDP of rural areas accounted for 28% of that in urban areas. Since then, the gap between rural and urban areas has worsened, and it is said that the percentage of GDP in rural areas against urban areas fell to as low as approximately 16.4% in 1996 and 1997. It is believed that these circumstances limit the development of rural economies, and create huge

8. General Statistical Office, Vietnam, *op. cit*., p.28.
9. *Vietnam Investment Review* (October 26 - November 1, 1998).
10. The perspective of the mobilization of "domestic resources" was proposed at the fourth general meeting of the Communist Party Central Committee during the eighth session: "Nghi quyet Hoi nghi lan thu BCH Trung uong Dang ve tiep tuc day manh cong cuoc doi moi, phat huy noi luc, nang cao hieu qua hop tac quoc te, can kiem de cong nghiep hoa, hien dai hoa, phan dau hoan thanh cac muc tieu kinh te-xa hoi den nam 2000." (Nhan Dan, January 3, 1998).
11. Nguyen Minh Tu, "Chinh Sach Tang Truong Kinh Te Cua Viet Nam: Tu Goc Do Nan Kinh Te Hai Khu Vuc," *Nghien Cun Kinh Te* (7) (1998): p. 10.
12. *Ibid*., pp. 3-15.
13. *Vietnam Investment Review* (November 23-29, 1998).

obstacles to the expansion of the entire national economy.[14]

Agriculture and the rural economy are very important not only because agriculture remains a key industry which employs a vast majority of Vietnam's people, but also because their function as a safety net regained attention during the current economic crisis in Asia. In the government briefing presented at the National Assembly in the fall of 1998, Prime Minister Phan Van Khai proposed that the primary challenge for managing the economy in 1998 was "to strive further to develop agriculture and rural economies so that they serve as a foundation for socioeconomic stability and development under any circumstances."[15] It is estimated that some 12.6% of social investment will be allocated to agricultural production and development of rural areas.[16] The reaction of the Vietnamese government to the crisis is that it is finally attempting to seriously tackle issues whose importance has long been recognized but neglected due to a steady inflow of FDI. In this sense, the current economic crisis in Asia has helped to deepen and facilitate Doi Moi.

III Significance of ODA and Japan's Position

Mobilization of "domestic resources" involves difficult and time-consuming challenges, including engendering trust among the people toward the government, and developing "good governance." In this regard, although ODA has always had a significant role in development issues in Vietnam, its role is greater than ever given the current crisis in Asia.

While FDI to Vietnam decreases, ODA extended to the country has increased steadily. Between 1993, when Japan resumed its assistance, and 1997, Vietnam was pledged a total of 10.8 billion dollars in ODA by donor countries and international organizations (8.8 billion dollars in ODA on an Exchange of Notes basis). The issue is no longer how much ODA is extended, but rather how effectively the country utilizes the funds. The ODA execution rate has been improving year to year. However, up to 1997, only 3.8 billion dollars had been disbursed. In 1998, 1.43 billion dollars of ODA is expected to be extended.[17] If Vietnam can double the rate of 1998, about 20% of the previously mentioned total investment planned in 1999 and 2000 may be covered by ODA.

Japan's role in ODA to Vietnam is becoming increasingly important. In 1996, Japan was the number one donor country among the Development Assistance Committee (DAC) members, and its contribution accounted for approximately 13% of the total ODA to the country. In 1997, Japan became the biggest ODA provider among other donor countries and international organizations, including the World Bank and the International Monetary Fund (IMF), when its contribution surged to 31.5% of the total ODA.

Japan's ODA largely contributes to the construction of the socioeconomic infrastructure in Vietnam, which includes power plants, roads, port facilities, and water and sewage systems. In addition, it has a considerable ripple effect. First, Japanese corporations continue to have a presence in Vietnam, encouraged by the Japanese government's consistent support to the country. For example, Japanese companies win bids in most yen-loan projects. Second, the Vietnamese government is more willing to listen to voices from the international community as it is involved in keen competition to win either foreign investment or ODA. Japan is the largest ODA donor, and its proposals are becoming increasingly important to Vietnam. These two effects suggest that there is an opportunity to further improve the economic relationship between Japan and Vietnam during the current crisis in Asia.

IV Japan's ODA Policy to Vietnam

One characteristic of Japan's economic assistance to Vietnam since 1992 is that it has been carried out based on Japanese new aid policies, such as the ODA Charter. In 1994, the Committee on the Country Study for Japan's ODA to the country was formed. In 1995, the committee's activities were succeeded by a project named "the Comprehensive Policy Support to Vietnam toward a Market Economy," which was responsible for making proposals to the country regarding the ODA master plan and in other important areas such as macro-economy, rural development, agriculture, and finance. At the same time, conclusions reached by the committee formed a basis of Japan's ODA to Vietnam after the visit of the Comprehensive Study Mission for Economic Cooperation to the country in 1994. Japan's efforts to expand economic assistance in more comprehensive ways have continued. In September 1998, the Mission for Economic Cooperation Policy Dialogue was sent to Vietnam in an attempt to hold comprehensive discussions with the government regarding grant aid, technical cooperation, and yen loans. It is believed that this series of efforts will play a vital role in sending a clear message that Japan is committed to assisting Vietnam.

Although the details of the policy conferences and projects are not open to the public, judging from the information available, the author believes that Japan's

14. Nguyen Thi Thu Hang, "Nguyen Nhan Giam Sut Toc Do Tang Truong Va Cac Giai Phap," *Nghien Cun Kinh Te* (9) (1998) pp. 3-16.
15. General Statistical office, Vietnam, *op. cit.*, p.28
16. *Vietnam Investment Review* (October 26-November 1, 1998).
17. *Vietnam Investment Review* (November 16-22, 1998).

economic assistance to Vietnam is based on two basic principles.[18] The first is that appropriate government intervention is more effective than simple liberalization and privatization in promoting a market economy in a low-income country with underdeveloped economy like Vietnam. Thus it is extremely important to develop the capabilities of the Vietnamese government in this regard.

The second is that it is equally important to recognize the great potential of the country and to actively extend not only grant aid assistance, but also yen loans to the nation. However, support should be also focused to macroeconomic stability and implementing well-balanced sustainable development, not merely staging rapid economic growth. Issues that need to be considered in the assistance policy include how to form the foundation for long-term growth, how to achieve social stability, how to correct the gap between urban and rural areas resulting from economic reform (for example, by preparing agricultural infrastructure), and how to eradicate poverty.

To the author, the first principle seems to : (1) give Vietnam a sense of security in that Japan's ODA is not intended to overthrow the socialist regime; and (2) prevent policies implemented by its government from going off the market-oriented right path. The second principle, active extension of yen loans, was a source for caution and concern for the Vietnamese because of accumulating debts and the possibility of the debts increasing due to the appreciation of the yen. Because of this, the Vietnamese government preferred grant aid cooperation. Recently, however, the Vietnamese have begun to have a more positive attitude toward yen loans based on the notion that yen loans are helpful for the country. In addition, Japan's aid principle of helping Vietnam achieve well-balanced and sustainable development corresponds perfectly with Vietnam's goal of reconciling economic development with social equality. With the onset of the Asian economic crisis, Vietnam became more aware that it was necessary to resolve these problems. It is therefore expected that Vietnam will continue to respond positively.

The Project of Comprehensive Policy Support to Vietnam toward a Market Economy (In the country, the project is know as the Ishikawa Project, named after its leader, Shigeru Ishikawa, Emeritus Professor at Hitotsubashi University) has been highly regarded by top level Vietnamese leaders including Former Communist Party General Secretary, Do Muoi and current Communist Party General Secretary, Le Kha Phieu. At a meeting with the mission for economic cooperation policy dialogue held in September 1998, the Vietnamese government expressed its approval for Japan's plan: (1) Among the five priorities, nurturing human capital development and institutional building should be emphasized; (2) Within the scope of the five priorities, the two governments should consider redressing the gap between urban and rural areas accompanying economic reform, and consider narrowing disparities between the social classes to eradicate poverty. The positive response from the Vietnamese government shows that Japan's assistance is based on the proper principles.[19]

It has been six years since Japanese ODA to Vietnam was resumed full-scale. Six years might be too short to judge the outcome of the assistance. However, the ODA to Vietnam has been extended as a pilot case which represents Japan's overall principles for ODA in the 1990s, and the course of the assistance is becoming increasingly important with the ongoing economic crisis in Asia. The author sincerely hopes that the valuable experience of the 1990s will be wisely utilized in the 21st century.

18. The author referred to "The Report by the Committee on the Country Study for Japan's Official Development Assistance to the Socialist Republic of Viet Nam" (1995), etc.
19. *Kokusai Kyoryoku Plaza: News and Data* (International Cooperation: News and Data) November, and December (1998).

ARTICLE

A Consideration of Infrastructure Development in Developing Countries —Appropriate Design Based on Optimal Destruction Probability

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Infrastructure development in developing countries is accompanied by many problems particular to developing economies, such as funding and technology shortages, insufficient demand and incapability to bear costs, and a lack of maintenance and management systems. Of these problems, this article discusses an approach to an appropriate design which corresponds to different levels of economic development. To be more specific, it presents an analysis of a choice of optimal destruction probability balanced with the developmental stage of an economy in the planning and designing process from a perspective of economic efficiency.

Infrastructure design is done based on specifications that are systematized as design standards. Design standards determine the specific content of various specifications, and the conditions of the structures, such as importance of infrastructure, expected size of demand, natural conditions, to which each specification is applied. Economic efficiency is taken into consideration only indirectly and partially in connection with the categorization of structures as to the importance and the demand for them. Among those stipulated in design standards, such factors as design flood volume, design earthquake strength, maximum loading and considerations for human error (for example, a safety allowance against maximum loading) are extremely important because they are the major determinants of the design destruction probability of the structures. This article aims to analyze how costs can be reduced through the deliberate optimization of destruction probability and can contribute to an optimal allocation of resources.

Analysis has shown that, in general, except for cases where destruction causes human casualties, it is desirable when designing a structure in developing countries to adopt a destruction probability that is higher than that in industrialized countries from the perspective of efficient resource allocation. This is because social discount rates are higher in developing countries and, in case of destruction, economic loss before restoration is expected to be small. It is not necessarily good, particularly in the case of partial destruction, to adopt such extremely small destruction probabilities in these countries as those tacitly used in industrialized countries. Whenever partial destruction requiring repair occurs after the completion of an assistance-related infrastructure development project, there are criticisms that there was a design error. These criticisms, however, are not necessarily accurate.

Foreword

Recently, the development assistance community has been faced with various new challenges such as global environmental issues, stabilization of the international monetary system, etc. The importance of infrastructure in development should not be blurred by these problems. Infrastructure will continue to play a central role in various facets of the growth of developing countries, and the need for more flexible and innovative approaches to infrastructure development has become even greater than before.

Infrastructure development in developing countries is accompanied by many problems particular to developing economies, such as funding and technology shortages, insufficient demand and incapability to bear costs, and a lack of maintenance and management systems. Among these problems, this article discusses an approach to appropriate design which corresponds to different levels of economic development. To be more specific, it presents an analysis of a choice of optimal destruction probability balancing with the developmental stage of an economy in the planning and designing process from a perspective of economic efficiency.

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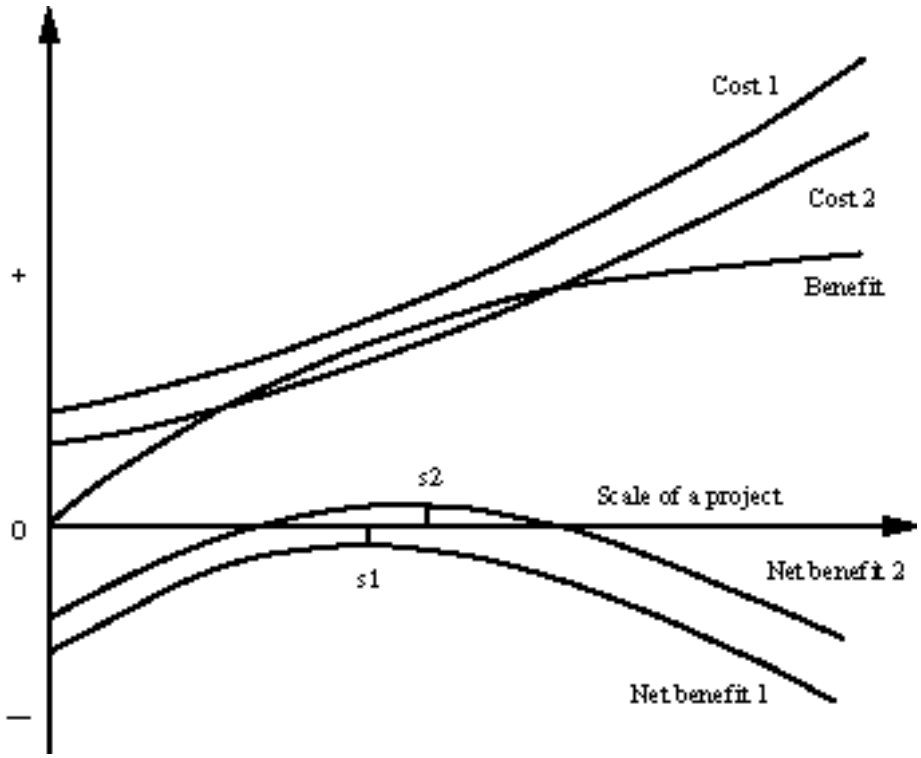


Figure 1 Economic Feasibility of a Project

I Cost Reduction, Economic Feasibility and Optimum Resource Allocation

It is not a problem particular to developing countries to allocate valuable resources efficiently among different competing needs under severe financial constraints. It is with these countries, however, that the problem is most acute, since they have to rely heavily on external resources for their development funds. For this reason, many aid organizations, including Japanese organizations, be they multilateral or bilateral, attach great importance to the economic feasibility of individual projects when deciding whether to provide financing or not. That is, it is a presupposition to financing a project to scrutinize the costs and benefits, and to confirm that the benefits outweigh the costs. Therefore, stricter cost consciousness is required when designing a project in these countries.

Figure 1 demonstrates the importance of cost consciousness in the design of a project to secure economic feasibility. The horizontal axis represents the scale of the project (e.g. width of a bridge), and the vertical axis the costs and the benefits of the project. Assume that the project under consideration generates benefit as a function of scale as represented by the schedule denoted " benefit " in the figure. Assume further that the two "cost" schedules in the figure represent those of the project under different design standards that affect construction costs. For example, the "cost 1" curve may represent the cost schedule based on the design standard of an industrialized country, and the "cost 2"curve that of an appropriate standard for the developing country in question. The net-benefit, which is the difference between the benefit and the cost, is represented by the two "net-benefit" curves for these cases.

In infrastructure projects in developing countries, cases such as that depicted by "cost 1" are not uncommon. This illustrates a case where, if designed using the standards of industrialized nations, economic feasibility is not secured at any level of the project because of the shortage of benefits. Benefits often depend on the developmental stage of the economy such as is indicated by per capita GNP. Even if there is the same amount of physical demand expected (e.g. number of users), the amount of benefit is apt to be insufficient in projects in developing countries compared to those in industrially advanced nations. Under these circumstances, if it is possible to reduce the cost as in "cost 2"under a more suitable design standard, then economic feasibility will be ensured. It is interesting to note here that the optimal scale of the project (s1 and s2 in Figure 1) that produces the maximum net-benefit differs de-

pending on the case. If it is possible to cut costs, a larger scaled project will become optimal. Feasibility will improve for two reasons: increased benefit resulting from a greater demand and reduction in cost. If this is true, how can costs be curtailed in a concrete manner? As an example, we will discuss the choice of the optimum destruction probability during the planning and designing stage.

II Cost of Infrastructure Provision and Destruction Probability

Infrastructure design is done based on specifications that are systematized as design standards. Design standards determine specific content of various specifications, and the conditions of the structures (importance of infrastructure, expected size of demand, natural conditions, etc.) to which each specification is applied. Economic efficiency is taken into consideration only indirectly and partially in connection with the categorization of structures as to the importance and demand. Therefore, it is evident that certain cost reduction will be achieved if design is done with an explicit attempt to optimize the design with respect to cost.

Among those stipulated in design standards, such factors as design flood volume, design earthquake strength, maximum loading and considerations for human error (for example, a safety allowance against maximum loading) are extremely important because they are the major determinants of the design destruction probability of structures. We will examine below how we can achieve cost reduction, and hence contribute to better resource allocation by explicitly optimizing the destruction probability. The destruction of a structure does not necessarily mean a total collapse, which would entail rebuilding the structure from scratch. Large structures tend to collapse in parts, rather as a whole; it is rare that an entire structure gives way all at once. A case in point is the breaking of a levee; if it breaks at all, it does so at very limited locations, not over its entire stretch. The extreme deterioration of pavement resulting from excessive loading and/or lack of strength is another example.

Let us consider a structure that is expected to function for a given period of time. It may be created so strongly that it will not fail during the entire service period, but the construction cost will be prohibitively high. If built cheaply, the probability of failure will be large and extra cost will be incurred for repairs to complete its service life. The lower the initial construction cost, the shorter the expected life of the structure, and the increased likelihood that it will need repairing more than once. Associated with the failure of a structure, is the loss to society due to its failure to serve its purpose. These considerations indicate the importance of examining the likelihood of destruction with which to construct a structure. To do such an analysis, it is necessary to represent the net present value of the total social cost of a structure (total provision cost, hereinafter) as a function of the likelihood of failure (destruction probability, hereinafter). The total provision cost is defined here to include not only the initial construction cost, but also the repair and miscellaneous social costs incurred when the structure goes unused for a period because of a failure.[1] The initial construction cost of a structure can be considered to be the function of the destruction probability, p, which is defined as the probability that the structure will fail within one year after construction. For example, if a structure is designed according to a design flood that corresponds to the repetition period of 100 years, the destruction probability will be 0.01. Since the stronger the design of a structure is, the higher the construction costs are, the cost of initial construction, $C(p)$, is considered to be a decreasing function of p. Furthermore, since there appears to be a certain minimum at which construction cost cannot be made cheaper no matter how humble the structure's design, $C(p)$ can be assumed to approach a certain lower bound as p comes close to unity.

Assuming that repair work is to restore a damaged structure to the condition of its original design used in the initial construction, the cost of repair can be considered to be a function of the extent of the damage and the initial construction cost. Including the debris removal cost in the miscellaneous social cost of structure failure, the ratio of repair cost to initial construction cost (hereinafter damage ratio) is a positive number smaller than or equal to unity, with unity corresponding to the case of total destruction. Since the damage ratio can also be considered to be implicit in the design standards as is destruction probability, it is also important to examine the possibility of reducing costs by choosing the optimal damage ratio. Because of the stochastic nature of failures, it is extremely difficult to precisely predict the extent of damage a priori, and so design standards should be understood to implicitly contain an average damage ratio. Without going into further details, we will assume that the average repair cost is given by the product of the initial construction cost, C, and a given damage ratio, s.

In addition to repair outlay, various miscellaneous costs will be incurred by the society once a structure is damaged and its service interrupted. We will denote X to represent the total of such miscellaneous costs.[2] Although some constituencies of X, such as the loss due to cessation of use and the costs of removing debris, can be considered as functions of damage ratio, s, they are also affected by other factors such as the size of demand

1. We do not explicitly deal with the cost of routine maintenance in this analysis because it can be considered to be constant for a given service life regardless of whether a structure needs repair or not during its service life. To be more precise, since routine maintenance is not required during repairs, total cost of routine maintenance may be reduced depending on the number of repairs. Such effect, however, may be incorporated in the analysis by reducing the miscellaneous social cost of failure by the saving in total routine maintenance cost.
2. To be more precise, it is the net cost excluding benefit due to failure such as savings in routine maintenance costs.

at the time of the failure. In this analysis, we will consider X to be a constant representing the average miscellaneous cost of damage during a structure's service life.

Having thus defined various components, the net present value of the total cost of a structure repair for a given service life (hereinafter denoted by L) that includes repair cost and miscellaneous social costs of failure (hereinafter denoted by $R(L)$ and called total repair cost) is given by

$$R(L) = \int_0^L g(t)\{sC+X+R(L-t)\}\exp(-rt)dt \quad (1)$$

where, r is the social discount rate. The function $g(t)$ is the probability density distribution function of destruction probability. Assuming that the destruction probability density at any point in time is independent of the previous history of destruction, $g(t)$ is given by the following Poisson distribution:[3]

$$g(t) = q\exp(-qt) \quad (2)$$

where $$q = -\ln(1-p). \quad (3)$$

Expression (1) implies that the total repair cost for a service life L, $R(L)$, is given as the expected value of the net present value at the beginning of the analysis period, $t = 0$, of the sum of the average repair cost sC, the miscellaneous social cost of failure X and the total repair cost for the rest of the service life, $R(L-t)$, at each moment of the service life, t. Solving this,[4] the total repair cost, $R(L)$, is given as a function of destruction probability, p, as follows:

$$R(L) = kq(sC+X) \quad (4)$$

Where $$k = \{1-\exp(-rL)\}/r. \quad (5)$$

Therefore, the total provision cost for a service period of L, $F(L)$, which is the sum of the initial construction cost, C, and the total repair cost, R, is given by

$$F(L) = C + kq(sC+X). \quad (6)$$

III The Optimal Destruction Probability and the Minimum Total Provision Cost

In the following discussion, the initial construction cost, C, and total provision cost, F, are considered to be functions of q because destruction probability, p, can be uniquely transformed to parameter q through equation (3). Since the initial construction cost, C, is assumed to be confined by a lower bound (denoted as $\underline{C}$), expres-

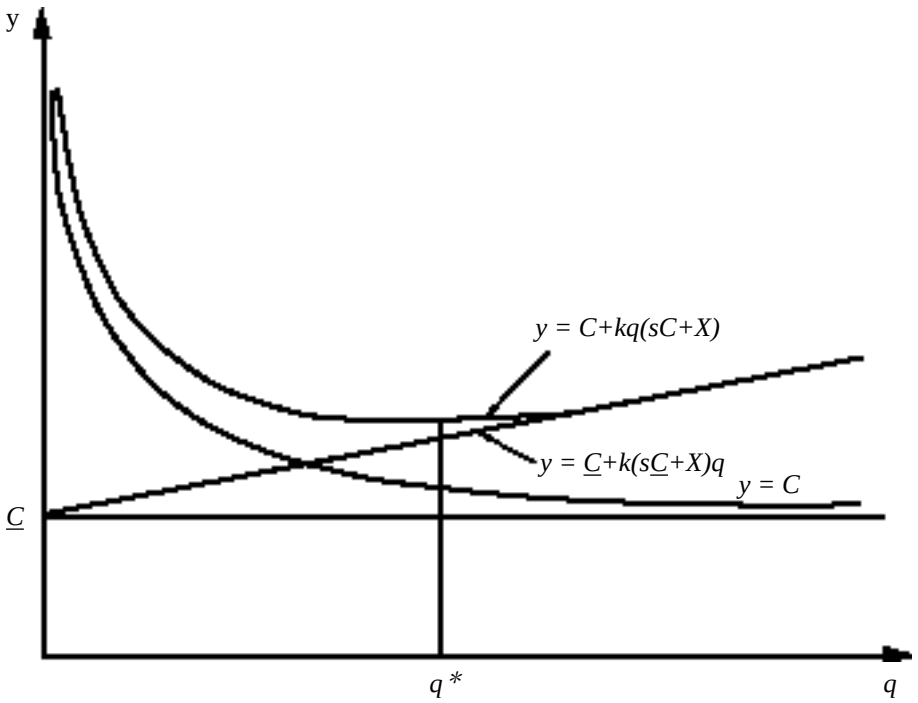


Figure 2 Relationship between Design Destruction Probability and Total Provision Cost

3. This distribution is known to approximate those of the occurrences of very infrequent events.
4. From equations (1) and (2), the equation to be solved is given by the following expression:
$$R(L) = q\int_0^L \{sC+X+R(t)\}e^{-(q+r)(L-t)}dt \quad (7)$$
Differentiating both sides with respect to L yields:
$$R'(L) = q\{sC+X+R(L)\} - q(q+r)\int_0^L \{sC+X+R(t)\}e^{-(q+r)(L-t)}dt \quad (8)$$
Eliminating the integrals from equations (7) and (8), we obtain:
$$R'(L) = -rR(L)+q(sC+X)$$
Equation (4) is obtained by solving this first order linear differential equation.

sion (6) implies that the total provision cost function, $F(L)$, asymptotically approaches a straight line with a slope of $k(sC+X)$ as the destruction probability increases *(i.e., $p \to 1$, $q \to \infty$)*. However, when the destruction probability becomes very small *(i.e., $p \to 0$, $q \to 0$)*, the changing ratio of the total provision cost curve asymptotically approaches the sum of the changing ratio of the construction cost function C and $k(sC+X)$. Therefore, if the sensitivity of the initial construction cost function, C, to destruction probability (i.e., the absolute value of the changing ratio) at zero destruction probability is larger than a certain value (i.e., $k(sC+X)$), the total provision cost function becomes a minimum value at a certain positive value of destruction probability.[5] If this condition is not met, then the total provision cost becomes a minimum value at zero destruction probability.[6] In this case, repair costs and other costs associated with destruction are so large that reducing the initial construction cost by adopting a large destruction probability is not effective. Figure 2 depicts a case where the social discount rate $r = 0.07$, the service life $L = 20$, the miscellaneous costs $X = 20$, the damage ratio $s = 0.2$ and the initial construction cost $C = 100+300\exp(-1000q)$. In this case, the total provision cost becomes a minimum value in the neighborhood of $q = 0.00660$, or a destruction probability $p = 0.00658$.

IV Implications for Infrastructure Construction in Developing Countries

The specifications used in designing infrastructure implicitly specify the destruction probabilities of the structures through different design parameters such as design flood volume, design earthquake strength, safety margin against human error, etc. Specifications are systematized within a design standard, which also defines various conditions of structures under which different specifications should be applied. These conditions include natural conditions, the size of the demand for and the importance of the structures, all of which are closely related to the initial construction cost of structures and the miscellaneous costs of failure due to destruction, Therefore, a design standard may be considered to be a guideline that stipulates the appropriate design destruction probabilities based on empirically established relationships between destruction probability and total costs of structure provision including various losses incurred in the event of failure. That is, It can be taken as designating, based on empirical laws, provisions that are close to the solutions to the aforementioned minimization problem of the total cost of structure provision. It should be noted here that these empirical laws are constrained by the developmental stage and socioeconomic conditions of the society in which they have been established. This means that if a design standard is applied in a society that is very different from where the standard has been developed, the destruction probability implied by the standard will likely be very different from the optimum. This may be the case if the standard of a highly developed country is applied in a developing country without having been properly modified. This is because all the parameters of the total provision cost minimization model can be different depending on the developmental stage of a society.

The initial construction cost function is different if material and labor costs are different. The social discount rate, r, which is closely related to the marginal productivity of capital, tends to have a larger value in developing countries where capital is relatively scarce compared to investment opportunities.[7] In contrast, losses associated with structure failures, X, are smaller in developing countries. The relationships between these parameters and the optimal destruction probability, q^*, may be examined by further differentiating the first order conditions[8] of equation (6) with respect to the parameters. Since the expressions dq^*/dk and dq^*/dX thus obtained[9] imply that they take negative values in the

5. The initial construction cost function, C, is assumed to be appropriately continuous and differentiable.
6. The first derivative of the total infrastructure provision cost function, F, is assumed to be monotonic.
7. Another reason for this is that the economic growth ratio is generally assumed to be higher in economies in lower stages of development.
8. The first order conditions are obtained by equating the derivative of equation (6) with respect to these parameters to zero.
9. The first order condition for the minimization of $F(L)$ is derived as follows from equation (6):

$$\frac{dF}{dq} = C'+ksC+kqsC'+kX = 0 \qquad (9)$$

Considering the optimizer q^* as a function of X, the following expression is obtained by differentiating equation (9) with respect to X:

$$\frac{\partial}{\partial X}\frac{dF}{dq} + \frac{\partial}{\partial q}\frac{dF}{dq}\frac{dq^*}{dX} = 0$$

Substituting this expression with the result obtained from the partial differentiation of the right hand side of equation (9) with respect to X yields the following:

$$\frac{dq^*}{dX} = -\frac{k}{\frac{d^2F}{dq^2}}$$

The denominator of the right hand side of the above equation is positive due to a second order condition of the minimization of $F(L)$. Therefore, we have,

$$\frac{dq^*}{dX} < 0$$

Similarly, considering the optimizer q^* as a function of k, the following expression is obtained by differentiating equation (9) with respect to k:

$$\frac{\partial}{\partial k}\frac{dF}{dq} + \frac{\partial}{\partial q}\frac{dF}{dq}\frac{dq^*}{dk} = 0 \qquad (10)$$

From equation (9), we have

$$\frac{\partial}{\partial k}\frac{dF}{dq} = sC+qsC'+X = -\frac{C'}{k} \qquad (11)$$

Finally, from equations (10) and (11) the following inequality is established:

$$\frac{dq^*}{dk} = \frac{\frac{C'}{k}}{\frac{d^2F}{dq^2}} < 0$$

(Note that C' is negative by assumption)

vicinity of the optimal destruction probability, q^*, the optimal destruction probability becomes large as the social discount rate increases and the miscellaneous social cost of failure becomes small. [Note that equation (5) implies that the value of k becomes small as the social discount rate, r, increases.] That is, the lower the developmental stage of an economy, the larger the optimal destruction probability of infrastructure to be constructed becomes.[10]

It follows from the above analysis that enough care must be taken when applying the design standards of industrialized countries in developing economies. An explicit analysis of the optimal destruction probability that suits the particular conditions of the developing country may be in order necessary to reduce the project cost in such a way that the economic feasibility of the project is substantially enhanced as discussed in section 1.

V An Example of a Project Financed by Foreign Assistance Where Destruction Probabilities Were Adjusted

In designing the Jamuna Bridge in Bangladesh, which was inaugurated in June 1998, two distinct destruction probabilities were used for the bridge structure itself and a related structure: one adopted from the design standard of an industrialized country and the other, a value larger than that in the standard. The Jamuna Bridge is the first structure to connect the eastern and the western parts of the country that are divided by the Jamuna River. It is the largest bridge in the country, costing US$ 940 million and was constructed with the joint financing of Bangladesh, the World Bank, the Asian Development Bank and the OECF of Japan.[11]

The design of the main structure of the bridge was based on the British standard without modifications. The load conditions of the bridge were also specified by the standard. According to the results of the above analysis, in order to reduce the construction costs, it was possible, and may have been desirable, to design the bridge with a larger destruction probability and hence, a smaller safety margin than that in the British standard. It appears that cost of repairs and losses due to partial or total closure in the event of a failure would be much smaller in Bangladesh than in Britain.

There is no significant difference between the weight of a single vehicle in Bangladesh and one in Britain. However, it is quite unlikely that, in the next ten years, the four lanes of the Jamuna Bridge would receive the same traffic load as that of a most heavily used bridge in Britain. It may well be that the bridge was designed for unrealistically large loads and hence with a smaller destruction probability than is warranted by the British standard. The contrary may also be true.

We cannot completely deny the possibility that the bridge will be exposed to the same traffic loading conditions as in Britain within the next 120 years of its very long service life. If it happens, it should be at a time when the country's economy is much more developed and there is a high possibility of constructing a second bridge based on a design standard similar to those in industrialized countries. It may also be possible to cope with additional loading by moving the track of the existing railway to a second bridge. In Japan, there are many old bridges that are still used with restricted access.

The width of the Jamuna River reaches more than 15 km during flood seasons. The cost of constructing a bridge over such a width was estimated to be extremely high. Therefore, a plan was adopted to contain the river within a 5-km width at the site of the bridge. The idea was to secure a large enough cross-section to accommodate a full flood by utilizing the velocity of the flood and letting allowing it to dig its own channel. Masonry protection banks were constructed for the double purposes of restraining the river and protecting the banks from the increased water velocity resulting from the narrower width. Figure 3 illustrates the masonry on the Jamuna Bridge.

When the Japan International Cooperation Agency (JICA) conducted a study on the feasibility of building the bridge more than 20 years ago, it was found that the protective banks should be 3.5 km long. The bridge was not built at that time because it was economically unjustifiable. When the World Bank carried out a similar study later, the length of the protective banks was reduced to 2.8 km with the bridge in the same location. The study concluded that banks of this length would provide enough safety and secure the economic feasibility of building the bridge.

The possibility of further reducing the length of the banks was examined when economic feasibility was scrutinized before entering into the detailed design stage. A large-scale model experiment established that the minimum length of the protection banks had to be 2.2 km to ensure safety. Of course, there are clear differences between the conditions in a model and those in reality. A model cannot replicate the precise conditions of a real river. Despite the limitations of the model, the 2.2-km protective banks were adopted in the design with the confidence that the likelihood of the bridge collapsing in a single large flood occurring shortly after its completion would be very small. It was also understood that groins vertically sticking into the river could be constructed upstream of the bridge later if the protective dikes did not provide enough safety. Careful observation of the condition of the banks during floods is a prerequisite for this option. Taking all of this into consideration, it would be safe to assume that a larger destruc-

10. Although this analysis assumes that the optimal destruction probability is not equal to zero, the result also holds in such a case. This can be concluded by the fact that whether a positive optimal destruction probability exits or not depends on the relative magnitude between the value of the derivative of the initial construction cost function
11. *OECF Newsletter,* November 1998.

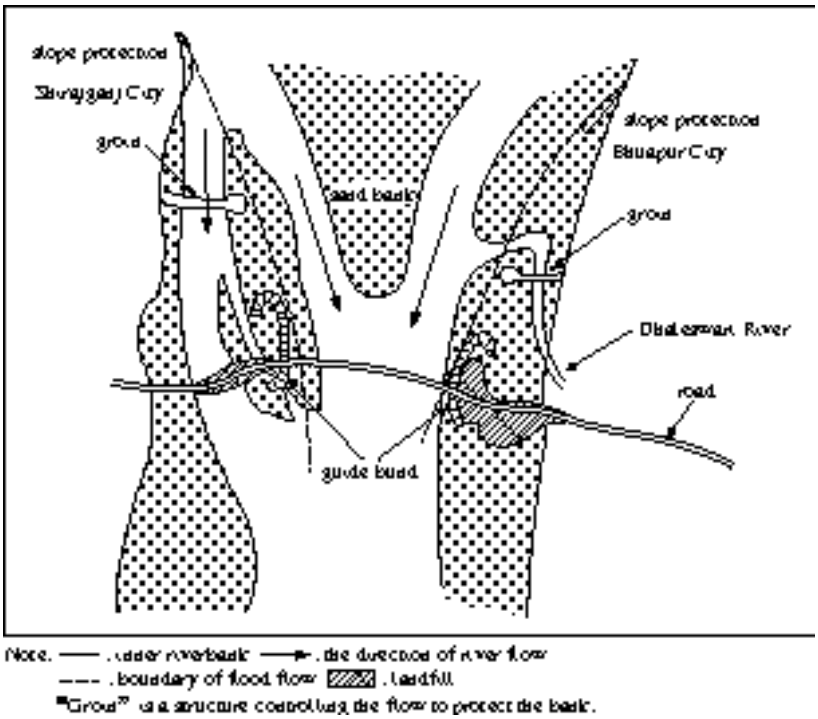


Figure 3 River Works of Jamuna Bridge

tion probability than those of industrialized countries was adopted in the design of the protective banks.

One of the motivations for writing this article was the fact that different destruction probabilities were used in a very ad-hoc manner in designing the different component structures in a single project without any discussions based on sound probability theories. It does not matter per se that different destruction probabilities were used in a single project because it is not uncommon to apply different destruction probabilities depending on the importance of the structures or the frequency of natural phenomena such as earthquakes. Rather, it is the fact that a more important structure was designed with a larger destruction probability when the converse should be the case. In the case of the Jamuna Bridge, the protective banks should have been considered to be more important than the bridge itself.

Although the case of the Jamuna Bridge is not a good example, it may be argued that it is more natural to use a destruction probability in a project in a developing country that is different from those of industrialized countries. Whenever partial destruction requiring repair occurs after the completion of an assistance-related infrastructure development project, there are criticisms that there was an error in the design. However, these criticisms are not necessarily valid.

In this article, we presented a theoretical analysis regarding the choice of optimal destruction probabilities that correspond to the developmental stage of an economy. More elaborate empirical studies that follow up on the findings of this analysis and provide practical guidelines in the field of official development assistance are warranted.

Concluding Remarks

In general, except for cases where destruction causes human casualties, when designing a structure in developing countries, it is desirable to adopt a destruction probability that is higher than those in industrialized countries in order to efficiently allocate resources. This is because social discount rates are higher in developing countries and if the structure is destroyed, the economic loss before restoration is expected to be small. In developing countries, it is not necessarily good, particularly in the case of partial destruction, to adopt such extremely small destruction probabilities as those tacitly used in industrialized countries.

This conclusion may be reinforced by the observation that there is no big difference between industrialized and developing countries in the likelihood of human error in the design and construction of aid-related large-scale infrastructure projects. This is because these projects tend to be implemented with the participation of engineers from industrialized countries.

Although this cannot be discussed quantitatively because of the lack of empirical data, our point may be illustrated by the following example. Consider two cases. In the first case, one hundred similar structures are built that serve their given service life without failure. In the second case, a hundred-and-thirty similar structures are built, out of which five are prematurely partially destroyed while the rest complete their service. If the total cost, including repair and miscellaneous losses, is the same in both cases, the latter will be more

desirable. Although merely illustrative, this example clearly shows the advantage of adopting larger destruction probabilities in developing countries than those in developed nations. Larger destruction probabilities enable more infrastructure to be constructed with the same amount of resources, and thus contribute to accelerating economic growth in these countries.

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CASE STUDY

Diffusion of Maternal and Child Health Handbook Program in Indonesia

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Since its start in the Central Java Province, Indonesia in 1993, the Maternal and Child Health Handbook Program has been expanded to cover two thirds of the province's population following a trial run in a pilot area. The program is soon to be applied to all of the 35 districts/municipalities of the Central Java Province and to other provinces.

The Indonesian version of the Maternal and Child Health Handbook (MCH Handbook) is, in one respect, a health education material as it contains health information. It is also a comprehensive record book of several existing health cards which has been used for community health services. As a result of efforts made in the compilation process, the Indonesian MCH Handbook is not a mere translation of the Japanese version, but has developed into a version filled with originality. Its effectiveness was proved in the pilot area.

The pilot programs generally aim at the development and application of the activities in other areas. This objective, however, is not always achieved because of a number of reasons. This report, therefore, will analyze the factors behind the success of the MCH Handbook Program in Indonesia, whose application has been expanded from a population of 150,000 in the pilot area to 18 million in total.

The following five points can be considered to have dedicated significantly to the success of this program. Firstly, the program's concept, the sense of ownership toward the program and the consideration of its adaptability to local sites were correct. Secondly, there was a need for this program in each related group, namely, policy-makers, implementing personnel and users. Thirdly, resources and infrastructure were adequately arranged to support community health services. Fourthly, efforts were made to ensure the sustainability of the program and finally, the role of catalyst in the program was performed effectively by the Japanese side.

Introduction

The Indonesian version of the MCH (Maternal and Child Health) Handbook was developed during the course of the Family Planning/Maternal and Child Health Project (1989 – 1994: hereinafter cited as FP/MCH) which the Japan International Cooperation Agency (JICA) implemented in the Central Java Province in Indonesia (Figure 1). The Indonesian version of the MCH Handbook is used as health education material for health information. It can also be used as comprehensive health record book instead of the several existing health cards which have been used for community health services in Indonesia.

As health education material, the MCH Handbook contributes to improve mothers' knowledge and behavior regarding maternal and child health. As a comprehensive record book, it enables integration of health check-up records. This was not possible with conventional health cards because each card served for a different purpose in a different period, for example, keeping track of mothers' health during pregnancy, immunizations, and the growth monitoring of children. With the introduction of the MCH Handbook, for example, in case a preg-

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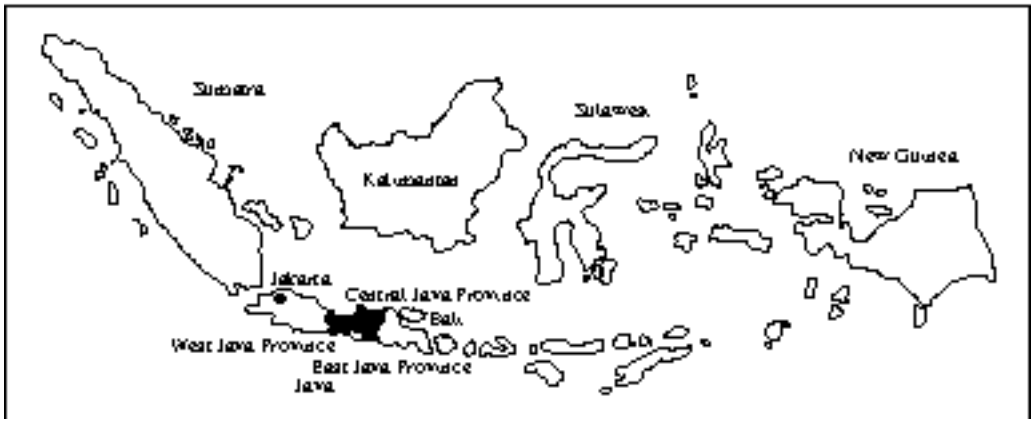


Figure 1 Map of Indonesia

Table 1 Basic Statistics of Indonesia

Population (1,000)	200,453 (1996)
GNP per Capita (US$)	980 (1995)
Average Life Expectancy (years)	64 (1996)
Infant Mortality Rate (per 1,000 live births)	47 (1996)
Under 5 Mortality Rate (per 1,000 live births)	71 (1996)
Maternal Mortality Rate (per 100,000 deliveries)	650 (1990)
Literacy Rate (%)	84 (1995)

Source: UNICEF, *State of World Children* (1998)

nant women returns to her parents' home to give birth, her health records can be passed from the health personnel who examined during pregnancy to the personnel who will attend delivery.

Following a pilot run, the MCH Handbook Program has been implemented in all 35 districts and municipalities of the Central Java Province[1] and in other provinces. In general, any pilot programs aim at those application in other areas at the starting point of the programs. However, for a number of reasons, these objectives have not been always achieved. This report, therefore, will analyze the factors which contribute to the success of the expansion of MCH Handbook Program in Indonesia in order to identify essential points to put the program in full practice.[2]

I A Case Study: The MCH Handbook Program in Indonesia

1. Background

Maternal and child health is an important issue of public health policies in Indonesia. It is reported that the country's infant mortality rate of Indonesia in 1996 was 47 per 1,000 live births. The maternal mortality rate was also as high as 650 per 100,000 deliveries in 1990 (Table-1). The infant mortality rate has been gradually decreasing. By contrast, the maternal mortality rate, although it is extremely difficult to get accurate data, has remained high compared to that in other member countries of the Association of Southeast Asian Nations (ASEAN).

The Indonesian government has put priority on establishing a community health service system. Health centers, which exist in a ratio of one to every thirty to fifty thousand people, provide basic health services including both preventive and curative services. At the district or municipality level, there is a district or municipality hospital which serves the surrounding communities as the core health facility. Pregnant women and nursing mothers seek health care at both the public and private sectors: the public sector includes health centers, sub-health centers, and community midwives who are stationed one per village; and the private sector includes midwives in private practice (who often hold a post at health centers in the daytime), and traditional birth attendance.

1. In Indonesia, "province" is the first grade local government (Dati I), while "district" and "municipality" are the second grade (Dati II). "District" and "municipality" are classified as being at the same level.
2. In this report, the term "project" refers to project-type technical cooperation, while the term "program" refers to an individual undertaking included in a project).

Before the MCH Handbook was introduced to Indonesia, several types of health cards, including cards for maternity, family planning, growth monitoring, and child development coexisted nationwide. These cards were used primarily for community health services and health centers. The Ministry of Health aimed at achieving a 100% distribution of these cards to the related parties. However, the distribution rate varied from card to card. Cards were often misplaced because it was difficult for mothers to keep track of the different cards. In addition, the cards were not used in an integrated manner. For example, if a mother consulted at more than one health facility, her health records were not shared by the various health personnel in different facilities.

2. The Beginning of the MCH Handbook Program

The MCH Handbook Program started by the request of Indonesian doctors who learned about the Japanese version of the MCH Handbook during their visit to Japan through the training scheme of the FP/MCH Project. They strongly requested that the handbook needs to be introduced to the country. After examining the feasibility of the program with long discussions, development of the MCH Handbook began in the Central Java Province.

3. Preparation Period of the MCH Handbook (1993 - 1994)

Behavior of pregnant women and mothers has an impact not only on their own health, but also on that of their children. In order to facilitate their appropriate behavior, it is important to provide them with basic and essential information about maternal and child health. Because there was almost no health education material which mothers could keep for reference at home, developing the handbook as educational material became a primary objective of the program. The second objective was to integrate the existing health cards so that pregnant women and mothers could keep their health records in one form. With the consent of the Ministry of Health of Indonesia, the use of existing health cards was stopped in order to prevent any confusion in the pilot area where the MCH Handbook was planned to be introduced.

Salatiga, a municipality of about 150,000 people, was chosen as the pilot area. There were several factors which were favorable to designate the pilot program, such as the appropriate population size, easy accessibility, the solid foundation of the public health activities, and the strong leadership of the Head of the Municipality Health Services. The Head of the Municipality Health Services was also sent to Japan to observe maternal and child health services with the MCH Handbook in Japan.

The Indonesian version of the MCH Handbook contains every item that was included in the existing health cards and additional important information with illustrations (Figure 2). The initial draft was prepared by the officials of the provincial office of the Ministry of Health[3] and the Municipality Health Services of Salatiga, with the help of Japanese experts. Then, the contents of the handbook were examined by pediatricians and obstetricians at the municipality hospital. Focus groups were also formed in order to better understand the needs of mothers. After pre-tests, the contents of the MCH Handbook were approved in a final meeting in the presence of provisional and municipality officials of the Ministry of Health involved.

4. Pilot Period (1994 - 1996)

The MCH Handbook was introduced through seminars and training sessions. First, a seminar at the provincial level was held to share the objectives of the project. Second, technical training which included how to use the handbooks was provided to the personnel who implemented the program. This technical training consisted

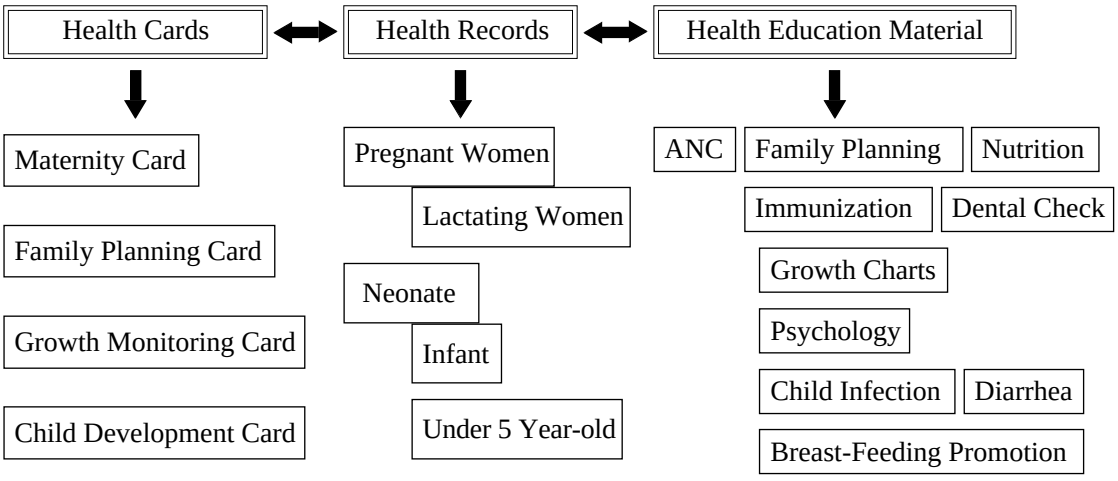


Figure 2 Contents of the MCH Handbook

3. At the provincial level, officials both from the provincial office of the Ministry of Health and the Provincial Health Services were involved.

of two stages. At the first stage, Japanese experts and the provincial officials trained key officers of the Municipality Health Services of Salatiga, including the heads of health centers, to be trainers. At the second stage group training was provided to the staff of each health center. At the same time, training was also provided at each health center to volunteers who conducted community health services at grassroots called "Posyandu".

The MCH Handbook was distributed through the same routes as conventional health cards: from the Municipal Health Services to each health center, and then to health service facilities in each area (both public and private hospitals/clinics). Introduction of the handbook at each health service facility was made through seminars and meetings of professional associations, including provincial associations of doctors and midwives. What was different from the distribution of conventional health cards was that the staff of health centers were more actively involved in management of distribution. The handbook was distributed to all pregnant women and mothers with children under five. At the time of distribution, the previous health records on the conventional health cards were transferred to the handbook. The handbook was distributed free of charge to mothers who resided in the pilot area.

In order to monitor the progress of the program, check lists were prepared. The team of the staff from the Municipal Health Services, the Head of health centers and Japanese experts monitored the progress at each health center, health facility and "Posyandu." Monthly meetings were also held at the Municipality Health Services office, which were attended by various health center staff, including the heads of the centers (doctors), midwives, and dietitians. At the meetings, each health center representative reported on the maternal and child health services as well as on the handbook. The provincial officers and Japanese experts were always present at these meetings. Based on the issues brought up during the meetings, an action plan for the following month was prepared. The outcomes of the plan were examined and reviewed at the end of each month.

5. Expansion Period (1997 - present)

A mid-term evaluation survey was conducted after eight months to assess how the MCH Handbook was being accepted in the pilot area. Since only a short time had passed since the introduction of the handbook, only few changes were observed in the behavior of the mothers. However, it was clear that the handbook had been highly accepted among them. Based on this evaluation, the program was continued.

From the beginning, the personnel who implemented the program at the province level demanded that the MCH Handbook be expanded to other districts and municipalities of the province. They approached the World Bank, which was then carrying out a community health project in the province, and acquired funds to print the handbook. Thanks to these efforts, the MCH Handbook was distributed to new eight districts (a population of some 7.7 million) in the Central Java Province in fiscal 1995. After the completion of the FP/MCH Project, Japanese experts who were independently dispatched to assist the provincial office of the Ministry of Health in expanding the handbook program and following up on the activities in the pilot area (Figure 3).

Steps of the diffusion process was similar to that of the introduction process. First, the personnel who were implementing the program were trained to be trainers.

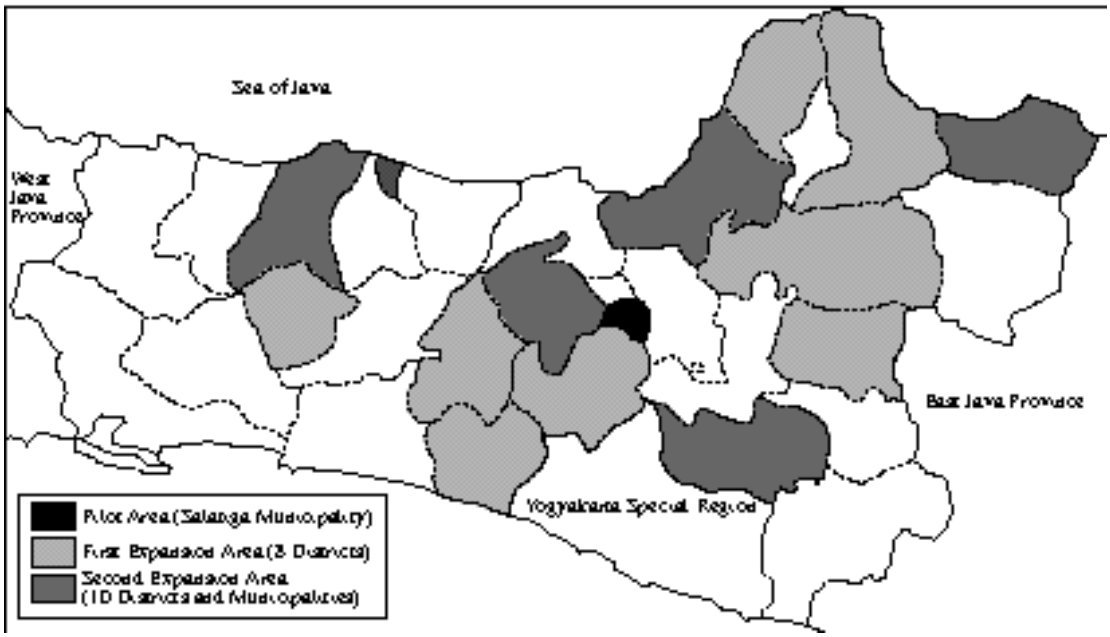


Figure 3 The MCH Handbook Program in the Central Java Province

Second, representatives from health centers, including the heads of the centers, were trained at the district level. Third, other health center staff and community midwives were trained at each health center through the existing monthly meetings. Last, volunteer representatives were trained at the monthly meetings so that they could train other volunteers in the community. In general, the number of staff, and the amount of time and money allocated in a newly expanded area can be much less than those injected into a pilot area. Therefore, the primary concern was how to reduce the burden of implementation in the new areas. The personnel in the pilot area greatly contributed to the expansion of the program by being sources of information and communicating their hands-on experience.

The final evaluation survey of the handbook program in the pilot area proved that the program contributed to improving the behavior and knowledge of maternal and child health among mothers. In 1996, the project was succeeded by the Procurement Scheme of Provision of Equipment on Population, FP/MCH. Coupled with the project undertaken by the World Bank, the MCH Handbook Program was diffused to 22 districts and municipalities (about 18 million people) and all the 35 districts and municipalities (about 29 million people) in the Central Java Province in 1998. Starting in fiscal 1997, four other provinces adopted the program (Figure 4).

II Discussions

In this section, we would like to examine the five factors which enabled the MCH Handbook Program to expand beyond the pilot area. These factors are: (1) the program was carefully designed; (2) the Indonesians needed the program; (3) the resources and infrastructure were in place to support the program; (4) efforts were made to ensure the sustainability of the program; and (5) the Japanese worked as effective catalysts for the program.

1. Points to be Considered in Designing the Program

1) Steps Taken before Implementing the Program

Before starting the MCH Handbook Program, the following points were agreed to by both the Indonesian and the Japanese sides: (1) 50 years' Japanese experience on the handbook can be referred to However, it is necessary to localize, not simply translate, the handbook to the needs and situation of Indonesia; and (2) in addition to developing the contents of handbook, it is equally important to establish a system in which the handbook can be effectively utilized.

Introduction of the handbook meant replacement of the conventional health cards in the pilot area, which was done by the National Policy. Therefore, the Director General of Community Health of the Ministry of Health was consulted on the matter, and his approval was obtained prior to the implementation of the program. With assurance from central agencies, there was a better chance for a program to be expanded beyond a pilot area.

2) Respect for Ownership

During the course of the MCH Handbook Program, great importance was placed on the development process, which largely contributed to create the sense of ownership among the personnel involved. Development of the handbook took more than one year because discussions were held with focus groups of mothers, and with officials of the provincial office of the Ministry of Health and medical specialists of the municipality hospital in the pilot area. These measures were considered important for developing a handbook that was suited to needs of the region, and for reaching consensus among those who were involved. With the approval of the local medical specialists, staff at health centers became very confident of the handbook's contents. Doctors also became very positive about using the handbook at their hospitals and clinics because of their own involvement in the development process of the handbook. Spending a large amount of time on the development process contributed to nurturing the sense of ownership among people involved in the implementation.

A picture of a Central-Javanese mother embracing a child was used for the front cover of the handbook, which greatly contributed to creating the sense of ownership among mothers. The picture, more realistic than illustrations, generated positive feedback from mothers. The picture helped them to feel that the handbook belonged to mothers like themselves. Whenever meetings are held to discuss the possibility of expanding the program into areas outside the Central Java, changing the picture to one of a mother from the region in question is always talked about. This discussion supports the assumption that the picture on the front cover plays a vital role in creating a sense of ownership among mothers.

When the program was expanded from the pilot area to eight other districts in the province, it was necessary to modify the title from the "Salatiga Edition" to the "Central Java Province Edition," and this change was essential to make the handbook belong to the new areas. Similarly, when the program was introduced to other provinces, it was essential to change the title from the "Central Java Province Edition" to "The Indonesian Ministry of Health Edition." As in the process of developing the handbook, the revision process also involved discussion, revision, and approval from those involved. For instance, when the title of the handbook was changed to "The Indonesian Ministry of Health Edition," the contents were revised and then approved under the participation of all the departments concerned of the Ministry of Health. It was also necessary to obtain a registration number from the Ministry of Health to prove that it was an official publication of the Ministry.

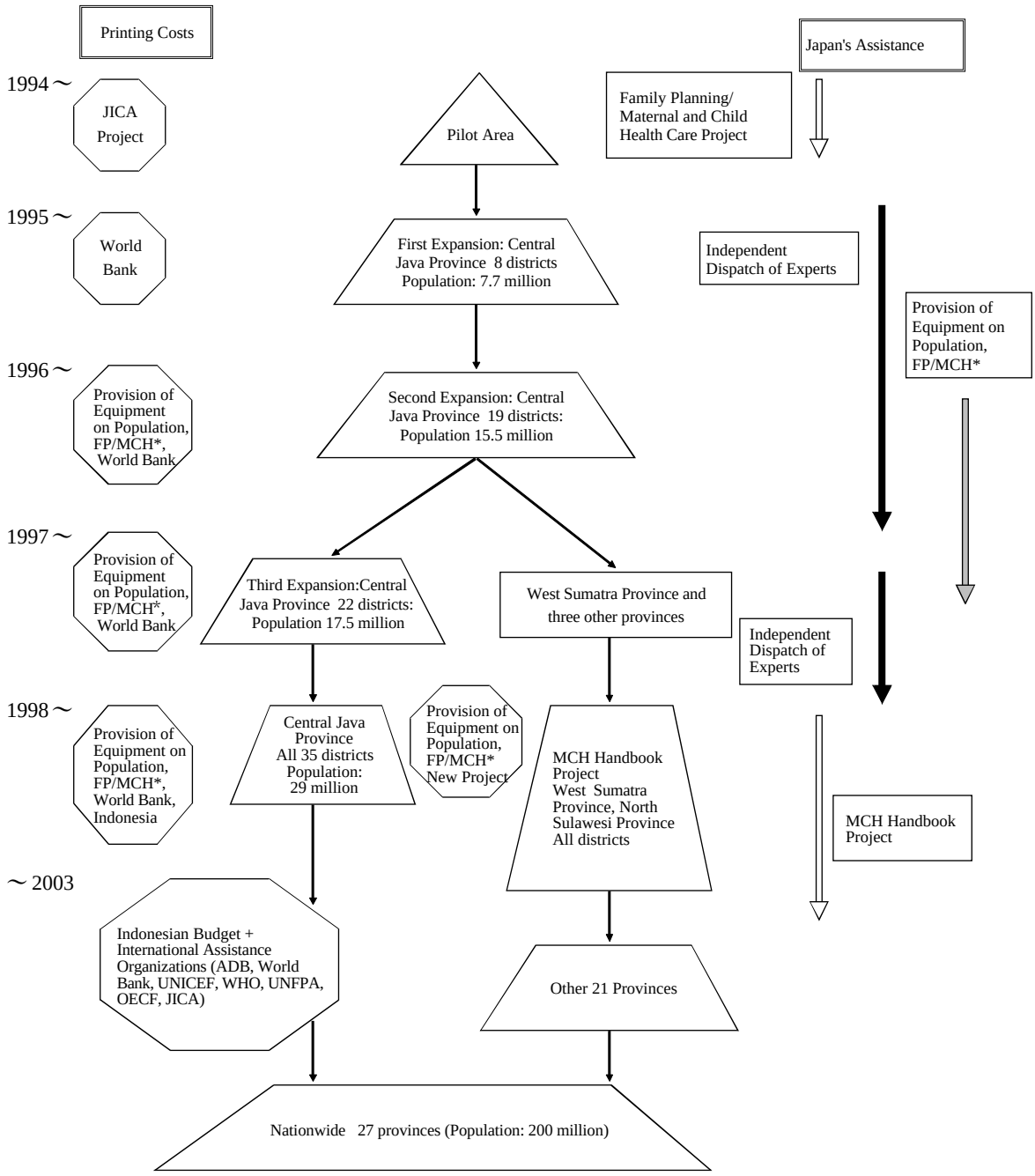


Figure 4 Flowchart of the MCH Handbook Program in Indonesia

Sources: ADB: Asian Development Bank, UNFPA: United Nations Population Fund
* FP/MCH: family planning/ maternal child health

3) Adopting Educational Material to the Region

Appropriateness of educational material involves three dimensions: (1) technical appropriateness; (2) sociocultural appropriateness; and (3) economic appropriateness. First, technical appropriateness means compatibility with technologies available in the region. The contents of the handbook were ensured to be in accordance with health services available (or that should be available according to the Ministry of Health) at health centers, which are the core of community health services in Indonesia. There were some health centers which have not provided the required services. However, the situation was expected to be changed within five years.

Second, sociocultural appropriateness means that contents are suitable for the sociocultural background of the region. To this end, various points were taken into consideration. First, many illustrations were used in the handbook to ensure that mothers understood. Indonesia is a multi-ethnic and multilingual country. With the spread of primary education, the Indonesian language has functioned well as the official language. The literacy

rate is relatively high: 90% among male adults and 78% among female adults.[4] In spite of this, illustrations are still more effective than written text in displaying and concretely communicating information.

Because of its concreteness, whether or not an illustration is effective in communicating information is dependent on whether it is designed to fit the tastes of its intended audience. For example, the illustrations which are preferred by Japanese women, which generally are cute, appear childish and cartoon-like to Indonesian women, and are considered to be not at all suitable for communicating important information on health issues. Therefore more realistic illustrations were used in the Indonesian version. The color chosen for the front cover was pink. Pink appeals to Indonesian mothers very much although it may seem rather loud to Japanese taste. The background to this color appeal is the color sensitivity often observed during election campaigns to symbolize the various political parties in the country (yellow for the ruling party, and red and green for the two opposition parties at that time).

The third point, economic appropriateness, refers to being appropriate in terms of price. The bright color of the handbook is attractive to its users, but may give the administration the impression that the handbook is expensive. An expensive handbook hinders the sustainable implementation of the program, and makes handbook unsuitable for practical use. Therefore, special measures were taken to ensure that the printing costs of the handbook were competitive with those of the four major health cards. Initially, the costs of printing the handbook and the four cards were about the same. However, as the cost of printing the health cards gradually increased over the years (1,500 rupiah for three cards excluding the family planning card), those of the handbook remained relatively low (1,000 rupiah before the monetary crisis in July 1997). The handbook is more cost-effective than the four health cards both in terms of printing costs and the amount of information that can be included.

2. Needs for Expansion

1) Needs of Policy-makers

It was fortunate that policy-makers who were in charge of the program at the provincial level had a clear vision of the MCH Handbook Program and a strong demand for its implementation. Instead of taking the initiative entirely only by one-side, both were able to concentrate on clarifying obstacles and finding solutions together. In general, there are frequent transfers to officials and it erodes the political will to continue one program. However, in this case, even though some officials are freguent transferred, fortunately, the program continued to grow thanks to support from both inside and outside of the program. The program was able to expand because there was still a need on the side of new policy-makers.

Provincial officers who were involved in the MCH Handbook Program wanted to expand it beyond the pilot area to other parts of the province. They held provincial wide meetings with officials from all districts and municipalities and discussed the outcomes of the pilot area in an attempt to increase their awareness. They also persuaded the World Bank to give them enough funds to print handbooks for eight districts in total. In due course, more and more districts and municipalities began to show their interests in the program. One of them printed handbooks on their own using funds they had raised from a local NGO (the Sumarang branch of the Rotary Club). The Mother Friendly Movement, advocated since 1996 by the Ministry of the Interior, also gave momentum to local governments to develop comprehensive maternal and child health programs. Some districts began to implement the MCH Handbook Program as a part of the movement.

2) Needs of the Implementing Organization

The Head of the Municipality Health Services of Salatiga, who was supervising the entire implementing personnel, was also very enthusiastic about the program. She believed that the MCH Handbook Program was a good chance to improve whole maternal and child health services. With this belief, she supervised staff, kept close contact with hospitals and women's associations (community volunteers), and actively advocated the use of the handbook. We believe that her experience in Japan and her deep understanding of the Japanese MCH handbook program helped her tremendously in guiding the program. Her leadership contributed to the success of the program in the pilot area. For example, she encouraged her staff by saying "Japan started its MCH Handbook Program fifty years ago. When will we Indonesians do it if not now?" The monitoring meetings are still maintained even Japan's cooperation period was over.

When the program was first implemented, some staff at health centers complained about the increase in the amount of work. The Head Officer replied in saying " We can quit if you all want to quit. "In response to this comment, they expressed their desire to continue the program stating " Mothers in our community will be upset if we quit now. They are satisfied with the contents of the handbook due to its completeness. We can no longer go back to the conventional health cards. " By the time the program had expanded to other districts, the original staff had gained confidence and began actively assuming the responsibilities of trainers on request. In addition, community midwives, who are the focal points of maternal and child health services in the districts, were glad to have a more useful tool for educating mothers in their community. It is clear that the handbook also fulfilled the needs of the implementing personnel.

4. UNICEF, *State of the World's Children* (1998)

3) Needs of the Users

The demand for information among mothers was clearly high as evidenced by such positive feedback as " we can refer to the handbook anytime depending on the age and condition of my child. " According to the final evaluation survey conducted two and a half years after the implementation of the program, mothers' behavior concerning maternal and child health improved over that of the pre-implementation era. Knowledge was also advanced especially among mothers with less education (Completion of 6 years' elementary education or less. In Indonesia 9 years' education is compulsory). This indicates that the handbook is an important source of information among mothers with less education, who in general have limited access to health-related information. In addition, there were lots of inquiries from mothers who lived just outside of the pilot area wanting to buy the handbook (if it is not provided), which also shows how high the demand for information was.

The handbook also facilitated the participation of some fathers in child-rearing; there were cases that they read the handbook, took their children to immunization and other community health services, and explained the handbook's contents to illiterate mothers.

Community volunteers also welcomed the program. These volunteers were looking for effective ways to improve life of their villagers. It is interesting to note that the women's association which was engaged in community volunteering proposed to the Municipality Health Services of Salatrga to hold a quiz contest based on the contents of the handbook.

4) Needs of the Times

Development of the MCH Handbook was a timely undertaking. Reducing the infant and maternal mortality rates was a top priority of the Sixth National Development Five-year Plan (1993 - 1997) in Indonesia. In response to this, various international aid organizations were carrying out projects to protect maternity in the country. However, many of these projects underwent a continuous process of trial and error, lacking concrete and effective methods. The MCH Handbook Program, which was producing the fruitful results, drew attention from both the Indonesian government and international aid organizations. This is how the program came to be in partnership with international organizations.

3. Resources and Infrastructure to Support the Program

1) Solid Systems/ Resources and Infrastructure for Health Activities

Health centers are the core of providing basic health service in communities. In these days, the first priority in community health services is shifting from " securing the number of centers " to " ensuring the quality of services. " Although the number of doctors per capita is still limited, the country is striving to ensure safe deliveries with the help of midwives, who began to be stationed in every village in the begining of 1990s. In addition, there are community volunteers who support community health services from the grassroots. Indonesia has a long history of community-based health activities, and is regarded by other countries as a model. In short, Indonesia had adequate resources, including volunteers, for implementation of the MCH Handbook Program. Moreover, various health cards were widely spread and the distribution route was long established. Therefore, the handbook was easily accepted by both mothers and staff involved in health services. The concept of handbook was new, but the foundation was already there to accept it.

2) Important Factors to be Considered to Choose The Pilot Area

It was considered inappropriate to implement the MCH Handbook Program in areas which had very low health indices and insufficient resources because the implementation of the program would aim to up-grade the existing systems. Another factor that was regarded crucial in selecting the pilot area was the strong leadership and enthusiasm displayed by the implementing personnel. Considering these factors, the provincial office of the Ministry of Health selected the pilot area. The criteria for selecting a pilot area may vary depending on the nature of the program; however, strong leadership is always essential.

4. Efforts to Ensure the Sustainability of the Program

In 1996, three years after introducing the program to the pilot area, the printing costs of the handbook began to be partially covered by the municipal budget. This was achieved by the continuous efforts to hold seminars targeting not only the health service sector, but also other related sectors, to increase awareness of the municipal policy-makers. People's pride in the program became more apparent as more and more visitors were brought to the pilot area. The increase in visitors indirectly raise their awareness and contributed to more of the budget being allocated to printing the handbook.

The provincial office of the Ministry of Health has continued its effort to request international organizations to provide the printing and training costs. It has been confirmed that a part of the funds of a new World Bank project will be allotted to the program. Also the budget which was formerly allocated to the Ministry of Health for printing conventional health cards has been partially allocated for printing the handbook.

From the beginning of the program, each district and municipality has striven to acquire its budget from the provincial government. Some people involved in the program have suggested selling the handbook to raise necessary funds. This is one of the alternatives that needs to be studied in the future in order to ensure the sustainability of the MCH Handbook Program.

5. Japan's Role as a Catalyst

When the MCH Handbook Program began to be diffused to other provinces, Japanese experts continued to play a role as a catalyst. Japanese experts shared their experience in the Central Java Province while the Ministry of Health officials, who had visited Japan, tried to raise the awareness of those concerned and convince them that" We can learn from Japan's experience. "The Japanese experts' role was not teaching about the Japanese handbook, but to support the process to learn from the experiences of Japan and others so that they could adopt it in others developing their own MCH Handbook.

Conclusion

At present, a new project-type technical cooperation using the MCH Handbook has been implemented since October, 1998. This new project is a step toward expanding the MCH Handbook Program nationwide. The West Sumatra Province and the North Sulawesi Province are the areas being targeted by the new project. In the midst of the economic crisis in the region, cooperation in the field of public health, especially assistance to socially vulnerable people like mothers and children, is becoming increasingly more important.

Acknowledgements

We would like to take this opportunity to express our gratitude to Dr. Sri Astuti, former Director of the Central Java provincial office of the Ministry of Health; Dr. Budi Shinggin, former Director of Communicable Disease Control and Environmental Health, the Central Java provincial office of the Ministry of Health; Dr. Sri Yamtini, Head of Municipality Health Services of Salatiga; Mrs. Surosso, Chief Officer of the MCH Section, Municipality Health Services of Salatiga; Dr. Irwan, Director of the Department of Planning of the Central Java provincial office of the Ministry of Health; Dr. Rettono and Dr. Hajah from the Central Java provincial office of the Ministry of Health; Dr Ina Herwati, Chief Officer of the Family Health Bureau of the Ministry of Health; Dr. Andrianshah Arifin of the National Institute of Health Research and Development; Mr. Suwa, former Resident Representative of the JICA Indonesia office; and last, but not least, the Japan International Cooperation Agency.

CASE STUDY

Adult Literacy Education as an Entry Point for Community Empowerment —Evolution of Self-Help Group Activities in Rural Nepal—

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The movement to increase the adult literacy rate in Nepal has been growing since democratization in 1990. In recent years, about 300,000 people have participated annually in literacy programs. However high drop-out rates and low literacy retention require that we consider not only the numbers served, but the quality of the literacy education provided.

The School and Community Health Project (SCHP), a collaborative project by the Japan International Cooperation Agency, the Japan Medical Association, and the Ministry of Health/Nepal, has been implementing literacy education programs in a rural part of the Kavrepalanchowk district since 1994, paying attention to its potential to facilitate community empowerment for creating healthy villages. This comparative study was conducted to evaluate the impact of basic and post-literacy education programs in the two places of this target area using Participatory Rural Appraisal (PRA) as a tool for collecting field data.

We found that those who finished a basic literacy program had low literacy retention and, therefore, limited community participation in community development activities. However, for those who finished a post-literacy program, complemented by a Self-Help Group (SHG), the literacy level was relatively well-retained. In addition, the activities through BLC to PLC raised the awareness of the participants for community empowerment, which allowed adult literacy education to play a role as an entry point for empowerment. Furthermore, once SHG started its activities, the members of SHG satisfied more basic needs, improved access to resources, achieved more participation, and controlled more power. These results demonstrate that SHG became a driving force for community empowerment. Also, this study shows that it was effective to categorize the evolutionary process of SHG into four stages for desirable cooperation between SHG and outside agencies.

In conclusion, this study indicates that adult literacy education can function as an entry point for community empowerment, after which a variety of SHG activities play a role in the drive for empowerment.

Introduction

Since 1990 when the United Nations Development Programme (UNDP) first published their Human Development Report, adult literacy has been a primary component of educational attainment in the UNDP's Human Development Index (HDI).[1] Coincidentally, 1990 was also the year that the United Nations designated the Year of Literacy and the year that democratization started in Nepal.

These two events led to a dramatic increase in the focus on adult literacy education in Nepal. According to the 1998 World Education Report,[2] the number of non-literate adults in developing countries in 1995 was 872 million. Of that, Asia, including China and India, accounted for about 70% of the non-literate population. This same report placed the literacy rate for adults greater than 15 years of age at 27.5% (male: 41%, female: 14%) in Nepal.[3] Other studies in Nepal have found similar conditions.[4] Responding to these troubling findings, lit-

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1. UNDP, *Human Development Report 1990* (New York: Oxford University Press, 1990).
2. UNESCO, *World Education Report 1998* (UNESCO, 1998).
3. *Ibid.*
4. Comings, J.P., C.K. Shrestha, and C. Smith, "A secondary analysis of a Nepalese National Literacy Program," *Comparative Education Review*, 36(2) (1992): 212-226; Robinson-Pant, A., "Literacy in Nepal, looking through the literature," E*ducation for Development* (London: 1995); Smith, C., J.P. Comings, and C.K. Shrestha, "A research study on effectiveness and achievement in the Nepal National Literacy Programme," *World Education*(Nepal) (Kathmandu:1996); Research Center for Educational Innovation and Development(CERID), *Impact Study of Adult Education in Nepal* (Kathmandu: CERID, 1997).

eracy education was provided for about 1.4 million adults between 1992 and 1997.[5]

One criticism of this heavy investment in adult literacy training is that, even though the projects may be individually successful, literacy in low-income countries is still 51%, and donors fear that they can make little difference to a problem of this dimension. They regard their efforts as a drop in a bucket, and illiteracy as a bottomless pit.[6]

Contrary to this belief, adult literacy education has been shown in a number of contexts to have an impact that goes beyond the mere improvement of literacy skills. For example, in several countries literacy education has been found to produce changes in the population that are normally associated with community development. First, Chiba et al. notes that some graduates from the Cambodian Temple School Campaign were transformed by their experience and became key facilitators in the development of their communities.[7] Next, the literacy campaign in the Indian district of Pudukkottai is well known because it served as a key element in community empowerment.[8] Further, case studies conducted in Indonesia and Thailand showed that non-formal education that included adult literacy education helped participants to increase their control over decisions affecting their lives and to increase their self-reliance; therefore, it played an important role in their empowering process.[9] Finally, one case study in Nepal demonstrates that non-formal education can be an important tool for community development work.[10] These findings suggest that adult literacy projects contribute to 'community development' undertaken by project beneficiaries and to 'empowerment'[11] - a central concept in the new development paradigm. If these findings are well grounded, adult literacy programs can be implemented within development projects as a means of sustaining their impact.

Japan International Cooperation Agency (JICA) referred to non-formal education in its report entitled "Study on Development Assistance for Development and Education." Despite taking issue with some points, JICA has shown substantial interest in this field.[12] By way of example, JICA's Community Development and Forest Watershed Conservation Project and Primary Health Care Project in Nepal have implemented adult literacy education as a part of their activities.

The School and Community Health Project (SCHP),[13] a collaborative project between JICA, the Japan Medical Association, and the Nepalese Ministry of Health, implemented two basic literacy classes (BLCs) followed

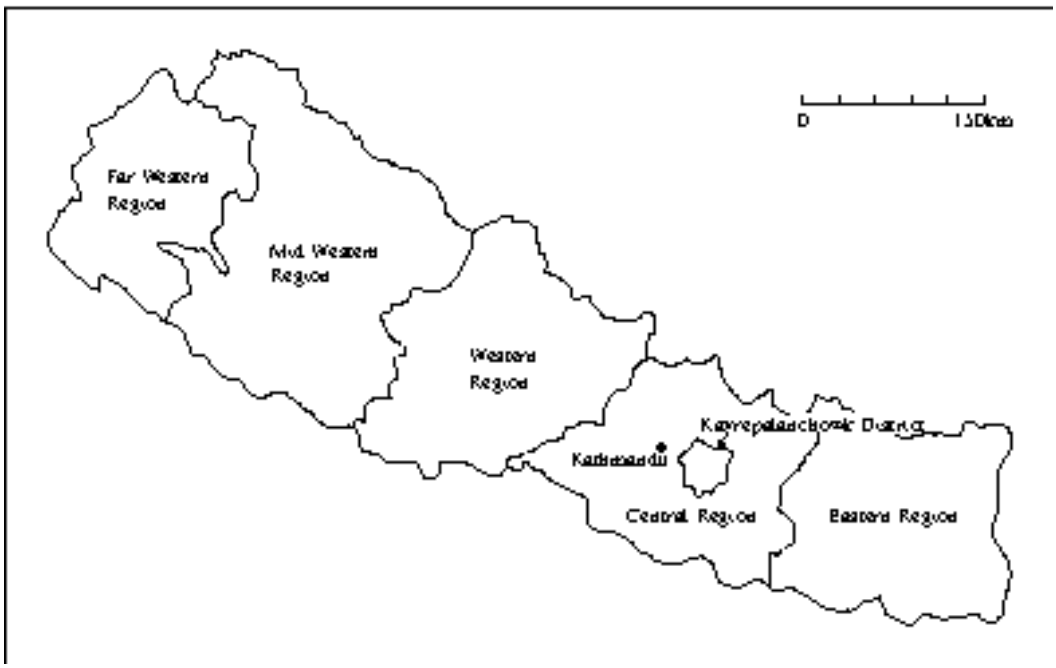


Figure 1 Kavrepalanchowk District Nepal

5. *Ibid*
6. Mueller, J., "Literacy and non-formal(Basic) education: Still a donor priority?" *Education for Development* (London: 1996): 1-2.
7. Chiba , A., F. Kojima, Y. Tozuka, et al., "Cambodian Temple School Campaign Project," A. Chiba (eds.), Why Literacy?: The Status Quo of the Developing Countries (InternationalChristian University, Education Research Center, 1996) 105-165.
8. Athreya, V., and S. Chunkath, *Literacy and Empowerment* (New Delhi: Sage Publications, 1996).
9. Kindervatter, S., *Non-formal Education as an Empowering Process with Case Studies from Indonesia and Thailand* (Amherst: Center for International Education, Massachusetts University, 1979).
10. Van Riezen, K., "Non-formal education and community development: Improving the Quality," *Convergence*, 29(1) (1996): 82-95.
11. Kukita, J, "What is empowerment?" J. Kukita and F. Watanabe (eds.), *Empowerment: New Paradigm for the People Centered Society* (Gendai no Esupuri 376, 1998): 10-34 (hereafter cited as Kukita, "What is empowerment?")
12. Japan International Cooperation Agency, *Study on Development Assistance for Development and Education* (1994) pp. 14-15.
13. Kuratsuji, T., "The Joint JMA-JICA Project in Nepal," *Acta Paediatrica Japonica*, 35 (1993): 571-575.

by post literacy classes (PLCs) as pilot studies in the Kavrepalanchowk district between 1994 and 1996 (Fig.1). This project paid particular attention to the potential of adult literacy education to contribute to the development of healthy communities through encouraging community empowerment. The cost of providing the BLCs was borne by the Nepal Red Cross Society (NRCS) and that of the PLCs was carried by SCHP.

Literacy education was taken up as part of SCHP activities for two reasons. First, the literacy component could improve the sustainability of the project's impact as mentioned above; and second, the effects of the interaction between literacy training and health training would increase the overall effectiveness of the project. For example, one recent report from Nepal showed that increasing rural female community health volunteers' literacy levels improved the quality of their services.[14] A second report stated that an improved literacy level was the main contributor to reducing infant mortality rates.[15]

Within the context offered above, this study has two aims. First, it examines the significance of adult literacy education by comparing the programs in tow villages: one that hosted a pilot BLC and PLC, and another neighboring village that offered a comparable BLC implemented by a different organization at the same time. Second, it investigates the role played by a self-help group (SHG) that was formed after the PLC in facilitating community empowerment following the completion of the adult literacy classes.

I Target Population and Methodologies

1. Target Population

The project was located in the Taldhunga area of the Kavrepalanchowk district in Nepal (Fig. 2). The northern part of the district is easily accessible and quite developed. However, the southern part is difficult to access because the Mahabharat mountain range falls across the center of the district. Thus, it takes a day or two on foot to reach the area from the nearest motor road. This area does not have telephones or electricity.

In addition to the two BLCs implemented by NRCS and SCHP in the Taldhunga area, another two BLCs were implemented by an international NGO called Private Agencies Collaborating Together (PACT). As such, there were four BLCs held in the region. Regarding the former, the NRCS covered the operational expenses, and selected and trained the literacy instructors. SCHP provided monitoring and evaluation. The classes offered by PACT were payed for by USAID, and offered with the permission of the Government of Nepal. PACT selected and trained the instructors, conducted the classes, and undertook their own monitoring and evaluation. Both of these literacy classes trained their facilitators for a period of one week and used" Naya Goreto (New Trail) " as their primer. In both cases the entire expenditure was in the range of 15,000 Nepalese rupees (US $250 or 30,000 Yen) and followed the standards provided by the Ministry of Education of Nepal. With the exception of the variables of interest, there were no significant differences between the two projects.

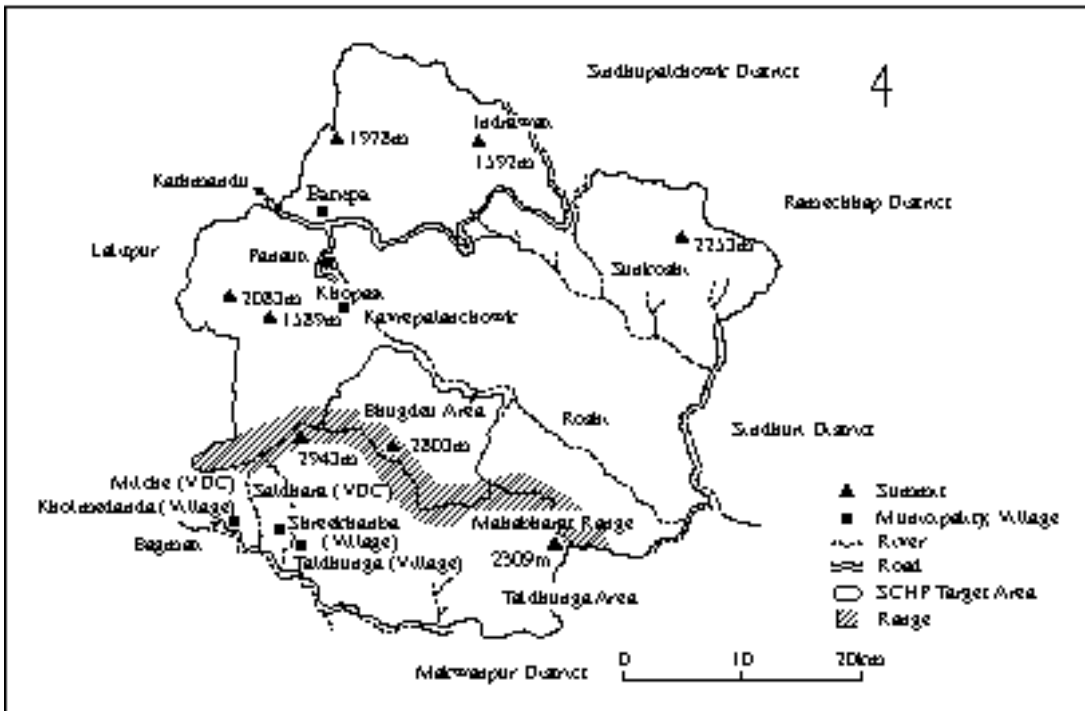


Figure 2 Target Area of School and Community Health Project(SCHP)

14. Bentley, H., "The organization of health care in Nepal," *International Journal of Nursing Studies*, 32(3) (1995): 260-270.
15. Thapa, S., "Infant mortality and its correlates and determinants in Nepal: A district-level analysis," *JNMA*, 34(118 & 119) (1996): 94-109.

This study focused on two of the available four classes. One was a BLC conducted by NRCS and SCHP, and the second was the BLC conducted by PACT. There were a total of 27 female participants ranging in ages from 15 to 45 years in Kholmedanda village (K village) administered by the Milche Village Development Committee (VDC) and 26 adult women registered for the class held in Shreekhanba village (S village) administered by the Saldhara VDC.

After completing the BLC in K village, SCHP implemented a PLC that used the "Koseli (Present)" primer developed by Save the Children Fund/USA for a period of seven months in late 1995 to the middle of 1996. SCHP bore the entire expense of 15,000 Nepalese rupees, which covered the local instructors' salaries, teaching materials and expendable supplies, etc. There was no request from S village for a PLC and none was offered.

In May 1997, Kholmedanda village had 54 households consisting of a total of 342 people. The households were crowded and about a half of the total population was the under 15 years of age. The village is located in a valley and had an elementary school that offered classes up to the fifth grade. The nearest sub-health post was a hard one-hour walk away in a village on the lip of the valley. Most of the inhabitants are subsistence farmers and their only and meager source of cash income is the fish they catch in the Bagmati River that runs nearby. Some men supplement their cash income by seasonally migrating to the cities. The majority of the inhabitants are of the Magar ethnic group (89%) and practice Buddhism.

Shreekhanba village, selected as the control, also hosted a BLC for six months starting in December 1994. The village had a population of 461 people in 80 households. As with K village, more than half the population was less than 15 years of age. In contrast to K village, the households in S village were quite dispersed. It took about three hours on foot to travel from K village to S village. There was neither a school nor a health post in the village; both were located in Taldhunga village, a half-hour walk downhill from S village. As with K village, most inhabitants are subsistence farmers and lack a local source of cash income. The majority of the inhabitants are of the Brahman and Chhettri ethnic groups. S village was selected as a control because their BLC took place at approximately the same time and they used the same primer, and the two villages are located close to each other.

2. Methodologies

Before starting the study, SCHP and New ERA, a research organization based in Nepal, undertook a Participatory Rural Appraisal (PRA)[16] in K village in 1997 from April 11 to 15 to gain a better understanding of the community. The present study draws heavily on the findings of that investigation.[17] Further, in order to improve our understanding of literacy, health, SHG in the village, and development, we conducted a number of semi-structured interviews[18] that were developed by anthropologists and used within the context of PRA. At the same time, we intensively carried out participant observations[19] from April 21 to 27.

To supplement this work, we then undertook a group interview and held discussions with the literacy classes' participants and the local SCHP facilitators in each area. Further, in K village, we also held a group interview with the literacy participants' male family members. After completing this field research, we filled in any weaknesses in our data with interviews of the SCHP program officers. At all points in our field work, when needed, we employed a female Nepalese interpreter to assist us. We chose to work with a female interpreter as the majority of our participants were female and they may have become too embarrassed and hesitant to discuss some of the topics of interest in the presence of a male interpreter.

Our participant and participatory observation enabled us to observe the outcome of the community health care education program and kitchen gardening activities, note the condition and use of the pit latrine, record cattle raising techniques and study participants' use of the first aid kit. During group interviews, we watched for and noted the power relationships between group members and who had what kinds of information. We attempted to confirm through observation what we were told in the group and individual interviews.

We followed criteria commonly used in Nepal at the third grade or equivalent level to assess reading, writing and arithmetic skills.[20]

II Results

1. Literacy Skills of the Participants in the Literacy Classes

Research was conducted in K and S villages two years after the completion of each BLC. The two villages differed, as mentioned above, in that the participants in K village took a PLC following the completion of their basic literacy training. Thus, in the case of K village, research was conducted nine months following the completion of their PLC.

We began by looking for the positive effects of basic

16. Chambers, R., "Participatory rural appraisal(PRA): Analysis of experience," *World Development*, 22(9) (1994): 1253-1268; Chambers, R., "The origins and practice of participatory rural appraisal," *World Development*, 22(7) (1994): 953-969; Chambers, R., "Participatory rural appraisal (PRA): Challenges, potentials and paradigm," *World Development*, 22(10) (1994): 1437-1454; Mukherjee, N., *Participatory Rural Appraisal: Methodology and Applications*, (Delhi: Concept Publishing Co., 1993).
17. HMG, JICA, JMA, "Participatory baseline study of School and Community Health Project(HMG, JICA, JMA): Bhugdeu, Taldhunga I, II," *New ERA and School and Community Health Project* (Katmandu: 1997).
18. Bernard, H.R., *Research Methods in Anthropology: Qualitative and Quantitative Approaches* (Walnut Creek: AltaMira Press, 1995) pp.208-236.
19. *Ibid*, pp.136-164.
20. Nepal South Asia Centre, *Nepal Human Development Report: What is literacy?* (Kathmandu: 1998) p.76.

and post literacy training. During our PRA, we found that in K village, the adult female literacy rate increased from about 28% to about 55%. Six out of 17 graduates took a formal system equivalency exam: four were admitted into the fourth grade, one into the fifth grade, and one into the sixth grade. Of the graduates, two entered formal education and one transferred to a middle school where she became the first female middle school student ink village.

The project was not an unmitigated success. After completing the basic literacy training, ten of the 27 female participants (37%) dropped out due to marriage, leaving the village, domestic demands and other conditions. Further, we found that the literacy skills of some participants dropped in the two years following the completion of their BLC (within nine months in the case of K village's PLC). This became evident when some participants were challenged by our request to fill in a questionnaire that they might not have found difficult at the completion of their programs. During our discussions, participants mentioned that they feared that they would loose their literacy skills. While most of the participants acknowledged the importance of education, many did not permit their daughters to attend school. They justified this by stating that in a patriarchal society educating girls is thought to be a waste of money.

In five village, the effects of basic literacy training were almost completely lost. That program suffered a similar high dropout rate of 31% (8 of the 26 participants). At the time of our study, two years after the completion of their class, while all could write their names, none of the participants could read, write or do math at a third grade equivalency level. Like K village, they did not send their daughters to school even though the school was located within a half-hour walk of the village.

2. The Development Process of the Self-Help Group in Kholmedanda Village

A self-help group called" Khushiyali (happy) Women's Group (KWG) " was formed in K village after the completion of the BLC and PLC. While Handy[21] offers a popular description of the development process of groups, we considered that the development process in this case was quite similar to that of the patients' association and its family association where participants have the same illnesses and their families have common concerns. We chose this framework because the women's group was formed around issues faced by all of the members, such as poverty. We, thus, chose to draw on the framework developed by Hill for the study of patients and their family associations.[22] The development process of KWG and a description of the cooperative relationship between KWG and SCHP is offered in Chart 1.

1) The Process of Forming

According to Hill, in the process of forming, members find people who are similar to themselves and talk with them about issues that they have in common. Then, through a process of repeated meetings and conversations, the group members develop relations of mutual trust.

We observed that participants' consciousness of adult literacy education itself was increased, which appears to be part of the process of group formation. Initially, there was no public building for the literacy class. Taking initiative, and without external assistance, the prospective participants and their families constructed a building for the class by collecting lumber and dead grasses within the community. Basic literacy class participants made speeches on the importance of education in the community on National Education Day and raised the awareness of community members by creating and performing songs and dances on literacy.

After these consciousness raising activities, the participants became more interested in improving health care in their community and in developing the community itself. For example, some BLC participants started to clean up the public paths and repair public water pipes, others gave advice to community people, recommending that they go to a health post when they are ill. Finally, participants bought oral rehydration salts to cope with diarrhea. After finishing the BLC, participants received kitchen gardening training from NRCS and SCHP and each started their own kitchen garden.

In December 1995, (six months after the completion of the BLC) SCHP started PLCs. There were no new activities during this class, but participants learned how to build pit latrines, improved their knowledge of health care management, learned how to prevent some illnesses, and improved their community organization skills. All of this helped them to move from the more decontextualized material of the literacy class to the practical material of their daily lives.

In August 1995, participants in the PLC formed a SHG on the recommendation of SCHP. They called their group "Khushiyali" Women's Group (KWG) because, as members of that group, they would learn skills relevant to their daily lives and they were more content. Chart 1 shows the steps in the growth of the SHG in K village. A quick glance at Chart 1 reveals heavy support from SCHP for KWG which is indicated by arrows pointing to the left. It is clear that there were more approaches from SCHP to KWG than vice versa, and that most activities, during this stage, were undertaken on SCHP's initiative.

21. Handy, C., *Understanding Organizations* (New York: Oxford University Press, 1999), pp.165-167.
22. Hill, K., *Helping You Helps Me: A Guide Book for Self-Help Groups* (Ottawa: Canadian Council on Social Development, 1987).

Chart 1 The Growth Steps of the Self-Help Croup in Kholmedanda Village

Steps Forming	Year Perform-	SHG Activities	Requests of and Support from SCHP
Norming	12/94	l. Built the literacy class building	Hosted a needs assessment meeting
		2. Participated in a basic literacy class a) Five day classes per week b) Acquired literacy skills	Implemented the basic literacy class (monitoring and technical support)
		3. Undertook a literacy campaign within Kvillage on the National Education Campaign Day	
		4. Started development activities other than literacy within the community a) Cleaned public paths and repaired public water pipes b) Provided health consultations for community members c) Supported the diffusion of kitchen gardening within the community	Completion of the basic literacy class
	05/95	5. Layout of kitchen gardens at each house	Provided training on kitchen gardening (Provided seeds and nutritional education)
		Started kitchen gardening	Provided a second kitchen gardening training (session about counterplan of blight)
		6. Asked SCHP to offer a post literacy class	Provided a literacy instructor with five days of technical training
	12/95	7. Participated in the post literacy class a) Acquired skills relevant to their daily lives	Implemented a seven-month post literacy class
			Provided a four day refresher course for the literacy instructors three months after the post literacy class
	06/96		Completion of the post literacy class
		8. Birth of KWG as a self help group	Recommended that the graduates form a SHG
Month/	08/96	1. Group Work a) Established group rules and regulations, distributed among members b) Started monthly meetings	
		2. Requested training on how to build pit latrines from SCHP	Provided technical training for constructing pit latrines (5 days)
		Built a pit latrine at each member's house (17 latrines)	
		3. Requested support from SCHP to build a reading and community development center	
	12/96		Provided fund for constructing a reading and community development center
		4. Cooperated with SCHP on the National Immunization Day Campaign Against Polio	Requested the cooperation of KWG on the National Immunization Day Campaign Against Polio
		5. Requested first aid training	Provided first aid training (2 days)
		6. Requested income generation training a) Collected 28 rupees from each member	Provided five days of income generation training and lent 5,000 rupees as seed funds
		b) Started a livestock bank (added 7,122 rupees within three months)	
		7. Revised group regulations	
ing	03/97	1. Three members from KWG provided technical support to a neighboring SHG on how to build a pit latrine 2. Supported a mother who had a sick child 3. Participated in the Bagmati River Conservation Project without external prompting 4. Inhabitants of K village who were not members of KWG observed and copied the construction of pit latrines	Suggested that the KWG share their knowledge of how to build pit latrines with the SHG in a neighboring village

: Request from SHG to SCHP
: Support and Request from SCHP to SHG

2) The Process of Norming

According to Hill, in the next stage of group development, members form relationships with other organizations, experts, and influential members in their community. During this stage the group develops a consistent pattern of organizing meetings and members begin to adopt specialized roles.

Once the participants of KWG had named their group, the eldest, an active community member, was selected as the chairperson. Following this, and at the same meeting, a vice-chair, secretary and treasurer were chosen. They then chose community development as their mandate. Within this mandate, they chose to focus on in-

come generating activities, promoting health education and female participation in a range of development projects. The group also established some rules and regulations. They decided that decisions were to be made by consensus and, failing that, by a large majority. Each month they would collect five Nepalese rupees from each member and an additional five Nepalese rupees would be collected from those who missed a meeting. They then began to discuss the content of their activities and how to best use the group fund.

After completing the post literacy training, in which pit latrines were mentioned, KWG asked SCHP for practical training in constructing pit latrines. Following five days of training, as its first major activity, KWG constructed pit latrines at each of the 17 participants' houses. The group did this with no external support, financial or otherwise, and used nothing but local materials. We observed that group members were diligent in their attention to ensuring a supply of water and to keeping the latrines clean, which may have contributed to the fewer number of flies in and around group members' houses.

The second activity undertaken by the group was the establishment of a library. The group submitted a request to SCHP, which provided two books for each participant. The participants quickly read those books and repeatedly requested SCHP to supply them with more reading materials. Responding to this, and building on land donated by one of the member's family, SCHP provided the 200,000 Nepalese rupees needed to build a reading and community development center and stocked the shelves with books on health and development. While SCHP covered material costs, the community provided the labor needed to build the facility.

The third activity undertaken by the group was training in first aid. Even after the completion of their PLC, participants did not have enough information to improve their situation. SCHP provided the group with a first aid kit and offered two days of training in its use. During the period of our field research, one of the participant's family members fell from a ladder. We observed that the participant quickly accessed the first aid kit and applied an ointment and bandage to the injury. When we inquired about the condition of the first aid kit, we were told that when medicines ran out the group raised funds to replace them.

The fourth, and most fascinating activity for KWG was income generation. Each member began by herself. During the DASHAIN festival[23] they raised funds by visiting neighbors and dancing for them. The group, however, did not know what to do with the money they had raised and asked SCHP to provide them with some training in income generation. During the training, the participants learned how to manage and invest their funds and, at the completion of the training, they received a loan from SCHP that they used to establish a livestock bank. While they kept their breeding pairs, participants sold offspring to raise cash.

To deal with money, the group added one new rule that had not been necessary in the beginning. The group decided that if a member left the village because of marriage or for any other reason, she should appoint a family member to take her place in the group. They established this rule to ensure that the fund was evenly distributed. Further, they decided to bar political issues from their SHG activities for fear of their group dissolving over political differences. As indicated in Chart 1, the number of arrows from the right increased during this stage. This reflects SCHP's responses to KWG's requests for support. Thus, during this stage, the SHG gradually began to initiate more activities than SCHP.

3) The Process of Storming and Performing

According to Hill, there is a transition period after the group has developed in that there are often disagreements that surface within the group. However, in the case of KWG, they anticipated and dealt with these possible divisions by creating new rules that dealt with issues related to money and politics. As such, this group did not seem to suffer greatly during the 'storming' period.

The final stage, again according to Hill, is that of performing. In this stage the group sets about their real work and each member's task is quite clearly defined. The activities of KWG in this period are best seen from the perspective of their contribution to community development. This period coincided with some aspects normally associated with more developmental stages.

First, and at the request of SCHP, KWG promoted the National Immunization Day Campaign Against Polio run by the Ministry of Health of Nepal. Second, KWG offered training on how to build pit latrines to a women's group in a neighboring community. Third, KWG provided some money from their group fund for a mother in a neighboring village to transport her seriously ill child to a health post. Last, the members of KWG participated in the Bagmati River Conservation Project, and, rather than keeping their full salaries, they chose to put half of their incomes into the group fund. Through these activities the group became well known in their community.

During the PRA portion of our investigation, we had community members draw an organization map of their community. Most of the people we interviewed noted KWG, though it was often indicated by a tiny circle. Thus at the time of our research, KWG was considered, by the community, to be a group that focused on community development.

The impact of the KWG's activities spread from their village to neighboring villages. For example, members of K village who were not members of the SHG built two pit latrines just by observing the latrines built by the group. Following this example, people in neighboring

23. Much like Halloween in North America, in this region of Nepal, there is a festival during which young people go from house to house and perform traditional dances, after which they are offered some treats or, in some cases, a small amount of money.

villages began to build pit latrines. This case study shows that the one innovation introduced by KWG was gradually transmitted to nearby villages.

Chart 1 indicates that during this period the SHG started to become more self-reliant. In keeping with this, the relationship between KWG and SCHP moved from 'aid agency' and 'beneficiary' to 'partners' as the SHG was able to respond to SCHP's requests. Thus, in this period the partnership between us developed.

By way of comparison, there were no activities in S village following the BLC. Thus, no SHG was founded and participants did not engage in any particular community developmental activities.

III Discussion

1. Adult Literacy Education and Community Empowerment

In western countries, adult literacy education is seen as a mechanism for self-actualization. In developing countries, however, adult literacy education is seen as a tool for national development.[24] Recently, the goal of development has shifted from pure economic growth to human and social development. 'Empowerment' is now integrated as a key word in this new development paradigm.[25] Within this framework, it is meaningful to ask how adult literacy education can concretely contribute to empowerment in the process of national development. This study showed that adult literacy education served as an entry point for community empowerment. Building on this basis, a SHG was able to facilitate community empowerment.

However, not all adult literacy education programs lead inevitably to community empowerment. Even though participants, such as those in S village, may acquire literacy skills in BLCs, without follow-up they lose them. Further, the absence of development activities undertaken by participants in S village demonstrated that their training had no effect on their awareness of development issues. Abadzi provides a global summary of the outcomes of literacy programs over the last 30 years.[26] Archer and Cottingham restated its major findings as follows:[27]

On average, 50% of those who enroll in adult literacy drop out within a few weeks; of those who remain, on average, 50% fail to complete the literacy program successfully; of those who do complete, about 50% lose their skills within a year for lack of follow-up.

In Nepal, more than 500 organizations implemented BLCs for 1.4 million adults between 1992 and 1997 and it was said that 934,000 adults acquired literacy skills. Therefore, in Nepal about half a million registrants did not acquire literacy skills.[28]

One possible intervening variable in our study of K and S villages was ethnicity. The economic, social, and physical conditions of the villages were similar. The BLCs in K and S villages drew on the same materials and their drop- out rates were comparable. Were ethnicity a significant variable, it would have manifested itself in one of these other factors. There was little or no variation in these other factors and, as such, we could not conclude that ethnic variation was a major factor.

Rather, the issue may lie with a focus on quantity rather than quality. That is, while it may be possible to offer many people basic literacy training, this by itself will yield very little. For literacy to contribute substantially to national development, the focus must be shifted to ensuring that the work done yields results. That is, BLCs need to be complemented by PLCs and ongoing group interaction.

2. Adult Literacy Education as an Entry Point for Community Empowerment

Attempts have been made to raise the quality of adult literacy education in Nepal. For example, adult literacy strategies such as PLCs and REFLECT (Regenerated Freirean Literacy though Empowering Community Techniques), created by Action Aid, a British based NGO,[29] and introduced in Japan by Nishimura,[30] have been brought to Nepal. Action Aid and other groups using REFLECT, however, seem to be having difficulty finding trained facilitators which, combined with the high value placed on PLCs as a means to improve literacy retention and life skills,[31] has lead to the increased popularity of PLCs in Nepal.

SCHP offered a PLC in K village with the intention of improving the retention of literacy skills, improving individual life techniques and forming a group that could undertake community development activities. SCHP offered training for kitchen gardening between the BLC and the PLC. This training provided a good bridge between the basic and the post literacy training.

The farming season in the Nepalese hilly region is from May to October and, as such, it is only during the off season from November to April that farmers can participate in BLCs and PLCs. This six-month hiatus between the BLCs and PLCs may weaken the group cohesion formed during the BLCs. Further, at the conclusion of the BLCs, not all of the participants could see direct benefits, which may have reduced some participants' interest in returning for the PLCs. At the conclusion of the kitchen gardening program held after the BLC and during the agricultural season, however, all of the

24. Rogers, A., *Adults Learning for Development* (London: Cassell Education Ltd., 1992) pp. 1-5.
25. Kurita, "What is empowerment?," 10-34.
26. Abadzi, H., "What we know about acquisition of adult literacy: Is there hope?" *World Bank Discussion Paper* 245, (Washington D.C.: 1994).
27. Archer, D., and S. Cottingham, *REFLECT Mother Manual*: *Regenerating Freirean Literacy through Empowering Community Techniques* (London: ACTIONAID, 1996).
28. CERID, *Impact Study of Adult Education in Nepal* (1997)
29. Archer and Cottingham, *op.cit.*
30. Nishimura, M., "On Development Assistance for Education: A Focus on Non-formal Education," *International Cooperation Frontier,* 7 (1990): 54-64.
31. Comings, J.P., "Literacy skill retention in adult students in developing countries," *International Journal of Educational Development,* 15(1) (1995): 37-45.

participants could see tangible benefits of their BLC.

The focus of the PLC was to enable the participants to gain practical knowledge in health care and community organization skills. After the completion of their PLC, several of the participants were able to, were adequately motivated to and had sufficient confidence to continue their education by entering the formal education system, whereas graduates from the BLC did not choose to transfer to the formal system. Further, all of the BLC participants in the PLC engaged more actively in the life of their communities outside of their more traditional domestic roles. Thus, in these ways, the PLC encouraged each participant to raise her self-confidence and motivation.

Acknowledging his debt to Freedman,[32] Kukita found that there is a common theme in the discussion of 'empowerment' and redefined empowerment as "a process to place value on bringing into existence an equal and just society through believing in human capacity and creating the conditions within which that capacity can be made fully manifest."[33] He then suggests that empowerment has the five steps of 'basic needs,' 'access,' 'consciousness-raising,' 'participation,' and 'control'.[34] While providing this framework, he notes that identification of a solid entry point into the process of empowerment is a problem that must be solved in the future.[35]

Looking at the processes in K village through the lens provided by Kukita reveals that consciousness raising occurred from the outset of the BLC. This early manifestation of raised consciousness may be attributed to the motivation of the female participants who were delighted by and appreciated the opportunity to participate in a development activity created specifically for them. Kitchen gardening bridged the BLC and PLC and offered participants visible benefits that further contributed to their increased awareness of community development. Adult literacy education, understood as a mechanism that raises participants' consciousness and provides a base from which participants may subsequently undertake group activities, may be seen as a possible entry point in the process of community empowerment described by Kukita.

3. Self-Help Group as a Driving Force for Community Empowerment

After the completion of the PLC, SCHP strongly encouraged its graduates in K village to undertake community empowerment activities. Contrary to this, the participants in S village received no outside encouragement to form a SHG. In other words, it seems that the focus in S village was an immediate improvement in literacy rates. Thus, the sponsoring organization did not offer PLCs nor did they encourage the formation of SHGs.

Sadamatsu introduced a detailed case study which indicated that SHGs are key in the process of community empowerment;[36] however, adult literacy education was not integrated into that work. A common critique of community empowerment is that females are often not adequately represented. The activities sponsored by SCHP in K village can be identified as an example of community empowerment that drew on adult literacy education wherein females were very well represented and, as such, provides an example that complements the work done by Sadamatsu.

As indicated in Chart 1, there are materials in Japan based on Hill's work regarding the stages of the growth of SHGs.[37] Drawing on this material enables us to better understand the relationship between SHGs and their support organizations. After KWG was formed in K village, the relationship between the participants and SCHP changed dramatically. In the initial stages, SCHP approached KWG much more frequently than was true of the opposite. During the process of norming, the relative frequency of contact initiated by KWG increased to the point where SCHP was more commonly responding to requests from KWG. As the group moved through storming into the performing stage, SCHP requested that KWG cooperate with them in the National Immunization Day Campaign Against Polio. This request indicated the transition from dependency to partnership.

As will be discussed in the following paragraphs, the activities of the SHG in the norming, storming and performing stages can meaningfully be evaluated from a perspective of empowerment. While there have been previous attempts to assess empowerment,[38] all have been tentative. In this study, we attempted to apply Kukita's five steps for community empowerment because his work is well suited to investigating the performing stage of the SHG.

First, at the 'basic needs' level, KWG built pit latrines and managed a first aid kit entirely with their own funds and resources. The KWG also built a community library to maintain their literacy skills through a process of 'community participation' supported by SCHP's supply of building materials. Further, KWG initiated income generating activities without external prompting. After KWG laid this foundation, the group asked SCHP to support their activities. In the performing stage of their group's development, the activities of KWG resulted in

32. Freedman, J., *Empowerment: The Politics of Alternative Development* (Basil Blackwell Ltd., 1992).
33. Kukita, "What is empowerment?," 10-34.
34. *Ibid.*
35. Kukita, J, "Dynamics of empowerment and social reformation," Kukita J. and F. Watanabe (eds.) *Empowerment New Paradigm for the People-centered Society* (Gendai no Esupuri 376), (Tokyo : Shibundo 1998) 183-194.
36. Sadamatsu, E., "NGO and empowerment in Nepal," C.Saito (ed.), *NGO is Changing South Asia: From Economical Growth to Social Development* (Tokyo: Comonzu, 1998) pp.119-153.
37. Hasegawa, K., S. Hayasaka, M. Jimba, et al., "Growth of self-help groups after obesity prevention classes," Proceedings of 49th Annual Conference of the Japanese Public Health Association III (1990) p.282.
38. Kukita, "What is empowerment?," 10-34; Fetterman, D.M., S.J. Kaftarian, and A. Wandersman, *Empowerment Evaluation: Knowledge and Tools for Self-Assessment & Accountability* (Thousand Oaks: Sage Publications, 1996); Minkler M., *Community Organizing and Community Building for Health* (New Brunswick: Rutgers University Press, 1997).

changes in people outside of the group. This could be seen as actions at the 'control' level, which is characterized by activities that are appealing to people external to the group. Further, the profile of KWG in the community increased to the point that it was considered by most inhabitants as a faciotator of community development.

After these activities commenced, the group undertook other activities that appear to fall into the 'basic needs,' 'access,' 'participation,' and 'control' levels of community empowerment. Many of these activities, however, were partial and did not occur exactly in the sequence predicted by the literature. For example, the group moved to later higher order activities before fulfilling their 'basic needs.' Further, even though the model predicted that the process of 'consciousness-raising would result in changes in the value system, at the time of our study two years following the completion of the BLC, gender awareness had not changed significantly. This lack of change was reflected in the SHG members' common decision not to send their daughters to school. This choice could be shaped by their acceptance of conventional patriarchal values or be nothing more than a prudent choice on the part of the participants, whose daughters face life in a traditional patriarchal society. The members' choice in this regard may shift over time if they maintain their participation in the SHG and become critically aware of the consequences of traditional gender and other roles, and conventions in their daily lives.

As mentioned above, SCHP provided 200,000 Nepalese rupees to purchase the materials needed to build the reading and community development center. However, it is not feasible to provide the same level of support to the more than 60 SHGs anticipated to form by the end of 1998 in the target area of SCHP. As such, SCHP has been considering the construction of regional centers that would serve not only as libraries, but also as community development centers where people could hold meetings and host other community development activities. These centers would supply surrounding villages' SHGs with tin box libraries that contain 50 to 100 rotating books. If successful, this system will enable SHGs to circulate their tin box libraries among themselves as supported by such regional centers.

4. Two Paths of Adult Literacy Education

We have shown that adult literacy education can take two paths. In the first case, isolated BLCs result in temporary acquisition of literacy skills. In the second case, a BLC may provide an entry point to a process of community empowerment that moves through transitional activities, such as a PLC, and evolves, with some encouragement, into a self-maintaining SHG. This study demonstrated that SHGs formed after PLCs can be a driving force in developing their communities and highlighted the usefulness of a rough understanding of the process of group development, that is, forming, norming, storming and performing, by those who aim to support these groups.

The relationship between the SHG and the support agency can shift from one of donor and beneficiary to one of partnership as the SHG moves through the stages of group development and the support agency is willing to relinquish control. Through this process, it is possible for target community members to sustain the outcomes of the project's activities and to further develop those outcomes by themselves and on their own terms. Community empowerment, thus, can continue to show its value, not as a final goal, but as a process for achieving further goals through the activities of SHGs that do more than merely sustain themselves, but become living organizations integrated into the life of and serving the needs of their communities.

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Our ability to produce this work depended entirely on the thoughtful contributions of many people who are not credited with authorship. We would like to take this opportunity to acknowledge the patience and effort of those who live in the villages where we worked, the field workers and staff on the project, and the interpreter who assisted us in this study, without whose assistance this would have been impossible, and the translator who helped us to write the English version. As with all works of this nature, any credit is their due and all faults remain, of course, ours.

NOTE

Education and Research of Veterinary Public Health -Knowledge and Experience Gained through International Cooperation in Zambia

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The author had a chance to participate in the Veterinary Education Project Phase II, project-type technical cooperation of the Japan International Cooperation Agency(JICA) at the University of Zambia. The author's major tasks were to support and contribute to education and research in the field of veterinary public health as well as cooperate and actively participate in the promotion of extension activities closely related to veterinary public health.

The existing undergraduate program curriculum was reorganized and strengthened by combining urgent and important subjects, taking into consideration the present and future socioeconomic and cultural development in Zambia and other southern African countries. The scientific curricula included communicable diseases common to man and animals (zoonoses), food hygiene, environmental health, emergency veterinary medicine, rodent ecology and rat elimination, handling animal waste and carcasses, prevention and first aid for animal bites and insect stings, veterinary medicine in the conservation of nature, social veterinary medicine in traditional farming communities, biohazards in endemic areas, disinfecting of contaminated areas, wildlife veterinary medicine, and ethics in animal experimentation.

In the graduate program, the author provided two M.A.'s students with guidance in their research. There were two research subjects: 1) the dynamics of bovine tubercle bacillus (*Mycobacterium bovis)* found in sour milk, a traditional drink, in areas where bovine tuberculosis is rampant; and 2) the application of the hazard analysis critical control point (HACCP) system, aimed at slaughterhouse hygiene. As to research activities, we conducted: 1) observations and research in dog ecology with a view to preventing and controlling rabies in traditional farming areas; 2) observations and research on the contamination of the environment in anthrax endemic areas by *Bacillus anthracis*; and 3) research in veterinary public health in traditional farming areas. These were the most important research subjects in veterinary public health in Zambia.

The extension activities included: establishing the Zambian Journal of Veterinary Science; organizing a workshop on rabies control, attending international conferences in other southern African countries on the formation of a veterinary diagnostics network; assuming the role of external examiner in two faculties of veterinary medicine in South Africa, and drafting guidelines for using the animal experiment facilities at the university.

On the basis of the above achievements, counterpart scientists of the School of Veterinary Medicine at the University of Zambia are expected to further develop education, research and extension activities. The activities should be strengthened in close collaboration with scientists in other southern African countries according to medium and long-term plans to improve the public health in their communities, and the productivity in their livestock production.

Introduction

In the southern African region including the Republic of Zambia, it is evident that there are many problems particularly related to socioeconomics, health and hygiene.[1] These include increasing population, increasing population density in urban areas, refugees, poverty, starvation, epidemics, climate change related with global warming, water shortages, the destruction of forests and nature, tourism development in natural reserves and wild animal conservation areas, the contamination of water and food and many other related biohazards.

Furthermore, these problems create a complex critical situation on which there is an immediate and urgent need to take action. Under these circumstances, contact between people, livestock and wild animals has increased and as a result, has led to an increase in the incidence of bites and injuries due to animals, and the prevalence of rabies, anthrax and other zoonoses among villagers. Highly contaminated water and meat, in particular un-

* This article was first published in Japanese in Kokusai kyoryoku Kenkyu,Vol.14,No.2, (October,1998).

1. World Health Organization (WHO), "Our Planet, Our Health," *Report of the WHO Commission on Health and Environment* (Geneva: WHO, 1992) pp.1-269.

inspected meat and meat taken from carcasses found in the field or village, cause enormous hygienic and health problems in communities. In addition, disinfectants, medicine, and vaccines are not only quite expensive, but also difficult for villagers to procure. In view of these circumstances, it is critical to extend support and cooperation to the region to improve the health and hygiene standards and develop productivity. Veterinary public health should play an important role through observation, research, education and the training of technical personnel, research and surveillance.

The author was provided with an opportunity to contribute to the technical cooperation project (phase II) in the School of Veterinary Medicine at the University of Zambia, which has been developing since 1993. The author was assigned to carry out research and education in veterinary public health as a professor. His activity included 1) promoting and supporting undergraduate programs, 2) contributing to graduate education by promoting research, 3) being fully involved in research activities in veterinary public health, and 4) cooperating in extension activities. The author was involved in these activities for three years, beginning in June 1994. In the present paper, the knowledge and experience gained through these activities are described.

I Undergraduate Education

During the three-year assignment (1994-1997), the author was responsible for 63 students over four academic years. All the students actively and eagerly participated in lectures and practices. Most of the students made favorable achievements and all passed their final examinations. Each academic year was 30 weeks with three to four hours of lectures and four hours of practice each week. The program in Veterinary Public Health consisted of a 31-subjects which did not sufficiently reflect the science and technology needed to solve the problems in Zambia and the southern African region. The author reorganized the curriculum to meet the present socio-economic development stage of the region, by grouping subjects as zoonoses, food hygiene (including food microbiology and slaughter house hygiene), social veterinary medicine, environmental veterinary medicine, wildlife veterinary medicine, and laboratory animal science, and adding 60 new subjects and sub-subjects.

The newly added and strengthened subjects included rat ecology and elimination technology, prevention and first aid for animal bites and insect stings, science and technology of livestock waste and carcass management, the disinfecting and disinfestation of epidemic areas, science and technology of biohazard management, emergency veterinary public health, social veterinary medicine in traditional villages among others. Lectures and practice were conducted, pointing out recently occurring problems in Zambia with a view to introducing current information and knowledge (Table).

In practices, the subjects focused on and strengthened include analysis of contaminated food and water quality, diagnostic methods for zoonoses' infection, techniques for safely handling pathogenic microorganisms in the laboratory, methods for collecting samples for observation and research in epidemic /endemic areas, training, education planning and management of early detection of hazards, and management of preventive measures. Furthermore, the students participated in such activities as practice in slaughterhouse meat inspection, tours to milk plants, water purification plants, waste water treatment station, and laboratories attached to those facilities, as well as observation at the Central Veterinary Research Institute and the canine rabies vaccination campaign sites, observation and control of anthrax in endemic areas, field studies of veterinary public health at traditional farming villages, handling of laboratory animals, practical training in containment systems for pathogenic microorganisms and biohazard control at animal experiment facilities.

Throughout the thirty weeks of lectures and practice, the author aimed to train and educate, recognizing the current situation of the country, and provided sufficient basic information and technology to apply to solving the country's problems. The content of the program met the recommendations made by the FAO/WHO Joint Expert Committee on Veterinary Public Health.[2]

II Graduate Education

During the assignment, the author was responsible for guiding two graduate students, Dr. A.C.M. Sitima and Dr. J. Bwalya Muma, to their Master degrees. The author was responsible for teaching them how to set up a research subject, plan and manage the research work, treat and analyze research data, collect references and research information, and coordinate the research with related institutions and scientists. The author was also involved in the entire process of preparing the students for their dissertations and defense, and helping them to make improvements based on the criticism they received from internal and external examiners.

Dr. Sitima's research subject was the occurrence of bovine tuberculosis in the Namwala area in Southern Province in Zambia and the fate of *Mycobacterium bovis* in fermented sour milk. In this research, the prevalence of tuberculin reaction positive cattle (17%) and epidemiological distribution was elucidated with the isolation of *M.bovis* in fresh milk, and in the lungs and lymph nodes. Pathological diagnosis of the lungs and other tissues was also carried out. In traditional farming villages, where the frequent occurrence of this bovine epidemic is reported, fermented sour milk is produced and

2. WHO, "Veterinary contribution to public health practice," *Report of a Joint FAO/WHO Expert Committee on Veterinary Public Health* (Technical Report Series, 573) (Geneva: WHO, 1975) pp.5-55.

Table: Veterinary Public Health Curriculum in International Cooperation (School of Veterinary Medicine, the University of Zambia 1994-1997)

Veterinarian's Roles in Veterinary Public Health

- Health triad (Three tiers - a. nutrition, zoonoses control, animal protection, animal population management husbandry, b. animal production, vector and pest control, nature conservation, c. physical and chemical factors, nutrition - form a triangle with health/hygiene, animal health, environmental health at the apex. The gaps between each tier should be covered by research, administration and extension services in a systematic and cooperative manner.)
- Relationship betweeen veterinary environmental health, veterinary public health and medicine)[1]
- The Roles of a veterinarian in veterinary public health: Purpose and scope, activities, functions and services[2]
- Introduction of terminology and definitions[3,4]
- International cooperation: international organizations, governmental and non-governmental activities and extension services[5]
- Publications, journals, documents and audiovisual materials

Zoonoses (Infections and Diseases Common to Man and Animals)

- **Definition and classification of zoonosees**[3]
- Grouping by mode of transmission[3]
- Classification of causal pathogenic agents (i.e. viral, ricketsial, bacterial, parasitic, mycotic, etc.)[3]
- Vehicles transmitting contaminated materials (food, soil, water, insects, rats, others)
- Epidemiology monitoring, surveillance (monitoring incidence and transmission of zoonoses, evaluation of preventive and control measures), data collection and analysis, diagnosis, prevention, control, elimination, risk assessment and management,[6,7] "influence tree"[8,9]
- International cooperation in information/technology exchange, technology transfer, international meetings, working groups and collaborating centers.

Food Hygiene

- Hygiene management of livestock, safety and efficient production of food of animal origin[10]
- Effect of circumstantial temperature to the bacterial growth in food[10]
- Preservation of food at lower temperatures[10]
- Introduction of HACCP scheme and food safety [10,11]
- Structure of slaughterhouse, meat processing and hygiene control[12]
- Examination and control of animals to be slaughtered (ante-mortem examination)[13]
- **Slaughtering methods**[12]
- **Meat inspection (post-mortem examination)**[12]
- **Edible organs and tissues**[13]
- **Methods of preparing**, checking and examining carcasses and organs during the slaughtering process[13]
- Emergency preparedness and action to be taken in the event anthrax is detected and/or suspected in the slaughtering process[13]
- Regulations and laws for emergency slaughter[13]
- **Inspection procedures for poultry and fish**[13]
- Methods and procedures for the safe disposal of animal waste[13]
- Safe management of slaughterhouse waste water with special attention to environmental protection[13,14]
- Slaughterhouse waste management and procedures of how to process slaughterhouse wastes[13,14]
- Utilization of livestock waste[13,14]
- **Milk collection, transportation, pasteurization, and quality control**[15]
- Hygiene problems and diseases caused by milk and milk products and preventive measures[15]
- Selecting, preserving, cooking and marketing food of animal origin[10]
- **Food additives** and chemical residues (i.e. chemical substances, veterinary drugs, hormones, disinfectants, insecticides, antiseptics), and food safety[16,17]
- Problems in hygiene control of milk and meat products in developing countries (collecting, transporting, sterilizing, refrigerating, preserving, marketing, cooking and consuming in tropical and subtropital climates)[10]
- Prevention of complex contamination[10]
- Bacteriology in milk and meat: mechanisms of decay[10]
- **Zoonoses transmitted in milk and meat, infections / poisoning caused by contaminated food** and prevention and treatment[3,4,11]
- Essential factors to secure food (i.e. clean environment, optimal handling, refrigeration and cooking))[10]
- General precautions and practices in food hygiene[10]

Environmental Health

- Health and the enviromnet, the environment and ecology[18]
- Food and agriculture[19]
- **Food and water contamination**[18]
- **Examination of drinking and industrial water for bacteria and chemicals**
- **Waste water treatment technologies: industrial and household waste water**
- Technology for rodent and insect extermination and prevention of the disease caused by them[4,20]
- **Characteristics and applications of various disinfectants**[21]
- **Technology for disinfecting and decontaminating materials**[14,21] **and the air**
- Disinfecting and decontamination of livestock population[21]
- Survival and ecology of & Zoonotic pathogens in nature[21]
- **Safety and biohazard control in the laboratory**[22]

Social Veterinary Medicine

- Community health and dog ecology[23]
- Methods for surveying dog ecology[23]
- Socio-ecological classification of dogs[24]
- Dog population management, surgical methods and elimination technology[24]
- Human and animal co-habitation, and animal welfare and well-being[23]
- Twelve golden rules for the development of good relationships between human and animals[23]
- Prevention and first aid for animal bites and insect stings[23,25]
- Methods and conditions for post-exposure treatment immediately after a dog bite with special reference to rabies prevention[26,27,28]
- Rabies vaccine: types, specific features, transportation, preservation and duration of immunity[26]
- Designing, organizing, and implementing dog rabies vaccination campaign[26]
- Management and safe disposal of animal carcasses[14,23]
- Organizing and managing a rat and poisonous insect elimination campaign in the community[20]
- Maintenance and protection of pure and clean water sources in the community[25]
- Water contamination and community health[25]
- Disinfecting and treating drinking water[25]
- Infectious diseases transmitted by contaminated water[25]
- Management and safe disposal of animal waste[25]
- Veterinarian's role during natural disasters[29]
- Animal health centers: their activities, functions and roles, and services[29]

Wildlife Veterinary Medicine

- Nature and wildlife conservation, Washington Treaty and wild life conservation[30]
- Wildlife ecology and diseases[30]
- Wildlife protection and veterinarian's role[30]
- Merits and demerits of developing wildlife tourism in Africa

Laboratory/Animal Veterinary Medicine

- Laboratory animals: species, features, and minimum requirements[31]
- Definition, and purposes and procedures for breeding conventional laboratory animals specific pathogen free (SPF) animals) free from specific pathogens). Gnotobiotic animals (animals whose parasitic organisms are known), germ-free animals (free from any detectable organisms)[31]
- **Breeding**, reaing, hygiene management and **prevention of infectious diseases in laboratory animal populations**[31]
- Animal handling and techniques in animal experimentation[31]
- International ethics of animal experiment and animal welfare[32]

Representing major scientific areas.
Block characters are expressing previously/presently used curricula.
Subjects covered by both lectures and practices.
Numbers in the table correspond to the Reference for the Table at the end of the text.

consumed as an important daily source of protein.

The sour milk is very acidic and prepared in special containers or bottle gourds (KARABASH) in the local language). One of the most important points of the research was to elucidate whether *M.bovis* contaminated fresh raw milk would eliminate and/or inactivate the microorganisms in the fermentation process under very acidic conditions. This process would also be extremely important from a public health point of view since *M.bovis* can be transmitted from milk to humans worldwide. Studies focused more on the fate of *M.bovis* with drastic changes in pH from 7.0 to 3.0 and changes in bacterial flora in the fermentation process. It was found that microorganisms in the fermented milk were not eliminated even when the above changes took place. The research results show that fermented sour milk transmits *M.bovis* to those who drink it, and therefore is unsafe and remains a critical health risk factor in epidemic villages and areas. In his thesis, Dr. Sitima proposed preventive measures and the Academic Committee of the University of Zambia awarded him a Master's degree in 1994.[3]

Dr. J. Bwalya Muma's research subject was entitled " Surveillance and research for the establishment of a slaughterhouse hygiene scheme in Zambia using the HACCP (Hazard Analysis Critical Control Point) concept. " Dr. Muma developed and proposed a new scheme for establishing slaughterhouse hygiene as a result of the observations and research in basic bacteriological studies based on hygienic status with selected four slaughterhouses in Zambia.

The research found that meat most heavily contaminated with bacteria was found when the slaughtered animals were skinned and eviscerated, and carcasses were dipped prior to refrigeration. *Salmonella enteritidis*, a pathogenic microorganism, was found in samples collected from the slaughterhouse facilities as well as carcasses. In these observations and study, HACCP was identified useful to develop systematic hygiene control scheme. It is expected that the proposed scheme will be introduced into the national meat hygiene control program and will contribute to securing safe meat in Zambia.[4] This observations and research was fully supported financially by the Japan-Zambia Friendship Association Fellowship.

III Research Activities

Three additional issues concerning veterinary public health in Zambia were identified and research was carried out.

1.Observations and Research on Canine Ecology Aimed at Rabies Control in Traditional Farming Villages in Zambia

In view of the fact that rabies in dogs and humans is common all over Zambia, observations in 21 areas in nine Provinces of the country were carried out on 5,702 persons in 827 households. In the surveyed areas, 1,015 dogs were kept in 452 households (2.2 dogs / household with one dog per 5.6 persons). The major reasons for keeping a dog were for security and for hunting; dogs are even essential in traditional farming areas. Most of the dogs are not tied up (79.2%) and 114 out of 590 persons (19.3%) had been bitten by a dog within the past year. In some cases, some people had been bitten up to six times. The dogs had frequent contact with wild animals such as jackals, coyotes, foxes, skunks, lions, elephants, and many other types of wild animals on the edges of their territories in the villages. The opportunity for contact increases the likelihood of rabies being transmitted to the dogs.

Only 25 % of surveyed dogs had received rabies vaccination. Among the vaccinated dogs, however, there seems to have been included some dogs whose immune protective period (6 months) had already been invalid. In view of the fact that a 80% vaccination rate is necessary to prevent rabies epidemics, the 25% found in the survey in Zambia is too low. At the date of the present observations, there were 25 human rabies cases along with some dog bite injuries in the surveyed areas. Terminal cases of rabies were the result of the victims not having been able to receive post-exposure vaccination immediately after having been bitten, or having been initially improperly vaccinated with the human rabies vaccine. Most of those people who had received proper post-exposure immunization had been cured (93%).

It is highly recommended that rabies be prevented in humans and dogs. To do this, dogs must be tied, vaccination against rabies must be promoted to improve the rate of vaccination of the dog population of the country, and a post-exposure immunization scheme with first aid treatment immediately after dog bite must be established and strengthened in areas where rabies is endemic.

The life expectancy of dogs in Zambia is only three years on average. Fighting among dogs, being struck by villagers, being poisoned or bitten by snakes and wild animals, being poisoned by agricultural chemicals, and succumbing to infections and diseases including rabies among others are some of the causes of the short life expectancy of dogs in the surveyed areas.[5] This suggests the further need to improve health protection and control of dogs in Zambia. The author would like to point out that the results of the present observations are extremely important to incorporate into the National Rabies Prevention and Control Programme in Zambia.

The above observations and research were carried out

3. WHO, *Report of the Working Group Meeting on Tuberculosis in Man and Animals* (Geneva: WHO, 1992) pp.2-23; WHO, *Report of the WHO Meeting on Zoonotic Tuberculosis(Mycobacterium bovis) with the Participation of FAO* (Geneva: WHO, 1992) pp.2-25.
4. Jacob, M., *Safe Food Handling: A Training Guide for Managers of Food Service Establishments* (Geneva: WHO, 1978) pp.1-118; WHO, "Salmonellosis control: The role of animal and production hygiene," *Report of a WHO Expert Committee* (Technical Report Series 774) (Geneva: WHO, 1988) pp.7-77.
5. WHO, *WHO/WSAVA Guidelines to Reduce Human Health Risks Associated with Animals in Urban Areas* (Geneva: WHO, 1984) pp.5-24; WHO, *WHO/WPSA Guidelines for Dog Population Management* (Geneva: WHO, 1990) pp.9-107.

in close collaboration with a team from the Ministry of Agriculture and Fisheries at the Central Veterinary Research Institute in Lusaka, Zambia.

2. Isolation of *Bacillus Anthracis* from the Environment in Anthrax Epidemic Areas in Western Province, Zambia

Between 1980 and 1990 , anthrax epidemics in livestock, wildlife and human populations were reported in the Western Province of Zambia. Between 1996 and 1997, it was anthrax which predominantly occurred, in both the livestock (mainly in cattle) and human populations in the western part of the Western Province. Research work has been carried out to elucidate the environmental contamination due to *B.anthracis* in the epidemic areas in order to assess the risk of the emergence of anthrax and to take measures to prevent its occurrence. This research will contribute to elucidating the mechanism of the epidemic.

Survey areas were selected in Mengo, Lweve, and Muhunguo Villages where the Senanga and Kalabo Veterinary Offices were located. Seven strains of *B. anthracis* were isolated by means of standard diagnostic techniques and the selective PLET medium from 22 samples from soil, hides, and dried meat collected from the above epidemic villages. Furthermore, in the same area, Sihole Missionary Clinic, the author met anthrax patients with skin lesions (on the cheek of one woman and on the hip of a small child, etc.). The patients were treated with penicillin everyday. Eleven patients visited the clinic for treatment on the day that the author visited the clinic. In Muhunguo Village, there were also some patients with skin lesions on their cheeks. Also, two farmers' houses had been left without inhabitants due to the death of most family members in the most recent anthrax epidemic.

B.anthracis was not isolated in non-endemic areas and/or areas where anthrax epidemics had occurred a long time before. This may led researchers to develop efficient and effective detection methods for identifying *B.anrhracis* contamination in the environment since it can remain in the environment in a spore-form for a decade or even longer. The occurrence of anthrax in the human population of traditional farming villages in Zambia should be investigated because of their common habit of eating the carcasses of animals found in fields which carry unknown diseases including anthrax.[6]

This research work was carried out in close collaboration with the Department of Livestock Production and Health in the Western Province, and the Veterinary Offices in Senanga and Kalabo.

3. Surveillance and Research in Traditional Farming Villages with Special Attention to Veterinary Public Health

In the Chalimbana and Chikankata traditional farming areas of the Mazabuka District in the Southern Province, observations of the villagers' livelihood were carried out from a veterinary public health point of view. An observation team visited and collected data on 38 and 29 households in the respective villages. Of these households, 61.1% and 57.1% , respectively, kept livestock animals (mostly cattle). Furthermore, 55.6 and 69.6%, respectively, of livestock holding households were found to prepare meat at home that had not been inspected and even consumed carcasses which had been found in their fields (36.1% and 51.7%). The uninspected meat was transported long distances to be sold or given as gifts to their relatives and friends. The meat was preserved at home with salt and/or dried.

Many villagers suffered from animal bites and/or other problems due to animals, including dog bites (33.3% and 34.5%), snake bites(11.1Aiand 13.9%), and injuries caused by cattle horns (33.3% and 24.1%). The rates of vaccination against rabies in these villages were as low as 45.2% and 65.5%, respectively. The drinking water in the villages was supplied from water sources (public wells and running river) 1 to 3 km from their homes. The daily supply of water depended on women's as well as children's labor in most households in the villages. Villagers consumed unboiled drinking water because of a shortage of wood or fuel. In terms of illnesses, malaria, dysentery, and tuberculosis were predominantly seen in the villages, whereas livestock animals suffered from corridor diseases such as protozoan infection, blackleg, brucellosis, and tuberculosis as bacterial diseases among others.

It was found that because of the close contact and relationship between villagers, livestock animals, dogs and wild animals, there are some problems that need to be urgently addressed from the point of view of veterinary public health and Primary Health Care (PHC). By further extending Veterinary Public Health observation to other traditional farming areas, it should be possible to contribute to the health of villagers on the basis of PHC.

The present observations and research have been conducted in close collaboration with the Mazabuka Veterinary Office of the Southern Province. The outcome of the above research and observations was presented to an international meeting held in Lusaka, Zambia in 1997.[7]

IV Extension

The author actively participated in the following extension services in the School of Veterinary Medicine at

6. Fujikura, T. et al., "Anthrax control and research with special reference to national programme development in Africa: Memorandum from a WHO meeting," *Bulletin of WHO*, 72(1) (1994):13-22; Fujikura,T., et al., *Guidelines for Surveillance and Control of Anthrax in Human and Animals* (Geneva: WHO, 1993) pp.5-73; Dietvorst, D.C.E., "Farmer's attitudes towards the control and prevention of anthrax in the Western Province of Zambia," *Livestock Development Project Phase II* (Western Province, Zambia: 1997): 1-15.
7. The University of Zambia (UNZA), "Impact of veterinary education on health and production of livestock in Southern Africa," *International Meeting Abstract* (Lusaka, Zambia: School of Veterinary Medicine, UNZA, 1997): p.32,35 and 38.

the University of Zambia, contributing to and promoting education and research.

1) The author took initiative in planning and managing the veterinary public health and environmental health research activities in the school as chairperson of one of the seven panels officially organized in the Research Promotion Committee of the school. The research conducted by the Veterinary Public Health Panel included seven research programs, five of which were conducted by the author's group. The remaining two were on the water quality of the Kafue River flowing through the Southern Province. Prior to commencing the research, research proposals had to be thoroughly discussed by the panel before being approved and obtaining financial support from the university. A progress report also had to be submitted to the committee every six months. Through this process, research work which has priority is selected and promoted efficiently with funding from the regular research budget of the university. The system developed in the committee, induced cooperative research work with other interested institutions not only in the country, but also internationally.

2) The author contributed to publishing the Zambian Journal of Veterinary Science, which is the first academic journal publication in veterinary medicine in this country. He was responsible for elaborating an explanatory manual for the contributors, designing the cover page, reviewing manuscripts submitted for publication, coordinating with printing companies, convening the editorial committee, and doing other related business. The journal was first published in 1997.

3) Since rabies epidemics are predominant in Zambia, the author took the initiative to organize a workshop on the prevention and control of rabies throughout Zambia with support from the Dean and scientists in the school. The workshop was held in November 1995 with the active participation of many scientists from the Ministry of Agriculture, the Central Veterinary Research Institute, the University Teaching Hospital, the School of Medicine of the University of Zambia, the Ministry of Health, and the Lusaka Province Veterinary Office. In the workshop, recent epidemiology including the prevalence of rabies, its prevention and treatment, vaccine production plans, and future trends in rabies control programmes were actively and enthusiastically discussed. As a fruitful outcome of the meeting, a working group was organized to promote continued cooperation among different sectors including the health, public health, and agriculture sectors (intersectoral cooperation) in campaigning to eliminate rabies in the country. A report of the workshop was prepared and circulated.

4) The author was assigned as an external examiner in veterinary public health in the Faculty of Veterinary Medicine at South Africa Medical University (MEDU NSA) near Pretoria and in the Faculty of Veterinary Medicine at the University of Pretoria (Onderstepport) in the Republic of South Africa. All written, oral, and practical examinations were conducted impartially and the result was satisfactory with the level of the examinations being appropriately high. This experience was very valuable to future developments in the author's teaching activities. Because of this opportunity, the author would like to emphasize that many scientists in veterinary institutions in the Republic of South Africa desire more opportunities for close contact with Japanese scientists to exchange views, opinions and research information in the field of veterinary science.

5) In March 1996, the International Workshop on Training in Veterinary Diagnostics in Southern Africa, which was organized by SADC (Southern African Development Community) and OIE (Office Internacional des Epizooties), was held in Matobo Hills, Blawayo, Zimbabwe. The author was invited to participate in this meeting as a representative for JICA. In the meeting, developments in surveillance and diagnostics methodology, the opening of a training course for participating countries, the creation of an information network, the convening of regular meetings, the choosing of a secretariat and the opening of an office among others things were adopted. Since the workshop was so fruitful, it is highly expected that the resolutions adopted in the meeting will be implemented.[8]

6) On completion of the Animal Experimentation Facility in the School of Veterinary Medicine at the University of Zambia, built by the JICA Project to facilitate smooth and safe processing of animal experiments, and in handing over the establishment to the Animal Experimentation Committee of the school, the author volunteered to elaborate a manual to facilitate planning and management of animal experimentation and the use of the facility. The manual focuses on bio-safety aspects, including disinfection of the facilities, mode of aseptic operation, and the safe disposal of animal waste from infected animals and carcasses died in the experiments. The ethics of animal experimentation was also elaborated in an appendix.

Many other aspects were incorporated into the manual with the hope that it would be workable and useful for the scientists who use the facility for animal experimentation. The manual includes a list of pathogenic agents grouped according to degree of risk (which should be used); instructions on how to prepare for animal experimentation; a list of the equipment and chemicals which must always be prepared; instructions on how to introduce and handle experimental materials; an explanation of methods for disinfecting facilities prior to and imme-

8. OIE, *Report of a Workshop on Training in Veterinary Diagnostics in Southern Africa* (Marobohills, Lodge, Zimbabwe: March 1996)

diately after an experiment; and an outline of the basic work procedures in the facility.[9]

Discussions

The veterinary public health curriculum that was introduced to the newly established School of Veterinary Medicine at the University of Zambia early in 1980. It was based mainly on well-recognized knowledge and technology devised chiefly in countries like Japan, the USA and other developed countries and provided a means of knowledge and technology transfer. Except for three years during the mid-1980s, there were no professors who were responsible for veterinary public health. Thus education in veterinary public health was carried out partly by professors in microbiology, and infectious diseases until the author was assigned. This situation may have prevented active and systematic developments in veterinary public health education in the school by not taking into full account the socioeconomic and environmental problems, animal and human populations, nature, public health and the many other issues in Zambia and the southern African region that required immediate attention.

When the author was assigned to the school in 1994, the curriculum was as it was in 1980. Thus, Zambian veterinary public health education, whose activities were very limited, needed to be developed, taking into account the actual situation and problems of the country. And for this, veterinary public health's involvement, responsibility and contribution to the region were required.

One of the reasons of this inactivness might have derived from the fact the local people involved had not aspired at further improvement of veterinary public health education and had rather kept the curriculum untouched since it was introduced ten years ago from western industrialized countries and Japan.

The other reasons for the delayed action for improving the education could be that the curriculum adopted in this region was initially developed in industrialized countries and therefore contained various socioeconomic, environmental and natural components which were not compatible with the social values of Zambia and other South African countries.

In view of the above, they still need to make enormous efforts to improve veterinary public health education and research by themselves based on a principle of self-reliance. The author hopes that the present paper will be of a help in promoting science and technology in veterinary public health in Zambia and other interested developing countries.

Conclusion

Phase II of the JICA Project for Veterinary Education and Technical Cooperation in the School of Veterinary Medicine at the University of Zambia was successfully completed in 1997, four years after the project was commenced. However, in veterinary public health education and research, several important areas need to be developed further. They include the elaboration of long, and medium-term programs for sustainable education, research and extension services in the school, improvements to graduate courses, highly prioritized research and collaboration and cooperation with other institutions, the regular publication of an academic journal, initiatives to organize academic meetings, the further development of in-service training and other extension services, and the establishment of financial resources for these functions and activities.

To further develop these programs on the basis of successful developments of JICA Project in the school, the University would need to make enormous efforts of its own now and in the future. The university may also need to deepen their cooperation and collaboration with SADC countries to access common problems in human and animal populations, nature and the environment, and food production with special attention to veterinary public health. The author hopes that the School of Veterinary Medicine at the University of Zambia will take the initiative to play a leading role in promoting extension services in SADC countries and other African regions.

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Last, but not the least, the author also thanks all the experts from the British Overseas Development Agency (ODA) as well as those from the European Union (EU) for the kind encouragement, support, and friendship that they extended to the author.

9. OIE, *Manual of Standards for Diagnostic Tests and Vaccines* (Paris: OIE, 1992) pp.1-675; WHO, *Laboratory Bio-Safety Manual* (Geneva: WHO, 1993) pp.1-119.

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NOTE

International Cooperation in Hospital Improvement Projects in Developing Countries —A Study of Basic Principles—

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Hospital services along with PHC (primary health care) activities play an essential role in the national health service delivery system. In developing countries, priority, however is often given to the prevention and control of disease because financial, technical and human resources are limited, and on the other hand PHC is one of the high priorities in aid programs extended by foreign aid organizations. The low priority given to the hospital services compared with the prevention and control of diseases and PHC is also justified by the fact that the modalities of hospital-based medical care do not necessarily benefit the entire range of socio-economic strata in a country. It is noteworthy that the ratio of noncommunicable diseases leading to mortality is increasing in developing countries

Another fact is that, although mortality due to preventable diseases is gradually decreasing with the effects of PHC activities, there are still many very sick people who are hospitalized for treatment and require urgent and more intensive hospital-based care after all preventative or alleviating measures have failed. Under these circumstances, it is essential to strengthen the function of hospitals in order to achieve the goal, "Health for All by the Year 2000" being advocated by WHO and UNICEF.

Dr. Mahler, the former Director General of WHO, has asserted that "the hospitals do not contribute to the health of people" so long as they confine their activities inside the premises called 'hospital' and provide only highly technologically-oriented medical services. It seems to be impossible for anyone working in health sectors in developing countries to refute this criticism.

We have attempted here to establish the basic principles for international cooperation in hospitals improvement projects which both the donor and the recipient parties can use as a common guide in formulating project plans and policies to improve the quality of medical and health services in collaboration with PHC activities. We have also tried to clarify the stage at which these basic principles can be applied in a project cycle.

Introductory Remarks

The improvement of hospital function is a very important task which directly affects the health of people in developing countries. The World Bank and WHO jointly conducted the Global Burden of Disease Study for four and half years in the beginning of 1992. According to the study, approximately 40% of the causes of death were attributed to infectious diseases, and maternal and perinatal mortality, 50% to non-infectious diseases, and the remaining 10% to trauma.[1] Thus, on-infectious diseases are becoming a big health issue in present developing countries as in the case of industrial countries. Therefore, the role of hospitals for adequate medical care in developing countries is becoming increasingly important in cases of non-infectious diseases, not to mention the case of infectious diseases which is often aggravated as a result of failed preventive efforts and maternal and perinatal disorders. Consequently, the importance of hospitals in developing countries cannot be said to be decreasing, on the contrary it is increasing.

Hospital improvement projects in developing coun-

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1. Murray, C.J.L, "Evidence-based health policy-lessons from the global burden of disease study," *Science*, 274(1) (1996): 740-743.

tries extended by foreign donor countries need to be implemented with principles taking into account the actual socio-economic factors of the country. The hospitals in developing countries are featured differently from those in industrial countries due to scarcity of financial and human resources. For example, in developing countries, disease prevention and control (public health activities) works more effectively and are given higher priority than treatment of established disease entities (hospital-based medicine), and therefore hospitals functions should have unique roles co-active with disease prevention and control activities. Efficient hospital administration with clearly defined objectives is all the more important in developing countries since hospitals require coordinate efforts in a variety of areas in their functioning.

The purpose of this paper is to establish, from the above viewpoint, the principles to be referred prior to the implementation of hospital improvement projects extended to developing countries in international cooperation.

This paper is derived from the author's experience in technical cooperation projects implemented or coordinated by Japan International Cooperation Agency (JICA). The projects include the Rheumatic Fever and Rheumatic Disease Prevention and Control Project based at the Institute of Cardiovascular Disease Research Hospital in Bangladesh and the Family Planning and Maternal and Child Health Project based at the Nagaharnady Aluminum Corporation Hospital in Egypt, the Community Health Project in collaboration with Khon Ken Provincial Hospital in Thailand, in all of which the author, Yoshitake had worked. The technical cooperation with Santa Cruz General Hospital in Bolivia in which the co-author, Arasaki had worked, and the Cairo Children's Hospital in Egypt in which the co-author, Kanagawa had worked, as well as the authors' experience in JICA as technical advisors for grant aid projects with the support of the International Medical Center of Japan are reflected in the paper. The result of a forum, "Focus Group Discussion" participated by former leader of the projects related to the hospital improvement is also incorporated.

I Status of Hospitals in Developing Countries

The idea of the collective treatment of a group of patients within a facility was originated in Europe. In the beginning, such ways of treatment were convenient for care-givers. As a result of modernized diagnostic and therapeutic modalities advanced by various technological innovations in the post-industrial renovation era, it was found that good outcomes could be achieved by collecting patients with similar symptoms in one place for repeated treatment,[2] and thus hospital-based medicine has been established as an efficient care modality.

On the other hand, there had been no concept of "hospital-based medicine" in the southern countries now referred to as developing countries. Hospitals were constructed in these countries by European powers whose colonialistic activities became increasingly more intense in the 19th century with the advent of industrialized societies in Europe. Their chief mission was to serve the colonial rulers from Europe.

Following the end of the World War II, one after another, countries won independence and were concomitantly forced to accept European style medical care modalities, i.e., "hospital-based medicine" remained as a legacy of their colonial rulers. Naturally, these newly independent countries lacked the financial, technical and human resources to run these modalities, and therefore had to depend a lot on assistance from the industrial world. Furthermore, this type of medical service was available only to those urbanites who could afford to pay for the service or afford access to hospitals; rural residents, who represented the majority of the country, had nothing to do with the hospitals.

When hospitals similar to those in urban centers were built by national policy in smaller rural towns to offer free or less expensive services, they were of little help because they had poor technology, lacked equipment and supplies, and benefited only those who lived close to the facility. The level of health had hardly been improved under these circumstances. While mortality due to infectious diseases, malnutrition and maternal or perinatal disorders remained high, even higher population growth, which surpassed the mortality, kept the vicious spiral of many births and many deaths unsolved.

Various aid organizations and groups which are concerned with developing countries have been struggling with the difficult problem of how to promote health with limited material and human resources. Thus, Dr. Mahler, the then Director General of WHO, declared "Health for All by the Year 2000" by means of PHC activities at the Alma Ata Conference in 1978 which was co-sponsored by WHO and UNICEF.[3] Urging people not to rely only on western-style medical technologies, the declaration advocated the promotion of community participation and initiatives, and the development of health care services appropriate to the respective countries by emphasizing prevention based on epidemiological priority. Thus, it aimed to create the conditions whereby all people could attain health by the year 2000. The Alma-Ata Declaration, however, did not mention the role of the hospitals.[4]

Responding to this movement, an international conference was held in Karachi in 1981 on the "Role of Hospitals in PHC". It was co-sponsored by the Aga Khan Foundation and the Canadian International Development Agency (CIDA) under the auspices of WHO. Dr.

2. McNeil, W.H., *Shippei to Sekaishi* (Epidemics and World History:Japanese translation) Shincho-sha (1985) p.215.
3. WHO and UNICEF, *Alma-Ata 1978: Primary Health Care*, (Geneva: WHO, 1978).
4. Hardie, M., "Hospital and primary health care (PHC)," *Int. Nurse. Rev.,* 31(2) (1984): 43-46.

Mahler, who did not mention the role of hospitals at the Alma-Ata Conference, raised the criticism "… but they have all too often become ivory towers of high and sophisticated technology needed by relatively few and accessible to fewer."[5]

Henceforth, activities in health promotion in developing countries have been deployed with PHC activities participated in by residents of rural communities with emphasis on disease control, and primary health and medical care. As a result, primary health and medical care facilities have been strengthened in almost all developing countries steadily producing the fruits of PHC, and mortality due to diarrhea, diseases and other preventable infections have been declining significantly. Thus, developing countries had gotten into an era of many births and a few deaths.

II Historical Relationship between Hospital Functions and PHC

The declaration of "Effective linkage between hospitals and PHC" advocated at the Karachi Conference had failed to provoke full discussions from the point of view of the overall role of hospitals in supporting the health and medical care delivery system at the national or regional level. Discussions had been carried out almost exclusively from the point of view of the role of secondary hospitals (district hospitals or the first referral hospitals) as recipients of patients referred from primary care facilities, and no mention has been made as to the role of tertiary, specialized or training hospitals.[6] It can be said that all diseases are not preventable nor is all early treatment effective. Patients in aggravated conditions cannot be managed by primary care facilities or secondary hospitals. In many cases patients ended up in a situation requiring care at tertiary or specialized hospitals located in urban centers, overcrowding hospitals with patients too sick to treat.

Recently PHC activities have lost some of their initial luster although the importance of PHC as a basic concept remains unchanged. "Health for All by 2000" has been difficult to achieve and now requires modifications, as was clearly shown in the Global Burden of Disease Study mentioned earlier. In the developing countries, the number of deaths due to chronic diseases and traffic accidents are increasing while many deaths still resulted from infectious diseases. In many countries, people forgo primary care facilities, the basic units of PHC activities, to visit higher-level hospitals.[7] In addition to this, reports in various forms indicate how difficult it is to establish PHC activities in the community.[8]

Hospitals, on the other hand, are suffering from shortages of funds, medical supplies, equipment and human resources, and some opine that not only do they fail to deliver satisfactory medical services, but they also negatively affect the health and medical care delivery system of the country by monopolizing precious medical resources.[9] Such hospitals are detestable from the standpoint of prioritized PHC.

Given this background, it has been proposed that health care delivery systems should be considered more comprehensively from the perspective of national health policy.[10] Specifically, beginning in and around 1992, movements have been activated in developing countries which demand reformation of the overall health care delivery system accompanied with as health sector reform, health care reform and health reform.[11] The Western Pacific Regional Office of WHO is about to add new problems of urbanization, environmental deterioration and chronic diseases associated with human behavior to the future approach of PHC.[12] Furthermore, the Development Assistance Committee (DAC) held in May 1996 formulated a global strategy for the 21st century,[13] and set targets in health for decreasing the infant and under 5 years old mortality by one third and maternal mortality by one fourth by the year 2015. The specific strategies have yet to be formulated.

III Principles to be Confirmed Prior to Implementation of Hospital Cooperation

Under these circumstances the hospitals in the developing countries will be questioned about their raison d'être if they only wait for patients to turn up and render business-as-usual services. The time has come for hospitals in developing countries to reawake themselves to tackle the task of increasing hospital functions. The cooperating party also has to have a clear

5. Mahler, H., "The role of hospitals in primary health care," *Report of a Conference Sponsored by WHO and Age Khan Foundation* (Karachi, Pakistan: Nov. 1981): 22-26.
6. WHO Expert Committee on the Role of Hospitals at the First Referral Level, *Hospital and Health for All* (WHO Technical Report Series, 744) (Geneva: WHO, 1987); WHO Study Group on the Function of Hospitals at the First Referral Level, *The Hospital in Rural and Urban District* (WHO Technical Report Series, 819) (Geneva: WHO, 1992).
7. Health Planning Division, Ministry of Public Health, Thailand, *The Seventh Five-Year National Health Development Plan* (1992).
8. Bryant, M., and R.O. Essomba, "Measuring time utilization in rural health centers," *Health Policy and Planning,* 10(4) (1995): 415-421; Maclure, R. , "Primary health care and donor dependency: A case study of non-government assistance in Burkina Faso," *International Journal of Health Services,* 25(3) (1995): 539-558.
9. Uehara, N., and A. Wagatsuma, "Tojokoku-niokeru byoin iryo: iryou shigenno kanntenkara (Hospital-based medicine in developing countries, from a point of view of medical resources)," *Kokusai Kyoryoku Kenkyu* 6(2) (1990): 43-60.
10. Unger, J. P., and B. Criel, "Principles of health infrastructure planning in less developed countries," *International J. Health Plan. Manage,* 10 (1995): 113-128.
11. Hasegawa, T., "Sekaiwo nomikomu kennkou henkaku - Soron (Tidal current of health sector reform inundating the world - General discussions", *Koshueisei* (Public Health), 62(1) (1998): 70-79.
12. WHO, *The World Health Report 1995: Bridging the Gaps* (Geneva: WHO, 1995).
13. OECD, *Shaping the 21st Century: The Contribution of Development Cooperation* (May 1996).

picture of what the proposed cooperation will bring about, relative to the country or region, before the project is started. From this point of view, the principles to be applied in hospital cooperation will be stated below in three parts divided by the loci of application of the respective principles, i.e., the recipient side, donor side and both sides.

1. Principles Applicable to Developing Countries

Principle l: As a precondition to implementing a hospital cooperation project, it has to be shown that the community residents have access to the primary health care facilities.

Even if a hospital (secondary or tertiary care in most cases) is built where no primary care is available, only a limited number of residents will have access to the hospital. In other words, even if the hospital can provide high quality medical care, those living in areas which are outside access will not benefit from it. The medical services of a higher level hospital will be better utilized only where the basic health and medical service is provided by a primary care facility. It is essential to have a primary care facility accessible (Fig.1). Where there is no such establishment, a primary care facility should be given priority over a secondary or a tertiary hospital as the target of cooperation project. Even if it exists, often it may not be functioning effectively, but, as stated below, it may be reactivated for better primary care service through cooperation or linkage with a hospital. It is vital as a precondition for cooperation to take place, a primary care facility must be established.

Principle 2: The National Health Policy specifically defines the role of the target hospital in the cooperative efforts to improve health on the national or regional level.

Even if efforts are made to improve the function of the target hospital, it is not clear what contribution is made to the community when its role is not specifically defined by the National Health Policy. Accordingly, the relevance of the cooperation with the hospital also becomes vague. The project (improvement in hospital function) has to be shown unequivocally to help a national program (health policy) (Figs.1, 2 and 3). The function of a hospital as a component of the health and medical care delivery system should be carefully identified. As the system comprises prevention, health promotion, curative medicine and rehabilitation, each hospital must be designed to fulfil its pertinent role in each necessary field.[14]

Principle 3: Sufficient funds must be budgeted for improving the functioning of the target hospital.

Even if foreign financial assistance is needed, the target hospital should be operated and maintained by the counterpart country as the responsible party, and it is essential for the counterpart country to budget the corresponding funds (Fig.4). Any foreign financial assistance constitutes only a portion of the operation of the hospital. Whether the hospital can maintain its activities following the termination of the cooperation will depend on how properly budgetary actions were taken during the cooperation period. Any cooperation that creates dependency on foreign assistance will be counterproductive to the self-reliance and -development of the recipient counterpart country.

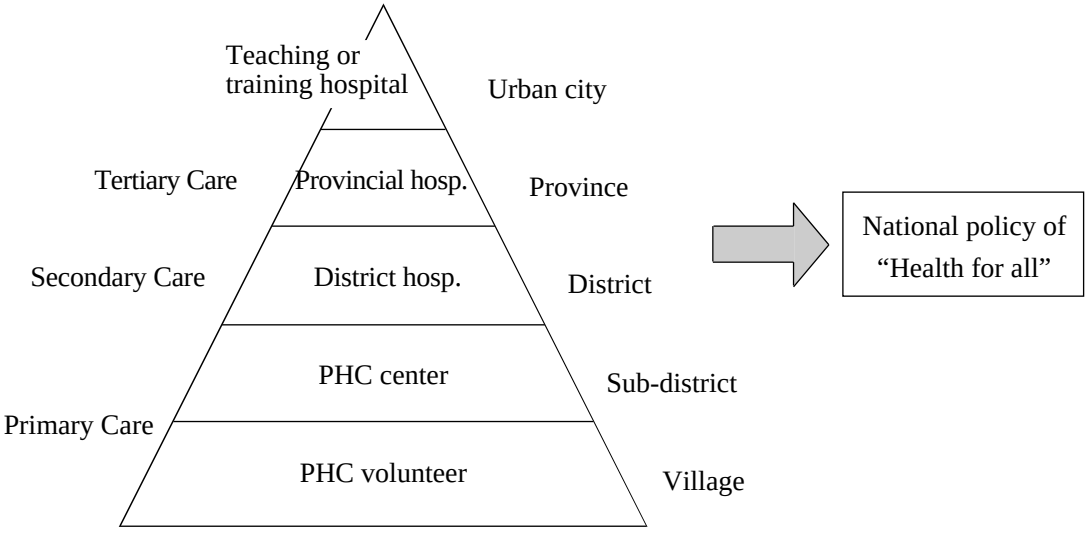


Figure 1 Hospital in National Policy

14. Mahler, *op. cit.*

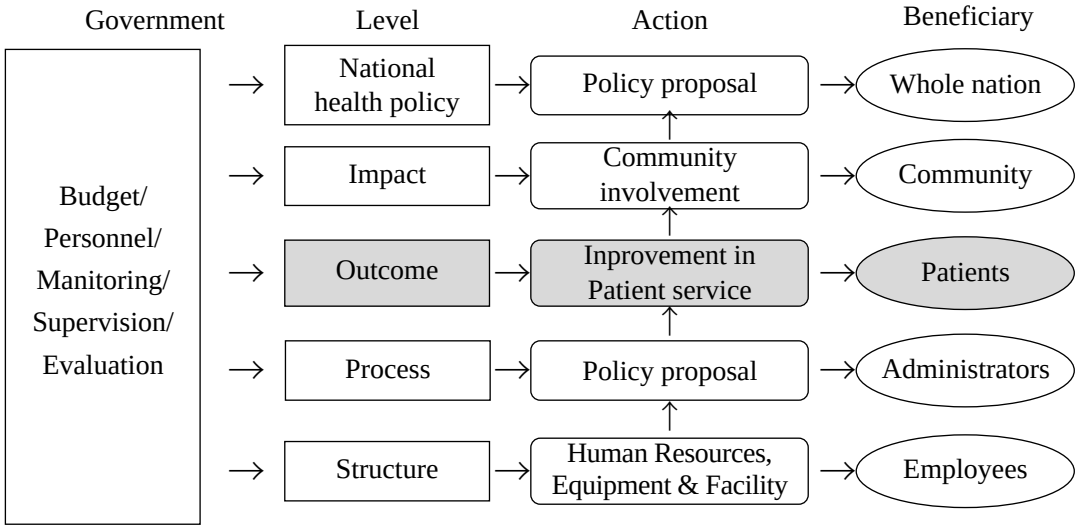


Figure 2 Improvement of hospital function

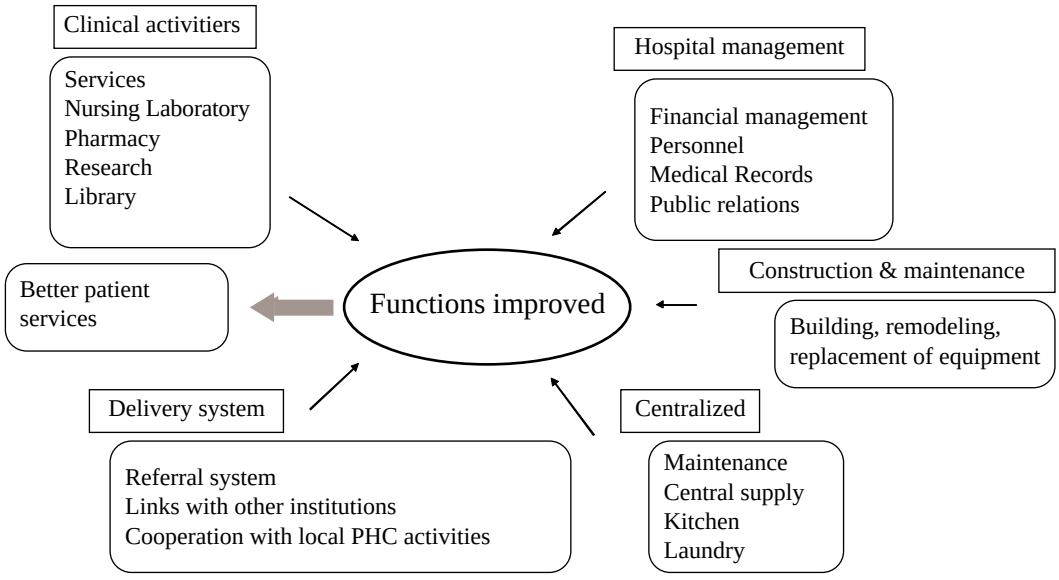


Figure 3 Hospital Functions

Principle 4: The target hospital is prepared to accept technical cooperation.

The hospital has to be well organized and staffed in order to achieve its defined objectives with the cooperation of the Japanese side, that is, the organization of personnel to respond to the technical cooperation (Fig.4). It is necessary to have a director who is in charge of the overall project, someone who is responsible for the department that will receive technical cooperation, and direct target personnel who will carry out the technical cooperation through specifically assigned tasks. In addition, various types of committees will need to be held to make the technical cooperation effective and efficient. Furthermore, as this is an international cooperation project based on an agreement between two countries on the national level, the responsibility at the national government level has to be clearly indicated so that the cooperation can be carried out smoothly and effectively.

2. Principle Applicable to the Donor

Principle 5: The Japanese side should beprepared to cooperate in such a way as to satisfy the needs of the counterpart.

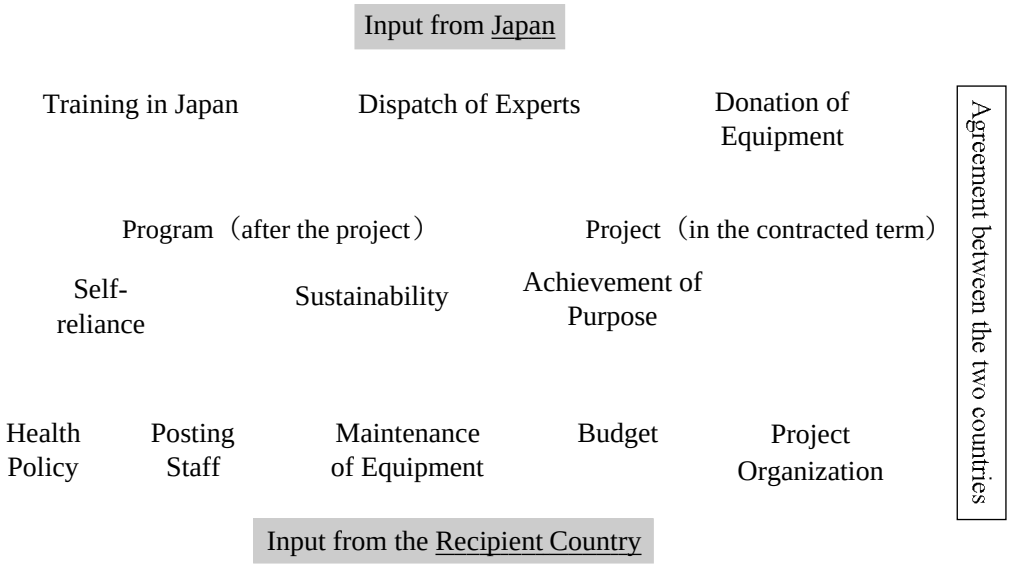


Figure 4 Project-Type Technical Cooperation（**JICA**）

The cooperator should, upon launching technical cooperation, be well prepared to satisfy the needs of the counterpart in terms of personnel, funding and contents (needs-oriented) (Fig.4). The cooperator should never force its own interests on the counterpart (provider-oriented), neglecting the latter's needs. For example, the cooperator should never be engaged in the hospital cooperation project in order to obtain results for its own research studies.

3. Principles Applicable to the Both Sides

Principle 6: The hospital cooperation project should aim specifically to improve the patient service.

What is important is how the improved hospital function contributes to improving the patient service, i.e., improved cure rate, shortened admission period, increased patients' satisfaction, and raised level of health in the community. The hospital cooperation does not necessarily serve to improve the patient service. If new construction at the facility, and rebuilt or newly-purchased equipment only please those connected with the institution and do not lead to improved patient service, then all these cooperative efforts will be meaningless (Fig. 2). Recognizing that any problems with the patient service concern not only the facilities and equipment, it is necessary to clarify problematic points and define objectives toward which the workers in the establishment should direct their efforts.

Principle 7: The technologies to be transferred and should be appropriate to the counterpart.

Appropriate technology is defined as that which is effective for the objective, is highly cost-effective, practical and widely applicable, and has been scientifically proven. Often in developing countries, doctors educated in or influenced by Europe and the United States way wish to introduce the medical technologies of the industrialized world so hastily that they might request technical cooperation inappropriate to their country in terms of cost effectiveness.

The kangaroo care[15] developed in Colombia is an example of appropriate technology. This is a method to accommodate an extremely low weight newborn in an incubator for a few days after birth to wait for improvements in its condition by standing it, dressed only in a diaper, between the breasts of the mother, who wears her clothes over it to keep it warm and can breast feed it. With this method, the survival rate of extremely low weight newborns has been improved (up to then, one incubator had been used to accommodate two or three premature babies because of the shortage of incubators, and inadequate care had complicated them with infection, causing many of them to die), and as a result of the contact with the mother, baby abandonment is said to have decreased. The kangaroo care helps shorten the time which an incubator is required and requires fewer professional personnel, thus enhancing cost-effectiveness.[16]

Principle 8: It should be recognized that improving the capabilities of hospital administration is important for the hospital to function effectively.

In order for a hospital to fully function, it must operate in such a way that the various sections of the hospital are organically linked with each other so that each section functions collaboratively, effectively and efficiently. If the various sections of a hospital are not linked,

15. Whitelaw, A., and K. Sleath, "Myth of the marsupial mother: Home care of very low birth weight babies in Bogota, Colombia," *Lancet*, May. 25 (1985): 1206-1208.
16. Charpak, K., J.G. Ruiz-Palaez, and Y.Rey-Martinez Charpak, "Kangaroo Mother Program: An alternative way of caring for low birth weight infant? Year mortality in a Two Cohort Study," *Pediatrics*, 94 (1994): 804-810.

Table 1 Hospital Administration

CONCEPT OF HOSPITAL MANAGEMENT			
RESOURCES	OBJECTIVES	FIELDS	INVESTIGATION
Manpower	Organization	Personnel affairs	No. of personnel, Organization, Payment
Materials	Equipment, Facilities, Medicine, etc.	Procurement and maintenance of materials	Inspection, Inventory
Money	Financial affairs	Medical affairs, Accounting	Book-keeping
Information	Medical records, Medical statistics	Record-keeping, Statistics center	State of patient records, information and statistics

their potential may not be fully realized (Fig. 3 and Table 1). This should be recognized not only by the hospital administrator but also by those responsible for each section.

Principle 9: As a component of the function of the hospital targeted for cooperation, a PHC section should be established to play an active role in disease prevention and health promotion on the national or regional level.

The hospital should have activities to strengthen PHC as a component of its functions. In developing countries, most patients coming to the hospital are those suffering from preventable, but contrarily aggravated, diseases because they have not benefited from PHC. It is not enough for the hospital to just treat these patients. A hospital takes care of many such patients, and that is exactly why it is in a better position to advocate the importance of prevention and early treatment. The hospital has a greater role to play in standardizing disease specific treatment at primary care facilities, establishing an adequate patient referral system, training health and medical personnel at the respective levels, consolidating and adequately using health and medical information, linking various types of health and medical information, and evaluating health and medical service in the community (Fig.1). Those concerned should be thoroughly made aware of this concept, which is fundamentally different from that of hospitals of the industrialized world, so that this section may be firmly established.

Principle 10: The statistical data to demonstrate the activities of the target hospital should be collected on a yearly basis, especially those indicators that measure the degree of improvement in patient service.

The various types of statistical data to demonstrate the status of the target hospital are not only essential but also should be available at all times from an established system. Above all, it is important to establish a system to annually obtain indicators such as the rate of discharge upon recovery or amelioration, rate of postmortem discharge, rate of intra-hospital complications, duration of hospitalization, the wait for surgery, patients' satisfaction rate, and patient referral rate to accurately show the quality of the patient services. Developing countries are in no condition to sufficiently collect these data. More than therapeutic technique or anything else, it is important to be able to collect these data. Without the data, we cannot measure the effects of the improved functions made possible through cooperation or define targets for modification.

Principle 11: It is necessary to establish a method to evaluate the impact of technical cooperation.

The input of the technical cooperation on the part of the donor and that on the part of the recipient should be clearly laid out, the targets to be achieved should be specific, and the method for evaluating the degree of achievement should also be specific. Mutual understanding and agreement is indispensable to achieve the overall goal, the specific objectives, the outputs and the activities. For this purpose the project design matrix should be prepared with the active participation of both parties (Table 2).

IV Positions of "Principles of Hospital Cooperation"

Among the 11 principles stated above, six principles, that is, Principle 1 through Principle 5 and Principle 7 are the preconditions for launching a project. If these conditions are not satisfied, then either the cooperation itself becomes difficult, or the impact of the cooperation and the effectiveness of the objectives may not be assured. Regarding the other principles, the principles themselves can be target areas for the cooperation, and

Table 2 Planning Evaluation and Monitoring of Project

Project design matrix (PDM)

	Objectively verifiable indicators	Means of verification	Assumption
Overall goal			
Project purpose			
Outputs			
Activities	Inputs		
			Preconditions

so they may be realized after the commencement of the project. However, their feasibility should, at least, be determined beforehand.

Many developing countries request technical cooperation or grant aid cooperation to their hospitals from Japan. These two types of cooperation will be continued in the future, as they are principle forms that feature Japan's bilateral assistance. Considering the present conditions of developing countries requiring the establishment of comprehensive health and medical care delivery systems, it is an urgent issue that we define the principles for hospital cooperation. Using the principles outlined in this paper as a basis, more effective policies for hospital cooperation can be worked out.

NOTE

A Study on Labor-Based Technology in Kenya

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Since its independence in 1963, Kenya's economy has been unstable, undergoing irregular cycles of rapid growth and contraction, caused by sudden fluctuations in coffee prices, the oil shock, and natural disasters such as drought and El Niño.

In the late 1970s, the government of Kenya adopted Labor-based Technology (LBT) advocated by the International Labor Organization (ILO) prior to receiving structural adjustment assistance from the World Bank and International Monetary Fund (IMF). LBT utilizes the rural work force and surplus labor in urban areas to build and maintain roads. LBT applies traditional methods using tractors and manual labor. Tractors are mainly used for transporting earth and sand while the rest of work is done by manual labor. The work force consists of local farmers who are efficient construction workers since they are used to tilling. Moreover, cash incentives make it possible to utilize a large number of workers in a short period of time. However, Kenya is faced with various problems involving operation efficiency and regional development owing to the climatic diversity of east Africa. There are a large number of climatic zones within the country, which include semi-arid areas, plains, coastal areas, in and around Lake Victoria, highlands, and mountainous areas.

In comparing road construction costs in rural areas with those in the suburbs of big cities, and the merits and disadvantages of LBT with that of other methods which utilize heavy construction equipment, LBT is limited by the road specifications being constructed and labor costs. In order to fully understand what needs to be done in the future, it is necessary to address the existing problems and need for technology development. It is also required to conduct comprehensive analysis of LBT based on an engineering examination of its relationship to other appropriate technologies, the society, the economy and the regional development of the country.

Introduction

In Kenya, compared to other means of transportation, the greatest volume of travel is by road. Road development, however, is progressing at a snail's pace. The construction rate continues to be low. Because there are insufficient funds for road development, the focus has been on maintaining and repairing existing roads rather than constructing new ones. The country's economy has been unstable, undergoing irregular cycles of rapid growth and contraction resulting from sudden fluctuations in coffee prices, the oil shock, and natural calamities such as drought and El Niño. Compared with the rapid population growth (3.4%) over the last 30 years, the growth of the gross domestic product (GDP) has been as low as 3.1%. As a result, GDP per capita has been forced lower and the nation has never been able to achieve real affluence. Moreover, in paying close attention to the industrial structure of the country, one realizes that the agricultural sector, although it accounts for 26% of the GDP and absorbs some 60% of the entire work force, is experiencing low growth (0.5%) and is lowering overall economic growth. In short, there are no major industries other than agriculture, and tertiary industries, such as government and financial services, which have to provide employment for the unemployed. Moreover, because of the lack of job opportunities in rural areas, more and more people are migrating to the city (Nairobi) year after year, raising public safety concerns and causing poor sanitation and overpopulation in impoverished areas.

Since the late 1970s, the country has been implementing road construction projects through labor-based technology (LBT), advocated by the ILO (International Labor Organization), which utilizes the rural workforce and the surplus labor in urban areas to build and maintain roads. LBT applies traditional methods using tractors and manpower. In 1980, the country began to receive structural adjustment assistance from the World Bank to prop up its economy. In the following year, the World Bank imposed a full-scale structural adjustment as a basic development strategy in African countries. Since then, countries in Africa have been faced with the two principle issues in pursuing structural adjustment. One is how to identify the way appropriate for each country in implementing structural adjustment, and the other is how

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to overcome economic difficulties. Eighteen years after the introduction of structural adjustment, African countries are still far from reducing poverty, let alone appreciating self-supporting, sustainable development. In parallel with structural adjustment, the Kenyan government started road construction in four areas of the country, based on a pilot project design. So far, a total of 800 kilometers of road has been completed using LBT, which accounts for 10% of the initially planned 8,000 kilometers.

In this article, the author introduces the Labor-based Road Construction and Improvement Plan, which was carried out using LBT, and to meet future challenges and make improvements, proposes an analysis of LBT. The analysis includes assessing existing problems and needs for technology development, and conducting scientific examinations of LBT's relationship to other appropriate technologies, to society, and to the economy and regional development of the country. Owing to the limited space in this article, the author would like to add that the contents of basic and comprehensive road construction design are not discussed here.

I. LBT and the Labor-Based Road Construction and Improvement Plan

There are a large variety of climatic zones within Kenya, including semi-arid areas, arable plains, coastal areas, the area in and around Lake Victoria, highlands, and mountainous areas. Roads in the country are classified into five categories: Class A - international truck roads; Class B - national truck roads; Class C - primary roads; Class D - secondary roads; and Class E - access roads (Figure 1 shows Kenya's

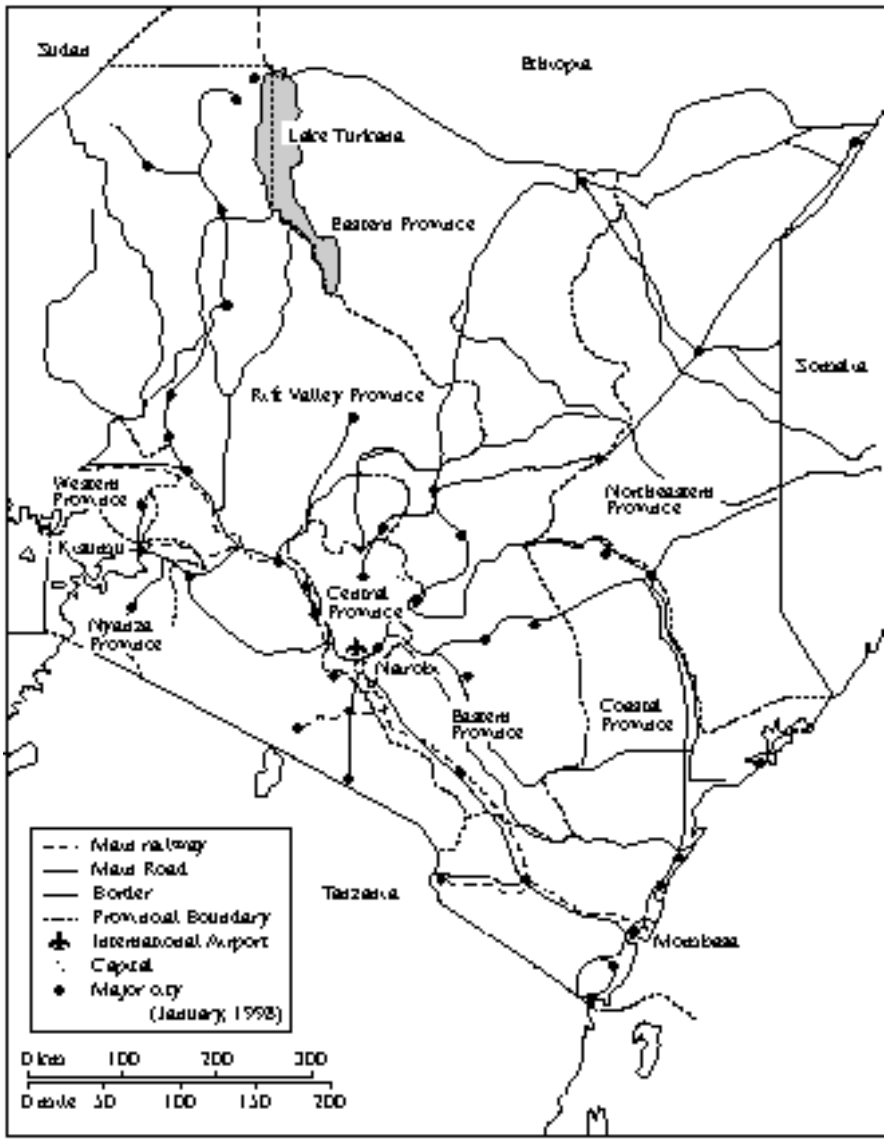


Figure 1 Major Roads in Kenya

major roads). The Rural Access Road Program focused on Classes D and E, and was implemented in the four pilot areas shown in Table1.[1] The primary goal of the program was to construct access roads in order to improve the efficiency in transporting agricultural products.

In Kenya, road construction is still done by using traditional methods such as tractors and manual labor (Figure 2). Tractors are mainly used for transporting earth and sand, whereas the rest of work is done by hand (see Photos 1-4). The workforce consists of local farmers, who are more efficient than construction workers from big cities because they are used to tilling. Moreover, cash incentives bring in farmers from faraway villages who are willing to work. In constructing roads, conventional surveying instruments such as compasses, levels, and theodolites are not used at all. In 1985, in preparation for the full-scale implementation of the Rural Access Road Program, the Kenyan government opened a vocational training center in Kishi District under the jurisdiction of the Ministry of Works and Housing. In 1988, curricula and courses available at the center

Table 1 Pilot Areas

Province	Climate
Nairobi Province	Highlands,and plains
Coastal Province	Coastal areas
Nyanza Province	In and around Lake Victoria
Rift Valley Province	Semi-arid areas

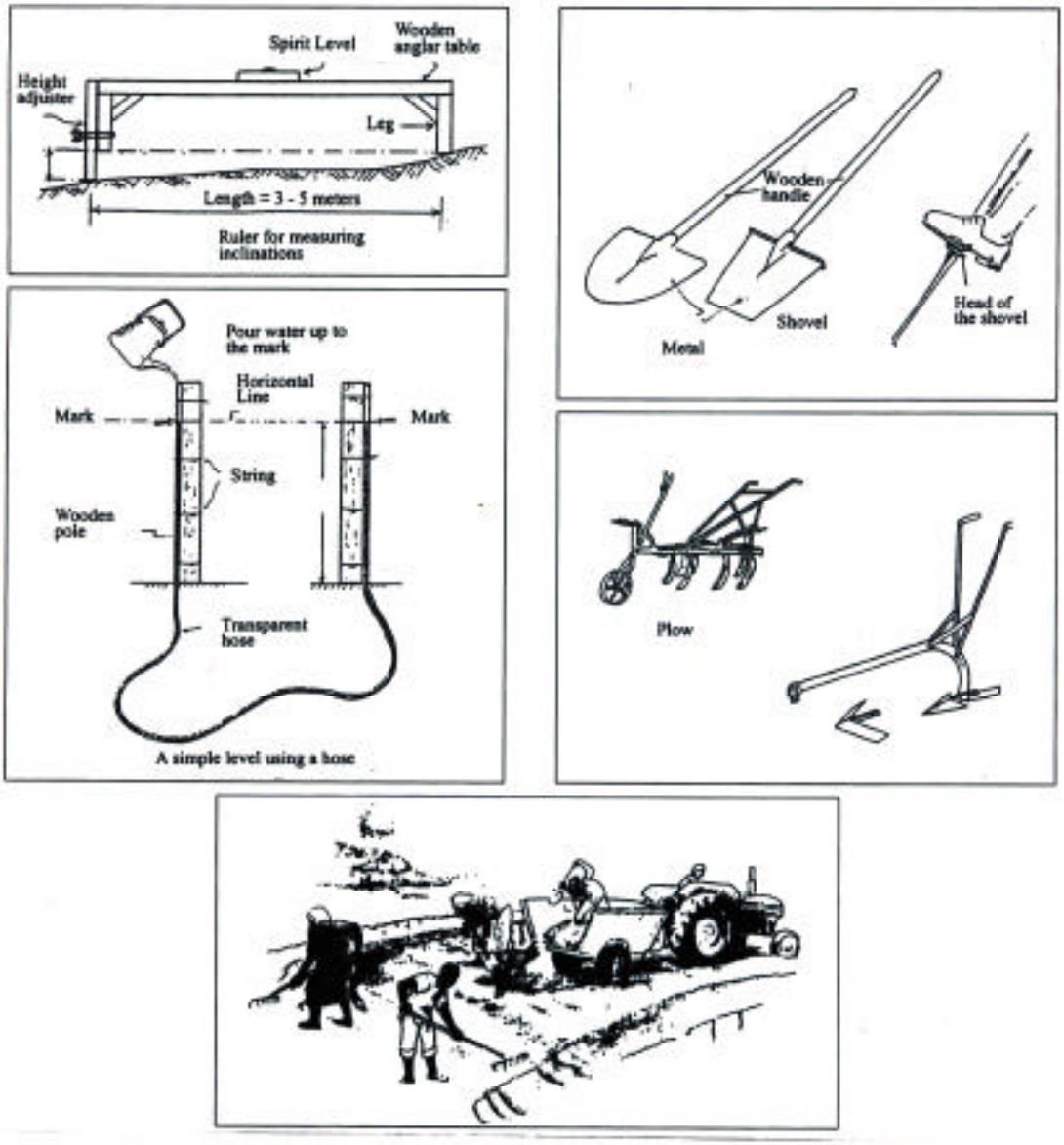


Figure 2 Tools for Traditional Construction Methods(Tractors and Manual Labor)

Source : *Training Elements and Technical Guide for Special Public Works Program*, Booklet 1 (ILO1993)

1. *Rural Access Road Program and Minor Road Program* (Ministry of Works and Housing, Road Department, Republic of Kenya, 1986).



Photo 1 Road Construction

Roads are constructed using traditional methods (tractors and manual labor).



Photo 2 Before Construction

A road to a village. It is barely wide enough for a two-wheeled trailer.



Photo 3 After Construction

An access road to a villege which is passable by trucks. The mass transportation of agricultural products is plausible.



Photo 4 Several years after the Construction

Several stores have opened at the junction in the several years since the completion of the construction. This is a sign of revitalization in the area.

were expanded with the help of official development assistance (ODA) from Switzerland. At present, an international course (introduction of technology and visits to construction sites) is offered and attended by participants from Tanzania, Uganda, Sudan, and Botswana.[2]

II. Advantages and Limitations of LBT

1. Economic Advantages and Limitations

The biggest advantage of LBT is its economic benefits. LBT makes it possible to utilize a large amount of cheap labor for a long period of time. However, this is also a disadvantage. LBT does not work well in areas where the workforce is too small, and restricts the progress of the project. LBT is not suitable for areas, especially big cities, where wages are high.

Table 2 shows a comparison of the construction expenses of access roads in rural areas and those in urban areas. The table was prepared using the Fluctuation Clause Price List,[3] and the daily wages of workers were calculated at US$1.00 for rural workers and US$2.50 for urban workers. The construction standards used here were in accordance with the country's road standards for Class D and E roads; that is, roads should be 4 meters wide, and have a maximum incline of 10%, a minimum horizontal radius of 15 meters, a minimum curvilinear radius of 1 kilometer, 3,000 cubic meters of soil removed per kilometer, banking of 150 meters, traffic of 10 cars per day, a culvert of 250 meters, and a total constructed length of 100 kilometers.

Based on a comparison of the construction capabilities of LBT and other methods which utilize heavy construction equipment, LBT is only used for constructing Class D and E roads. Moreover, because of regional price differentials which exist within the

2. Beusch, A. and J. J. de Veed, "Lecturer's Notes Volume III," *International Course for Engineers and Managers of Labor-based Construction and Maintenance Program* (ILO, 1991).
3. *Construction Review* 8 (1) (1998).

Table 2 Comparison of Construction Costs

Cost Comparison in Rural Access Road Construction(Rural Areas)						
	Construction by Heavy Equipment			Construction by LBT		
Component	Details	$/km	%	Details	$/km	%
Construction Worker	100 workers, $1.00 per day	100	2.3	1000 workers, $1.00 per day	1,000	28.6
Skilled Construction Worker	150 workers, $2.00 per day	300	6.9	200 workers, $2.00 per day	400	11.4
Site Foreman	25 foremen, $2.00 per day	50	1.1	50 workers, $2.00 per day	100	2.9
Small-sized Equipment	Shovels, wheel barrows, etc.	150	3.4	Shovels, wheel barrows, etc.	250	7.2
Heavy Equipment	Bulldozers, graders, etc.	2,750	63.3	Tractors	750	21.4
Culvert		600	13.8		600	17.1
Other Materials		200	4.6		200	5.7
Indirect Construction Cost		200	4.6		200	5.7
Total		4,350	100		3,500	100
Comparison in Rural Areas		Construction by heavy equipment $4,350 > LBT $3,500			LBT is more economical	

Cost Comparison in Access Road Construction(Outskirts of Bog Cities)						
	Construction by Heavy Equipment			Construction by LBT		
Component	Details	$/km	%	Details	$/km	%
Construction Worker	100 workers, $2.50 per day	250	5.0	1000 workers, $2.50 per day	2,500	43.5
Skilled Construction Worker	150 workers, $5.00 per day	750	15.0	200 workers, $5.00 per day	1,000	17.4
Site Foreman	25 foremen, $5.00 per day	125	2.5	50 workers, $5.00 per day	250	4.3
Small-sized Equipment	Shovels, wheel barrows, etc.	150	3.0	Shovels, wheel barrows, etc.	250	4.3
Heavy Equipment	Bulldozers, graders, etc.	2,750	54.6	Tractors	750	13.1
Culvert		600	11.9		600	10.4
Other Materials		200	4.0		200	3.5
Indirect Construction Cost		200	4.0		200	3.5
Total		5,025	100		5,750	100
Comparison in Outskirts of Big Cities		Construction by heavy equipment $5,025 > LBT $5,750			LBT is less economical	

Note : All unit costs are based on Kenya's Fluctuation Clause Price List, 1998.

country, LBT is only applicable to rural areas.

2. The Advantages and Limitations of LBT in the Context of Regional Development

Social and regional development in Africa after independence and the accompanying growth of cities created urban problems as rapidly as or more rapidly than the Industrial Revolution. Many African countries became independent in the 1960s. Within 25 years, many African countries, including Kenya, experienced more severe urban problems than at any other time in human history. When oil prices were dramatically increased by the Organization of Petroleum Exporting Countries (OPEC), many African countries whose primary method of acquiring foreign exchange was exporting agricultural products suffered from income decline in foreign currency. As a result, severe shortage of foreign exchange forced these countries to cut imports of raw materials and intermediate commodities, which resulted in stagnation of industrial development and diversification policies by their governments. At the same time, a large number of people began to move to the big cities. A shortage of labor in rural areas caused a decrease in the countries' self-sufficiency in food production.

One measure to alleviate the rapid population growth in urban areas is to prevent population influx from rural areas, which, in other words, means to develop rural areas. Rural development includes revitalizing villages by constructing access roads and enabling the mass transportation of agricultural products. Advancement of rural development provides much opportunities to rural residents for more cash income, which serves as an incentive for them to stay.

However, Class D and E roads are not free from physical limitations as any type of road is limited by its durability and transportability. These two factors are affected by thin roadbeds. The transportation of agricultural products damages the road surface and roadbeds. Also, because of the narrowness of the roads, large-sized trucks are not able to pass each other efficiently, which also enhances the physical limitations of the roads. As the economic situation in rural areas improves, labor costs also increase. After a certain time lag, LBT no longer works effectively, and the rate of development starts to level off.

3. The Advantages and Limitations of LBT as a Construction Method

Generally speaking, before starting construction, one

chooses a particular construction method based on a comprehensive analysis which includes comparing different methods, examining possible problems that may emerge during the construction, and considering its feasibility.

In comparing estimated construction costs, one should not only include direct costs, but also temporary and indirect construction costs. No final decision should be made based solely on the estimated costs because the hardness or ease of a construction project is difficult to express numerically. In addition, the least expensive method does not necessarily guarantee the lowest construction costs. If the method lacks considerations for safety, accidents may occur with higher frequency, which ultimately increases the overall cost of construction.

Another factor that plays a vital role in selecting a construction method is equipment. How much money is spent on construction equipment and facilities depends on the size and length of the project concerned. In developing countries like Kenya, such expenses should be minimal because cheap labor is available.

Table 3 shows a comparison of heavy construction equipment and LBT. Heavy construction equipment includes only equipment that is absolutely necessary. Naturally, construction using heavy equipment is more efficient than construction using LBT in construction speed and work volume. However, this is true only in theory. Situations in developing countries are different. One reason is the difficulty in procuring spare parts for maintenance purposes. Unlike in industrial countries, one can almost never procure spare parts in developing countries by making one phone call. Although distributors of heavy equipment are located in almost every country, spare parts in many cases have to be imported from headquarters. Not only is it time-consuming, but it is also expensive because of the duties on imports. People in developing nations, therefore, do not believe in maintenance.

Another reason is that construction projects that involve heavy equipment are, in most cases, carried out by contractors. Contractors are supposed to choose equipment depending on the capacity and efficiency

Table 3 Comparison of Merits and Demerits

	Construction by Heavy Equipment		Construction by LBT	
Description of Work	Method and Input	Capacity and Efficiency	Method and Input	Capacity and Efficiency
Measuring and surveying	Theodolites and levels	Precise, swift and requires maintenance	Temporary markers, chains for measuring distance	Imprecise, and does not require special calculations
Felling trees and removing roots	Bulldozers, and motor rakedozers	Swift, expensive, and requires maintenance	Shovels, pickaxes, and hoes	Time lost, but low-cost
Digging topsoil	Bulldozers, and motor scrapers	Swift, expensive, and requires maintenance	Shovels, pickaxes, and hoes	Time lost, but low-cost
Removing and transporting soil	Bulldozers, and motor scrapers	Swift, expensive, and requires maintenance	Shovels, pickaxes, wheel barrows, and tractors	Time lost, but low-cost
Removing bedrock	Dynamite, and rock drills	Swift, and requires training to handle dynamite	Shovels, pickaxes, levers, and iron clubs	Time lost, but low-cost
Digging earth	Bulldozers, and motor scrapers	Swift, expensive, and requires maintenance	Shovels, pickaxes, and tractors	Time lost, but low-cost
Transporting earth	Bulldozers, and motor scrapers	Swift, expensive, and requires maintenance	Shovels, wheel barrows, and tractors	Time lost, but low-cost
Banking	Bulldozers, and trucks	Swift, expensive, and requires maintenance	Shovels, wheel barrows, and tractors	Time lost, but low-cost
Compressing	Rollers, and compactors	Swift, expensive, and requires maintenance	Manual compactors, tractors, natural compression	Time lost, but low-cost
Protecting slopes	Extending protective measures	Expensive	Leaving them as they are	Low-cost, but deterioration due to heavy rainfall
Managing springs	Building culverts	Concrete materials	Buliding culverts	Concrete materials
Finishing the surface	Rollers, and compactors	Swift, expensive, and requires maintenance	Tractors, and natural compression	Time lost, deterioration due to heavy rainfall, but low-cost

Note : Maintenance includes regular maintenance and procurement of spare parts(all imports).

of the equipment, and the size of the project in question. Equipment with too much capacity will increase operating costs. Whether or not the equipment is easy to acquire is also a concern in choosing equipment. In recent years, African countries have implemented few public undertakings as a consequence of being forced to take tight financing policy, as a result of receiving less assistance due to aid fatigues of industrial countries. Many contractors who own heavy-duty equipment, therefore, use their equipment whenever they can, regardless of the size of the construction, which has a negative impact on cost performance.

III Analysis

LBT is a practical idea that effectively utilizes the rural workforce and the surplus labor in urban areas to build and maintain roads for the purpose of facilitating regional development and transporting agricultural products on a massive scale. Lately, LBT has also begun to be used for preparing infrastructure in slum areas. LBT is expected to produce a wide range of positive effects. Improved infrastructure not only mitigates the flow of rural-urban migration by revitalizing rural areas, but also impedes rapid population growth and creates job opportunities in the slums. However, the greatest challenge of LBT now required is how to overcome the loss of time, money and labor. This problem is a result of difficulties in setting the best time for construction, organizing the community, and allotting an appropriate portion of work to each worker.

1. Existing Problems and the Need for Technology Development

It is essential to examine traditional construction methods from various angles, and find the most suitable method for each community. The following are two major challenges and approaches used to overcome existing problems.

1.1 Approach to existing problems

1.1.1 From a perspective of regional development
Roads need to be constructed and maintained for the purposes of establishing a wide coverage of transportation network for agricultural products.
1.1.2 From a perspective of promoting agriculture
The agricultural industry accounts for a large percentage of the country's GDP at present. In addition to supporting the industry as a whole, it is important to resolve employment issues resulting from rapid population growth and ensure the stable transport of agricultural products. If these issues are not taken care of, neither assistance to the actual agricultural industry nor further agricultural development can be achieved.
1.1.3 Controlling the expansion of slums owing to the influx of people to urban areas
It is possible to drastically curb the influx of people to big cities by facilitating employment in rural areas. People living in slums in big cities will also return to rural areas, which prevents slums from expanding.

1.2 Approach to technology development

1.2.1 Socio-economic research
Socio-economic research includes surveying the employment rate and the mobility rate among residents, examining the impact of the project in question by comparing the results of implementing the project is implemented and those of not implementing the project (the so-called do or do-nothing research), estimating the future demand for roads, examining the relationship between road construction and regional development, and analyzing the road network.
1.2.2 Examining engineering and technology development
The Kenyan government opened a vocational training center and began providing vocational training to community representatives and engineers. However, little has been done with regard to technology development. It is necessary to conduct an engineering evaluation of the traditional methods that utilize tractors and manual labor, and also an evaluation of optimum construction methods taking into account different soil types.
1.2.3 Finding the most suitable construction technology and method by region
It is necessary to elaborate an implementation plan based on the most suitable construction technology and method for different soil types by region and season (heavy rainy season, light rainy season, dry season, and regions with extremely high instability clay formation).
1.2.4 Management development
It is necessary to organize and develop local community in rural areas and slums. To achieve this pertinent management and education should be established.

Conclusion

In both industrial and developing countries, heavy equipment has been used in road construction. One always conjures up an image of heavy-duty equipment whenever one hears the word "construction." The roads in this project are unpaved access roads that connect villages to primary roads. In rural areas of Africa, there aren't any roads that are passable by trucks, and the term "revitalization of rural areas" has already begun to disappear. The LBT described in this article applies traditional methods using tractors and manual labor. It is very simple and yet produces tremendous results from minimal input. LBT

can be made more rational if incorporated with the management technology that has been developed, and if each traditional method involved in LBT were rationalized as well. Organizing the community concerned is also essential for the rationalization of LBT.

At present, Jomo Kenyatta University of Agriculture and Technology is conducting research on the soil properties particular to Africa, namely, black cotton soil and red coffee soil. These soils present the most difficult technical problem to LBT. In the past, this problem has been primarily dealt with by introducing different types of soil during the construction. The author believes that the results of this research will lead to improvements in construction methods in the future.

There will be many counter-arguments and objections to the issues discussed in this article. In human history, whenever a new idea or method is presented, there have always been doubts and anxiety. It is extremely important for developing countries to continue their efforts to improve construction methods and overcome limitations. This is not a problem particular to international cooperation or economic assistance, but is a technological challenge that will lead to a new era. This article presented new approaches and issues that need to be addressed. During the course of collecting the data for this article, the author often encountered fragmented official publications, documents in unreadable condition, economic analysis formulas that had no grounds, wrongly-stated construction costs, and disparities between reports and what had actually taken place at the construction site. In the future, it is necessary to conduct an economic and technological analysis of regional communities, and examine ways to take the research results and put them to practical use in solving actual problems. The author sincerely hopes that this article will be used as a reference in establishing new methods in the future.

Reference

1. *Training Elements and Technical Guide for Special Public Works Program,* Booklet 1 (ILO 1993).

NOTE

Globalization and Environmental Issues for Sustainable Development in Developing Countries

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The author attempts to understand the environmental issues in developing countries undertaking sustainable development and their relationships with globalization by drawing on Indonesia's experience. The author finds that there are four types of environmental problems which arise as internationalization and globalization proceed: industrial pollution associated with expanding developed-country-type industrialization through direct investment (Type1); increased population density and worsening living conditions in urban areas (Type 2); destruction of the natural environment and resources caused by gaps between the international economy and that of the individual developing country (Type 3); and disruption of local communities and worsening of the environment in rural areas (Type 4).

The author examines how these environmental problems relate to the internal socio-economic systems of developing countries, drawing on the case of Indonesia. The internal systems include; 1) industrial and regional structures; 2) transportation and energy systems; 3) ways of living; 4) systems of science, technology and education; and 5) government policy and administration. The author then considers whether or not, and to what extent, the four types of environmental problems can be resolved by improving internal systems. Those that cannot are accepted as beyond the capabilities of the individual developing countries and therefore need to be regarded as issues of the entire global community.

Finally, based on this analysis, the author proposes several considerations that need to be given in extending international assistance, based on the characteristics of each type of environmental problem. Specifically, for problems which belong to Type1, it is vital to fully understand our own experience with pollution and utilize what we have already learned within the framework of conventional environmental assistance projects to benefit those who are coming after us. As for problems in Type 3 and 4, it is necessary to take measures to reduce the gaps in economic opportunities between urban and rural areas not only within environmental assistance projects, but also within every economic assistance project. As to problems of Type 2 and 4, it is important to implement cooperation in the areas of science, technology and environmental education. It is essential to take steps to include people from more regions in the planning and implementation process of sustainable development.

Introduction

In examining many types and conditions of human activity in relation to the problems which arise in the efforts toward sustainable development, it is useful to plot their positions on an axis of coordinates. For example, if you plot the activities of various parties or individuals on an axis, it is possible to see the relationships between their activities, and the restrictions and conditions posed by other activities. Thus, we are better able to inquire into ways of evaluating and improving the human activities affecting various issues such as problems with the environment. To grasp the structure of the causes of environmental issues, Miyamoto conceived an ordinate of economic systems, in-between systems and materials.[1] He studies domestic in-between systems, as the most important factors deciding the environment, and then propounds the necessity of making them environmentally friendly.

In this paper, several environmental issues related to sustainable development are examined in relation to various systems lying between complex global-scale society and individual activities, by drawing examples from Indonesia. In the course of the examination the focus is placed on the basic relation to issues posed by the entire global community, which are beyond the scope of individual developing countries and domestic socio-economic systems. These global-scale issues, which are influenced by other countries, can be considered in the context where they are interacting with their domestic systems or directly

* This article was first published in Japanese in *Kokusai Kyoryoku Kenkyu* Vol. 15, No.1 (April 1999).
1. Miyamaoto, K. *Kankyokeizaigaku (Environment Economics)* (Tokyo: Iwanamishoten, 1989) pp.47-48.

playing as major factors in environmental destruction. The domestic socio-economic structure, or the internal system, exhibits characteristics of the national system, and is intrinsically related to that nation's character, its realization of sustainable development, and the environmental destruction it suffers.

In the main subject, environmental issues and problems related to sustainable development in developing countries are sorted in relation to global issues, and the possibilities and bottlenecks are anticipated when these countries try to take action with existing internal systems to cope with those issues and problems. Finally, the international development assistance projects which will be carried out to support the sustainable development of developing countries are studied.

I Global Factors and Environmental Issues in Developing Countries

In the last few decades, the global scale of developments in fields like economy, society, politics, culture, and technology has been remarkable. The global factor, which should first be considered with regard to environmental issues is globalization taking place through internationalization. Giddens has stated that globalization occurs when the different links in a chain, for example political, economic and social activities, expand to global size and their mutual actions and levels increase and diversify among and in various countries and systems.[2] Also, Robertson writes that the world's tendency toward unification is unstoppable.[3] If the tendency toward globalization is so firm, then we need to make the repercussions known and look into the many issues affecting development and the environment.

Free trade brings products manufactured by advanced technology overseas into developing countries, and new industries and production technology follow as direct investment or technical assistance. They stimulate the flow of people and money, and revitalize the mutual influence of culture and information. This kind of action in developing countries does not happen uniformly. It creates gaps between different areas within a country and causes stress between local communities. In other words, when the situation in a particular area begins to change, the relationship between areas starts changing. The consequences of internationalization lead to the imbalance between areas, and the energy for initiating social changes. Issues of differentiation (such as disparities and polarization) between metropolitan or big cities, which are the front line and window into internationalization, and remote rural areas are also comprehended in the context of social energy resulting from globalization through internationalization.

In Indonesia, the flow of people, goods, and money taken as a central part of direct investment, trade and commerce, economic assistance, and technical assistance from abroad is becoming increasingly more active. The global factors that should be studied are the conditions which are imposed by other countries, such as investment, and the global flow of people and money related to them. Besides, there are some phenomena surging in a world wide trend, which are more than given conditional factors and should be considered as global issue. In Indonesia these issues have come unavoidable when the country examines industrialization and urbanization backed by science and technology advancement.

Internationalization is progressing with a two-sided logic of industrial promotion and development for the eradication of poverty. One side is built on the idea that the acceleration of development to gain benefit from industry, especially from manufacturing is the only effective way to save the people at the bottom of the social scale. The other side gives priority to investors and industries to pursue profit. Although poverty eradication is the pretext given by developing countries for industrial promotion, this kind of industrial promotion and development can not play a full role in eradicating poverty, because the industrial advancement of this kind can not fill the gap between the two sides. As a response to internationalization, many socio-economic issues are causing difficulties for sustainable development.

There are four relationships between globalization through internationalization, and environmental issues and problems related to sustainable development.

1. Industrial Pollution Associated with Expanding Developed-Country-Type Industrialization through Direct Investment, Etc.

Industries and technologies newly brought in from abroad, because of cheap labor in the developing countries, often cause environmental problems because there are insufficient measures for protecting the environment. Another reason is that developing countries are sometimes indecisive about implementing strict environmental regulations as they are seeking to promote direct investment. This kind of issue is often raised concerning actual water pollution, which mainly threatens the poor in urban areas who have benefited from clean and safe water for living. In suburban areas, not only is there damage to drinking water, but there is also water pollution in traditional industries such as agriculture and fish-farming, which causes friction and confrontation between the secondary industries newly brought in through internationalization and these traditional industries.

2. Taguchi, F., and K. Suzuki, *Grobarizeshon to Kokuminnkokka (Globalization and Nation States)* (Tokyo: Aokishoten, 1997) p.16.
3. Robertson, R., *Globalization* (Japanese edition) (Tokyo: Tokyoudaigaku Shuppankai, 1997) p.15.

With regard to issues of pollution generated on the side of incoming industries, there are two possible reasons. One is that they have little understanding of the necessity for having concern for the environment and for sufficiently investing in environmental protection utilities. The other is that, even though they recognize this, they still make little of these necessities or have technical difficulties in the process of operation control. These new industries, brought in because of cheap labor, often have keen competition in the global market, and their severe competitive conditions are often followed by pollution and a worsening of environmental resources.

2. Increased Population Density and Worsening Living Conditions in Urban Areas

Internationalization brings urban centralization of the population. One reason why this happens is the big economic gap that exists between the global market and the domestic market. In both industrial and developing countries, the domestic economy and the international economy interact. This interaction results in various issues,[4] particularly in the developing countries. In developing countries in rural areas away from cities, the limited food production in the village unit spontaneously controls the size of the population by forcing people's migration when they get overpopulated. As internationalization and population mobility increases, those people choose to live in the cities, which is the window to the international economy. Also, information and culture from abroad not only increases the desire to live in the city, but also depreciates the meaning of the existence and necessity of a close traditional community.

The concentration of population in urban areas is causing serious environmental issues associated with poverty and the changing mode of life. This is seen in the sudden increased population in Jakarta, which increases by 200,000 people a year, about the same as the population of local core cities in Japan. As a consequence of this rapid growth, many slums have sprung up, resulting in very poor living environments. In addition, the basic infrastructure for city life such as water supply and sewage systems, transportation, electricity, and telephone-lines cannot keep up with the speed of the city's growth. Water treatment plants are even moved away by expanding cities upstream looking for cleaner sources.

As internationalization progresses, foreign exchange rates fluctuate, competition for jobs becomes greater, and the issues of poverty in cities are affected. Poverty spurs degradation in livelihood and economic provisioning of the poor people living in urban cities, marginalizing them from a city life benefited by basic urban infrastructure. In addition poverty itself becomes one of the factors that impede basic social infrastructure development to ease the environmental issues.

Although Western culture and lifestyles, including the production and consumption patterns of industrial countries, have a positive effect, they change the mode of life in the cities and throw a shadow over environmental issues such as the vastly increased numbers of cars on the streets. Moreover, most of these cars are old-fashioned or not maintained well enough, emitting a large amount of exhaust. In addition, the popularization of plastic products works against natural material circulation, and is a negative factor in keeping cities clean.

3. Destruction of the Natural Environment and Resources Caused by Gaps between the International and the Domestic Economy

When industrial activity based on the global economy appears in a local economy that depends mainly on barter or hunting, the shock is quite big. Associated with the imbalance of power between the two kinds of economies, a lot of natural environmental resources are being lost. Natural beaches are being handed to tourist developers, and suburban farms to developers. Richly blessed mineral resources are being exported abroad, and not aiding domestic industrial production or people's income enough, only resulting in serious damage to the environment. The tropical rain forest is being cut down to produce marketable crops such as palm oil and rubber for export. Soerjani reports that the huge recent forest fire in East Kalimantan was caused by the clearing of the forest to plant trees to produce palm oil, etc.[5]

4. Disruption of Local Communities and Worsening of the Environment in Rural Areas

The community of developing countries was a closed society where the life was based on a natural circulation mechanism. Daily life basically depended on the traditional cycle of material within the family unit and villages through strong connections with nature, such as direct use of river-water and restoration of waste to the soil. However, as has already been stated as a factor in the increase in population, internationalization is threatening the existence of village communities in rural areas, and is becoming one of the factors in their disintegration and transfiguration.

There are more choices in ways of living, for example, living in the city where there are more employment opportunities and a better quality of life, and there are changes to the old type of agricultural production in suburban areas through improved agricultural chemicals and machines. Incidentally, the number of agricultural tractors used in Indonesia in 1985 was just over 12,000, which by 1994 had increased to over 55,600, more than 4.6 times.[6] Also,

4. World Economic Forum, *Global Competitiveness Report* (1996).
5. Soerjani, M., *Environmental Degradation as Related to Human Behaviour and Activities: A Case of Indonesia, Approaching the Globalization Era* (1998).
6. United Nations, *Statistical Yearbook for Asia and the Pacific* (1996).

the number of farmers who do not own their own land is increasing. The number of farms with less than 0.2 hectares was 9,530,000 in 1983 and had increased to 10,380,000 by 1993.[7] Community regulations in villages started changing, and important common property controlled by regulations, like the water environment, the water utilization system, and farmland, were removed. Sometimes the appearance of an alternative water supply system backed by foreign capital investment and technology, makes these traditional systems redundant and they collapse.

II Environmental Issues and the Internal Systems of Developing Countries

As an externally imposed conditional factor, globalization taking place with internationalization is examined in relation to the four types of environmental issues and problems mentioned previously. In this section, by examining these four issues in relation to the internal systems, the issues and problems which can be solved by making improvements or by making the best use of the internal systems will be argued separately from the issues and problems which have arisen purely from global conditions coming from abroad. Through this sorting process, it is possible to grasp the situation in developing countries and find a way to resolve environmental issues by improving their internal systems.

With regard to internal socio-economic structure, Miyamoto proposes six kinds of 'in-between systems': capital accumulation structure, industrial structure, regional spatial structure, transportation, way of living, and government.[8] In developing countries, the fact that the relation between scientific technology and people's lives has strong links, for good or bad, with environmental issues cannot be ignored. The cases in Indonesia, therefore, are examined according to the following five systems: (1) industrial structure and regional structure, (2) transportation and energy systems, (3) way of living, (4) systems of science, technology, and education, and (5) government policy and administration.

1. Industrial Pollution Associated with Expanding Developed-Country-Type Industrialization through Direct Investment, Etc.

Industrial pollution has become a serious problem in developing countries associated with developed-country-type industrialization, which has expanded through foreign direct investment. For environmental pollution, compared with consumer issues, it is relatively much easier to find a solution by improving internal systems. Regarding "industrial and regional structures," it is necessary to plan regional spatial arrangements of industrial land and residential areas. With regard to "government policy and administration," enacting and implementing regulations to effectively control the pollutants discharged and transferred out of industrial activities is helpful to resolving environmental issues.

Moreover, it is important to suitably prepare basic infrastructure. However, it should be pointed out that increasing non-governmental investment from abroad sometimes becomes a negative factor in appropriately providing basic infrastructure such as waterworks and sewage because it results in an investment imbalance between the private and public sectors. This suggests that the delay in constructing basic infrastructure cannot simply be due to internal systems.

With respect to "transportation and energy systems," it is extremely important to improve the price system to save energy and resources. Negative effects of subsidies in this field also need to be solved. To prevent industrial pollution, transferring experience and skills from industrial countries to developing countries is advisable. From a larger perspective, the role of "science, technology, and education" in fostering better relations between society and industry is irreplaceable.

These issues are a result of the increasing mobility of people, goods, and money as internationalization proceeds. Because of the characteristics of these issues, many of them could be dealt with by improving internal systems. There is plenty of room for this. It is also necessary to take notice of the increasing upward mobility and inflow of foreign investment. The increased mobility accompanies the influx of global standard-products or global standard-culture, which often ignores the regional characteristics of the original culture, while the unbalanced investment in the private and public sectors impedes the construction of the basic infrastructure development necessary for the prevention of pollution.

2. Increased Population Density and Worsening Living Conditions in Urban Areas

Many kinds of distortion, such as gaps between the global and domestic economies resulting from internationalization, lead to increased population density in urban areas and deteriorate the living environment. To seriously address this issue, it is critical to make policy redress the gap between urban and rural areas in economic opportunities, and not to have countermeasures such as policies that promote migration to remote islands. For example, if additional value was put on primary industrial products from farming and fishing villages for the global market, this would contribute greatly to returning profits to local areas. This would be more effective than trying to push the people in the cities back to rural areas through incentives. In

7. State Ministry for Environment, *Agenda 21 Indonesia: A National Strategy for Sustainable Development* (Jakarta: 1997) p.333.
8. Miyamoto, *op. cit.*

the case of Indonesia, even when people were moved to rural areas, ironically, more environmental problems, such as further destruction of the forest, were created.

With regard to the tapioca industry, Soerjani suggests that the value added profits gained from processing cassava to produce tapioca as an export product, should be returned to the farmers. In other words, he believes that it is necessary to improve "industrial and regional structures" to rectify the profit-monopolizing mechanism controlled by the capital from the urban areas, and from abroad.

Air pollution, water pollution and contamination, and waste pollution are major environmental problems affecting people's lives and living conditions in urban areas. With regard to air pollution, measures to regulate "transportation and energy systems" should be taken. The extreme dependence on cars for transportation needs to be rectified through the development of alternative mass transportation systems. Also, measures related to energy should be taken; for example, constructing a supply system for lead-free gasoline. To address waste and water pollution, the government needs to promote a policy for constructing sewage and waste disposal systems, and other infrastructure through "government policy and administration."

In terms of lifestyle, it is essential not to accept too easily a global standard, but to pursue a lifestyle suitable to the tropical climate and regional characteristics in order to reduce the impact of the changed lifestyle on the environment. To actualize these measures and call attention to concerns about the environment, disseminating information, such as accurate information about environmental pollution in the urban areas, through "system of science, technology, and education" is essential.

Even after carrying out these measures, it would still be quite difficult to resolve all of the conditions resulting from globalization, namely, unbalanced investment in the private and public sectors, and destruction of traditional material cycles by bringing in new materials. It is also not clear how much, regarding issues such as the gaps between the rich and the poor and between urban and rural areas, can be resolved by improving internal systems.

3. Destruction of the Environment and Natural Resources Resulting from Gaps between the International and the Domestic Economy

Destruction of the environment and natural resources is brought about by many kinds of distortion between the international economy and domestic economy. To solve this problem, it is necessary to correct the gap in economic opportunities between urban and rural areas. Through "government policy and administration," it is important to expand the participation of local communities and citizens, which is extremely limited with regard to development planning and decision-making processes, in projects. It is also necessary to make good use of tax systems to contribute to mitigating and eliminating poverty.

Correcting the gap between urban and rural areas could be achieved by increasing value added production in the output of natural resources such as minerals and timber, while alleviating the pressures to the national land, and by returning profits to citizens through the country's macro-economic policies like improving tax systems,.

Before this can happen, through "system of science, technology, and education," it is essential to examine the value and functions of the ecological system and internalize the economical value as much as possible. Even in a difficult case, at least it is necessary to make all the actors understand ecological value and functions. It is necessary to build an internationally common understanding of the function and value of the natural ecological system, and to prepare any agreements or regulations which will lead the way to correcting the many distortions existing between the international economy and domestic economies.

4. Disruption of Local Communities and Worsening of the Environment in Rural Areas

Disruption of local communities and the worsening of the environment in rural areas result from many kinds of distortion existing between the international and domestic economy, and the increases in the flow of people, money, and goods.

The following approaches are expected to be taken within the internal systems: First, through a "system of science, technology and education" it is possible to get people aware of the environmental issues of the urban areas. It is also possible to pursue the original life style that is not a global standard, respecting regional characteristics through the ways of living.

Through "government and administration," it is necessary to establish new decision-making systems that reflect the opinions of the people or communities concerned. Also, through "industrial and regional structures," it is necessary to implement policies, as mentioned in the example of cassava, to correct the gaps in economic opportunities between urban and rural areas. Policies on financial support such as soft loan programs need to be improved. Even if these measures are enacted, it is questionable how much mitigation and control they will have on the economic gap and the flow of people and goods resulting from globalization.

Conclusion

In conclusion, I would like to mention how international assistance should support sustainable development in developing countries. The figure shows the relation between four types of environmental issues and the economic gaps, and flow of people, money, and goods which have come about through global-

ization; these factors cannot be coped with by internal systems alone. The four types of environmental issues are placed on the horizontal plane, which represents the gaps between the international economy and those of developing countries, and on the vertical axis, which demonstrate the complexity and the varieties of groups concerned. These complexity and diversity represents one aspect of the development accompanied by the increased flow of people, money, and goods.

The right side of the figure holds issues of urban areas which have close contact with the international economy, the upper part of the figure holds the issues which still have weak infiltration among the social groups. In other words, the horizontal axis shows the movement of the energy caused by economic gaps toward the left side of the figure, and the vertical axis shows the depth of issues concerning the mobility of people and goods toward the lower part of the figure. As globalization progresses in developing countries, with the energy coming from the economic gaps and the power of mobility from outside the country, environmental issues will occur by the factors shown in the upper right side of the figure, and then expand to the lower and the left, involving a wider range of areas in the developing country.

The problems of type 1 have a relatively simple structure, so it is possible to cope by expanding and enforcing laws and regulations, or by bringing in experience from industrial countries. However, in the problems of type 2 and 4 are derived from the diversified groups concerned and their activities widely extended in the society. The problem is deeply-rooted in society and is affected by people's way of living and receptivity of science and technology. It will be quite difficult to find a solution unless a wide range of groups participate. Type 3 and 4 problems, which have resulted from gaps with the international economy, cannot be avoided by developing countries until they become developed, and so, are basically unsolvable even though internal systems can mitigate the problems to some extent.

To extend international assistance, it is necessary to understand the nature of these 4 types of issues. For the problems which belong to type 1, it is vital to fully understand and utilize our own experiences with pollution in the framework of conventional environmental assistance projects to benefit those whose countries are currently embarking for development. "Full understanding" mentioned above means digesting the actual situation in developing countries and the progress of time, and also realizing that cleaner-production technology is preferable to the end-of pipe technology mainly used for measures against pollution in Japanese experience. As for type 3 and 4 problems, it is necessary to take measures to reduce the gaps in economic opportunities between urban and rural areas, not only within environmental assistance projects, but also within every economic assistance project. As to type 2 and 4 problems, it is essential to

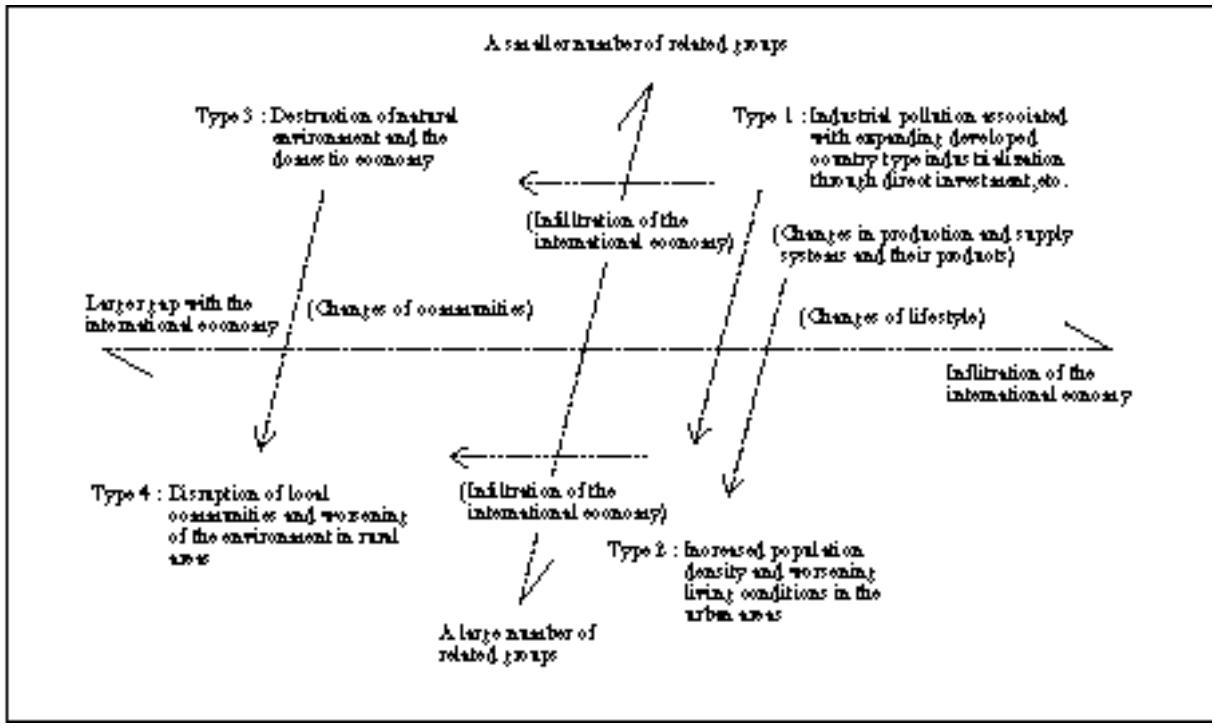


Figure Composition of Environmrntal Issues Caused by Globalization

implement cooperation in the areas of education and environmental education from a long-term point of view. Furthermore it is vital to support the introduction of the democratic decision making process, and to take steps to include people from more regions in the planning and implementation processes of sustainable development. Once these changes have been achieved, the direction for creating a lifestyle suitable to the regional characteristics and improving the life in fishing and farming villages will be found.

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SPECIAL REPORT

Post-Conflict
— A Gap between Emergency Assistance and Long-term Development Assistance in the Post-Conflict Period —

Post-Conflict and Development Study Group, JICA
(Edited by Hiroto Mitsugi, Planning Division, Planning Department, JICA)

Introduction

Since the Cold War ended, there have been ongoing local conflicts such as the Gulf War, the civil war in Rwanda, and the ethnic cleansing in Bosnia and Herzegovina. These regional disputes have drawn worldwide attention not only as diplomatic problems, but also as challenges to development assistance. Development assistance in the post-conflict period includes removing land mines, giving relief to land mine victims, and supporting the countries in formulating restoration plans. The Japan International Cooperation Agency (JICA) has also strengthened its involvement in this regard.

As assistance by the international community has begun to produce outcomes, various international organizations such as the Development Assistance Committee (DAC) of the Organization for Economic Cooperation and Development (OECD) have started discussions on how to establish concepts and institutions that direct overall process of the post-conflict period, prevention of new conflicts (preventing reoccurrence and creating peace), and embarkation for development. On January 15, 1999, the Brookings Institution of the United States held an unofficial meeting on humanitarian aid and post-conflict development. This meeting was attended by the heads of many international organizations, including James D. Wolfensohn, President of the World Bank, and Sadako Ogata, High Commissioner of the United Nations Commissioner for Refugees (UNHCR).

Following from this, this report is aimed at analyzing the current situation facing post-conflict assistance, and determining the right path for such future assistance.

I The Gap between Emergency Assistance and Long-Term Development Assistance in the Post-Conflict Period

1. Changes in Characteristics of Conflicts

During the Cold War, there were two kinds of conflicts: 1) conflict that caused tension between the Soviet Union and the United States and could have potentially triggered the outbreak of a third world war, and 2) conflict that was confined within a particular region. The latter type of conflict was called a local conflict, and this term did not include disputes in Europe, which was then considered the Cold War front-line, or disputes in which both the Soviet Union and the United States were deeply involved, such as the Cuban Missile Crisis in 1962.

As the possibility of a third world war decreased with the end of the Cold War, it can be said that the present conflicts in the world all became local conflicts. However, even though the Cold War has officially ended between the Super Powers, the Cold War mentality still remains and disputes among them are not called local conflicts. The term still only refers to disputes and confrontations within a country or among nations in the Third World.

Conflicts in the Third World, namely in developing countries, not only have an impact on the countries involved in the conflict, but also have an impact on donor countries.

Some of the impacts on the countries include:

a) Conflicts often involving armed clashes that ultimately cost the lives of many citizens.
b) Armed clashes cause chaos in the political system, and disrupt the socioeconomic infrastructure of the countries involved coupled with attrition and genocide.
c) Destruction and killing destroy the everyday lives of citizens, threaten political, economic and social

* This article was first published in Japanese in *Kokusai Kyoryoku Kenkyu*, Vol. 15, No. 1 (April 1999).

stabilities, and displace people and cause them to flee, resulting in large-scale refugee problems.[1]

The impact on donor countries includes:

a) Humanitarian aid for refugees and displaced people is necessary. In particular, there is a high demand for emergency aid during and immediately after a conflict.
b) Before the situation finally stabilizes after a conflict ends, animosity remains among those directly involved in the conflict, and public security is precarious. Therefore, it is important to ensure the safety of aid personnel.
c) In a post-conflict period, development assistance is needed to restore political, economic, and social systems.
d) Support for peace-keeping advocacy so that the conflict does not reoccur and to establish a democratic system and good governance to strengthen the basis for international cooperation toward peace is necessary.

2. Existence of Refugees

As mentioned previously, conflicts produce refugees, which increases the need for emergency assistance. According to the UNHCR, it extends protection and aid to more than 2.2 million people who have suffered because of war and persecution. The number of uprooted people, including those who are displaced internally, amounts to 50 million worldwide. This means that one in every 120 people is forced to take shelter (Table 1).

Table 2 shows the top five countries that either shelter or produce refugees.

3. The Gap between Emergency Assistance and Long-Term Development Assistance

Assistance in the post-conflict period includes humanitarian aid to refugees, support for restoring the political, economic, and social systems of the countries concerned, and assistance for preventing the reoccurrence of conflicts. However, the question is whether this assistance can be implemented smoothly. This issue has been raised, as explained in the introduction of this report. The Brookings Institution and the UNHCR have the following views with regards to this issue.

The Brookings Institution believes that there is a gap between emergency assistance and long-term development assistance in the post-conflict period. Under the current assistance system, neither bilateral nor multilateral mechanisms for narrowing the gap exist. The reason is that there is a lack of political assistance toward peace activities. To narrow the gap, it is necessary to identify the political and economic factors contributing to the situation, and to establish a framework for international cooperation.

In 1992, Ms. Ogata of the UNHCR made the following comment concerning the gap between emer-

Table 1 The Number of Refugees by Region

Region	Refugees (person)	Returnees (person)	Others (person)	Internally Displaced People (person)	Total (person)
Africa	4,341,000	1,693,000	—	2,058,000	8,091,000
Asia	4,809,000	1,241,000	156,000	1,719,000	7,925,000
Europe	3,166,000	308,000	1,209,000	1,066,000	5,749,000
Latin America	88,000	70,000	—	11,000	169,000
North America	720,000	—	—	—	720,000
Oceania	75,000	—	—	—	75,000
Total	13,200,000		1,365,000	4,854,000	22,729,000

Source : Created from Reference(1).
Note : Because of rounding off, flgures shown in the total do not necessarily match the sum.

Table 2 The Number of Refugeees by Country

Host Country	1. Iran (2.0 million)	2. Germany (1.3 million)	3. Pakistan (1.2 million)	4. United States (0.6 million)	5. Yugoslavia (0.55 million)
Country of Origin	1. Afghanistan (2.7 million)	2. Bosnia and Herzegovina (0.7 million)	3. Iraq (0.63 million)	4. Liberia (0.48 million)	5. Somalia (0.45 million)
Internally Displaced People	1. Sierra Leone (1.5 million)	2. Liberia (0.97 million)	3. Bosnia and Herzegovina (0.8 million)		

1. A refugee is a person who “owing to a well-founded fear of being persecuted for reasons of race, religion, nationality, membership of a particular social group or political opinion, is outside the country of his nationality and is unable or, owing to such fear, is unwilling to avail himself of the protection of that country; or who, not having a nationality and being outside the country of his former habitual residence as a result of such events, is unable or, owing to such fear, is unwilling to return to it.”(Convention Relating to the Status of Refugees, 1951)

gency assistance and long-term development assistance:
"I would like to touch upon one issue in which we all are interested, that is, how to build a bridge between emergency assistance and development. After urgent concerns are taken care of, it is necessary for the transition from emergency assistance to development assistance to be carried out smoothly. One recent example is Northern Iraq. … [T]his issue is important, especially in the context of facilitating voluntary repatriation among refugees. There are increasing opportunities for refugees to return to their homelands. However, their countries remain devastated as a result of longtime conflicts, and are in desperate need of comprehensive assistance for restoring their nations. However, if we look into this problem further, it is apparent that there is an institutional gap between emergency assistance and development assistance. Roles and responsibilities of international organizations lack a continuum."[2]

II Post-Conflict Phases and Major Donors in Assistance

This section is aimed at analyzing how international assistance organizations tackle the issue of smooth and continuous transition from humanitarian aid to development assistance, using the World Bank as an example.

In "A Framework for World Bank Involvement in Post-Conflict Reconstruction," which was compiled for its staff in April 1997, the World Bank summarizes the relationships between conflict and development assistance, and the World Bank's role in post-conflict assistance as shown in Table 3 and Table 4.

As indicated in Table 3, the World Bank clearly intends to confine itself to intervening to prevent conflicts and to analyzing and monitoring the state of affairs before and during the conflict. It is noteworthy that the World Bank begins preparations in the early stages of a conflict so that it can resume assistance immediately after the conflict is over.

Table 4 shows the responsibilities assumed by the World Bank, donor countries, and other assistance organizations [UN, European Union (EU), North Atlantic Treaty Organization (NATO), and non-governmental organizations (NGOs)]. It is clearly indicated that the World Bank will not engage itself in emergency assistance during a conflict.

As to Japan's humanitarian aid, JICA categorized emergency aid and development assistance, as shown in Table5, in the course of examining possibilities of its involvement in land mine issues.

1. Coping with the Gap between Emergency Assistance and Long-Term Development Assistance in the Post-Conflict Period

Based on the experience and example of the World Bank, the UNHCR, and the Japanese government, it is necessary to examine ways to narrow the gap between emergency aid and long-term development assistance.

a) Construction of a consensus - What is the gap?

Because there is a variety of organizations and personnel (referred to as actors) involved in emergency aid and development assistance, it is important to clarify and reach consensus on what the gap is. To this end, what follows is a list of the characteristics and harmful results of the gap which need to be discussed in order for a way to be found to narrow the gap.

Table 3 Conflicts and Development Assistance Cycle of the World Bank

Progress in Time →

	Sustainable development →	Stagnant and setbacks of development →	Vicious cycle of stagnation →	Return to development phase →	Sustainable development
Process of development		Increase in violent activities, Failure of crisis management	Vicious cycle of violent activities, Failure of peace moves	Decrease in violent activities, Cease-fire, etc., Opportunities for outside intervention	
State of affairs in a country	In the process of development	Dangerous situation	Armed clashes	Post-coflict period	Resumption of development
Programs of the World Bank	Regular operation	1) Intervention that does not worsen the conflict, 2) Coordination of intervention to correct unfair income distribution and to support marginalized groups	1) Analysis and monitoring of the state of affairs 2) Preparation of strategies to support transitions 3) Reconstruction assistance in the early stages of transition 4) Reconstruction assistance in the post-conflict period 5) Recovery of regular operation		Regular operation

2. Statement by the UNHCR at the Board of Directors meeting of UNICEF in 1992.

Table 4 Role of the World Bank and Other Organizations

	Policies & Diplomacy (Crisis Management, Resolution, and prevention)	Security (Prevention of violence, and peacekeeping activities that enable rehabilitation)	Emergency Assistance (Maintenance of basic goods, and human and social capital)	Reconstruction (Reconstruction of national and economic assets, and restoration of institutional capability)
Donor country	Bilateral/multilateral (Regional grouping like OSCE)	Peacekeeping force	Utilization of armed forces through UN & NGOs	Bilateral aid and assistance through aid agencies
UN	UN Security Council	Peacekeeping force	UN organizations	UN organizations
EU	European Commission, European Parliament	Observer	Office of the Humanitarian Affairs of the European Commission	European Community
NATO	Office of the Secretary General	Peacekeeping force		
NGOs	Human rights, Prevention of conflicts		Independent activities/role as an aid agency of governments, the UN and the EU	Independent activities/role as an aid agency of governments, the UN and the EU
IMF				Macroeconomic assistance
World Bank	Economic impact appraisal of peace plans		Does not extend assistance but monitors conditions during a conflict or while financial assistance is discontinued	Flexibly extends financial and non-financial assistance to resume regular operation

Note : OSCE : Organization for Security and Co-operation in Europe
UN Organizations : Office for the Coordination of Humanitarian Affairs (OCHA), the UNHCR, the United Nations Children's Fund (UNICEF), etc.; IMF : International Monetary Fund

Table 5 Assistance during a Conflict and Development

Progress of Time	(1) Emergency period after a conflict ends →	(2) Reconstruction phase →	(3) Development phase →	(4) Conflict prevention phase
Types of Assistance	・Emergency medicalsupport, ・Provision of goods including food, clothing, and medical supplies	・Removal of abandoned weapons, ・Preparation of basic infrastructure for maintaining lives, ・Vocational training, ・Creation of job opportunities	・Preparation of socioeconomic infrastructure and services, ・Development of human capital, ・Development and dissemination of technologies	・Support for democratization, ・Governance, ・Support for human right, ・Elimination of poverty
Actors	International organizations, PKO (Japan), NGO (JICA assumes this responsibility incases where there are requests from the countries involved or from neighboring nations.)	International organizations, JICA, NGOs	International organizations, JICA, NGOs	International organizations, JICA, NGOs

(1) Problems such as shortages in funds, personnel and goods, which arise if assistance organizations such as the UNHCR and NGOs have to extend humanitarian aid and emergency assistance for a longer period of time than anticipated.
(2) The lack of coordination and decision-making mechanisms that include all actors who provide assistance, and the accompanying challenges such as the time wasted and the incentives lost.
(3) Functional vulnerabilities existed in the organizations involved in sharing responsibilities, reaching consensus to create a shared reconstruction plan, and monitoring the development of the shared plan, and the accompanying challenges such as the time wasted and the incentives lost.
(4) Difficulties of understanding the real needs of refugees, and the lack of ownership on the part of recipient countries.
(5) Needs for healing the trauma of the parties concerned (emotional conflicts, fear of death, loss of assets, and dispersion of families), by extending period of time before a reconstruction plan can be implemented.

(b) Measures to Narrow the Gap

Based on the above characteristics and accompanying challenges, the following is a list of gaps and the measures to correct each gap.

(1) Narrowing the gap in funds
* Coordination and cooperation between the United Nations, international organizations, and bilateral assistance organizations;
* Creation of a foundation within an international framework;
* Facilitating support and awareness toward conflicts at the global level (financial contributions, etc.);
* Active support for NGOs.

(2) Narrowing the time gap
* Strengthening the function and authority of the UNHCR and the United Nations Development Programme (UNDP) as a coordinator;
* Clarifying the responsibilities of different types of assistance and organizations: bilateral and multilateral assistance, and aid and development organizations;
* Having on-going dialogues with NGOs in order to share information and prioritize.

(3) Narrowing the gap in awareness among the actors
* Sustaining the level of interest in the international community toward the activities of post-conflict assistance extended by international organizations (such as the UNHCR, two-time winner of the Nobel peace prize);
* Continuing conflict-prevention efforts, such as disarmament, through the United Nations.

(4) Narrowing the gap in motivation to reconstruct (refugees and the governments of recipient countries)
* Restoring the lifeline in the early stages of the post-conflict period to nurture a desire to reconstruct the country;
* Building a democratic foundation, and establishing a government through democratic election;
* Facilitating the establishment of good governance (legitimacy, responsibility, protection of human rights, decentralization of power, and civilian control).

Conclusion

The issue of the gap between emergency aid and long-term development assistance is a new problem which has emerged as the number of regional conflicts increased in the post Cold War era. Donor countries and assistance organizations have not had enough experience with these kinds of conflicts. Different from ordinary development assistance, this type of assistance is conducted under precarious political, economic, and social circumstances. In addition, refugees are under a tremendous amount of emotional stress. As a result, there are a large number of difficulties accompanying this type of assistance. In conclusion, JICA recognizes the necessity of not only tackling this new challenge, but also being actively involved in resolving the issue as a forerunner to development assistance.

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1. *Refugee* No. 2, (1998).

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Reference

Examples of resolved conflicts* and ongoing conflicts**

During the Cold War, local conflicts were often regarded as secondary disputes. With the end of the Cold War, some local conflicts that were primarily proxy wars between the East and the West came to an end or were scaled back. Although there are still a small number of classic international conflicts over territory, the number of conflicts within nations has surged and come to account for the majority of ongoing conflicts.

The following is a list of resolved and ongoing conflicts in the post-Cold War period:

【Asia】
*Cambodia: Anti-government movement by the Pol Pot faction. Armed clashes within the coalition government.
**Sri Lanka: Armed Tamil separatist movement
**Indonesia: Independence movements in East Timor and Irian Jaya.
*Philippines: Peace agreement reached between the government and Moro rebels in 1996.
**Myanmar: Democratic movement.
**India/Pakistan: Armed clashes due to boundary disputes over Kashmir.
**Afghanistan: Ethnic conflicts among different guerrilla groups. Worsening civil war due to the emergence of Talibaan.

【The Middle and Near East】
*Israel: Middle East peace treaty reached. Ongoing clashes with Palestinians.
**Egypt: Anti-government movement by Islamic fundamentals (ex. El-Jihad)
*Iraq/Kuwait: Iraqi invasion of Kuwait in 1990. Kuwait liberated by a multinational force in 1991.
**Iran: Independence movement by the Democratic Party of Iranian Kurdistan.
**Iraq: Independence movement by Kurds against the Iraqi government. Conflicts among different Kurdish groups.
**Turkey: Independence movement by the Kurdistan Workers' Party (cleanup operation carried out by the government in 1995).

【Africa】
*Djibouti: Anti-government movement by the Front for the Restoration of Unity and Democracy. Peace agreement reached in 1994.
** Somalia: Country experiencing a state of anarchy. Known as the "Failed Nation."
*Uganda: Anti-government movement by the Lord's Resistance Army, a rebel group supported by Sudan.
**Rwanda: Conflict between Hutus and Tusis. The International Criminal Tribunal for Rwanda established. Progress of trials slow.
*Mozambique: Civil war ended in 1992. General election held in 1994 under the supervision of the United Nations.
*South Africa: Discord within the black community before and after the end of apartheid.
*Angola: Civil war ended in 1994. Peace agreement reached between the government and National Union for the Total Independence of Angola.
**Cameroon/Nigeria: Armed clash in 1996 over Bakasi Peninsula, the location of an oil field.
**Democratic Republic of the Congo: 30-year-old Mobutu administration overthrown by Kabila and his allies in 1997.
**Senegal: Casamance separatist movement.
*Liberia: Civil war between 1989 and 1996. Presidential election held in 1997.
**Sierra Leone: Anti-government movement by Revolutionary United Front. Peace agreement in 1996, and a coup d'etat in 1997.
**Western Sahara: Polisario Front demanding independence from Morocco.

【Eastern Europe and Central Asia】
*Bosnia and Herzegovina: Outbreak of civil war in 1992. Dayton Accord reached in 1995.
*Croatia: Ascendancy gained by the Croatioan government over the Republic of Serbia (Kraine).
**Moldova: Clashes between the Moldovan army and the Russian army in 1990. Cease-fire agreement reached in 1995. Conditions still chaotic.
**Georgia: Sporadic violence between Georgian partisans and Abkhazia forces in 1992. Cease-fire was agreed upon in 1994. Situation unresolved.
*Chechnya: Independence declared in 1991. Invasion by Russian forces in 1994. Cease-fire agreed upon in 1996. The issue of independence unresolved.
*Azerbaijan: Discord with Armenia over Nagorno-Karabakh region. Cease-fire agreed upon in 1994.

【Central and South America】
*Mexico: Revolt by the revolutionary army against the government in Chiapas and Guerrero, in 1994 and 1996, respectively.
*Guatemala: Anti-government movement by the revolutionary army. Peace agreement reached in 1996.
**Colombia: Anti-government movement by left-wing guerrillas.
*Ecuador/Peru: Armed conflict between Ecuador and Peru in 1995 over the Condor Mountains, an area abundant in natural resources.
**Peru: Anti-government movement by left-wing guerrillas including the Sendero Luminoso and the Tupac Amaru Revolutionary Movement (MRTA).

【Western Europe】
**United Kingdom: Northern Ireland separatist movement. Cease-fire agreed upon in 1994. Terrorist attacks resumed in 1996.
**Spain: Basque separatist movement by Euskadi Ta Askarasuna (ETA).

In addition to the above, there are other conflicts such as the issue of North Korea and the China-Taiwan relations. The reasons behind conflicts are becoming increasingly diverse, ranging from traditional territorial disputes to conflicts based in political, economic, and social factors (ethnicity, culture, social institutions, and religions).

I Committee on the Country Study for Japan's Official Development Assistance to the Republic of Peru

1. Committee Organization

The Committee was organized in April 1996, being chaired by Prof. Akio Hosono (University of Tsukuba), for the purpose of studying the basic direction of Japan's ODA for the Republic of Peru, which had reached the stage of carrying out economic and social development from a long-term viewpoint, after having taken emergency measures to cope with economic and social crisis. The murder of Japanese experts from JICA in July 1991 caused the suspension of Japanese cooperation extended in dispatch of personnel. This restricted the access to information from the sites receiving assistance in Peru. Given this situation the Committee made a preparatory field survey in July 1996 in order to obtain the latest information and conducted a full-scale field survey in October of that year. The survey was conducted with the intention of exchanging views on a broad scale with the Peruvian government organizations concerned and major aid organizations assisting Peru. The steady progress in the study activities was, however, interrupted by the hostage-taking incident at the Japanese Ambassador's residence in Lima in December 1996. As a consequence, it took about two years for the Committee to finish the study and compile a report

The Committee studied the conditions inside and outside of Peru, Peru's basic development views, the development challenges, and the trends in international assistance to Peru. Based on the study results the Committee made recommendations on Japan's future assistance to Peru.

2. Committee Composition

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■ Committee Members

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Professor, Department of Humanities, University of Kochi

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Professor, Faculty of Economics, Hosei University

3. Report Summary

The composition of the report is shown in the figure on the following page. The Committee regards people-centered, sustainable development as the ultimate goal of assistance to Peru. This is in line with international development principles such as sustainable development, people-centered development, and the DAC's New Development Strategy. The Committee defines four assistance objectives, namely, good governance and the promotion of participation, poverty alleviation and social development, sustainable economic growth, and maintenance of sustainable environmental systems. It also defines six priority areas in assistance: the promotion of administrative improvement and participatory development, assistance for the poor, people's capacity development and social infrastructure-building, strengthening of production capacities and systems, provincial development, and the strengthening of environmental conservation technologies and systems. The Committee makes recommendations as to priority issues in each area.

INFORMATION

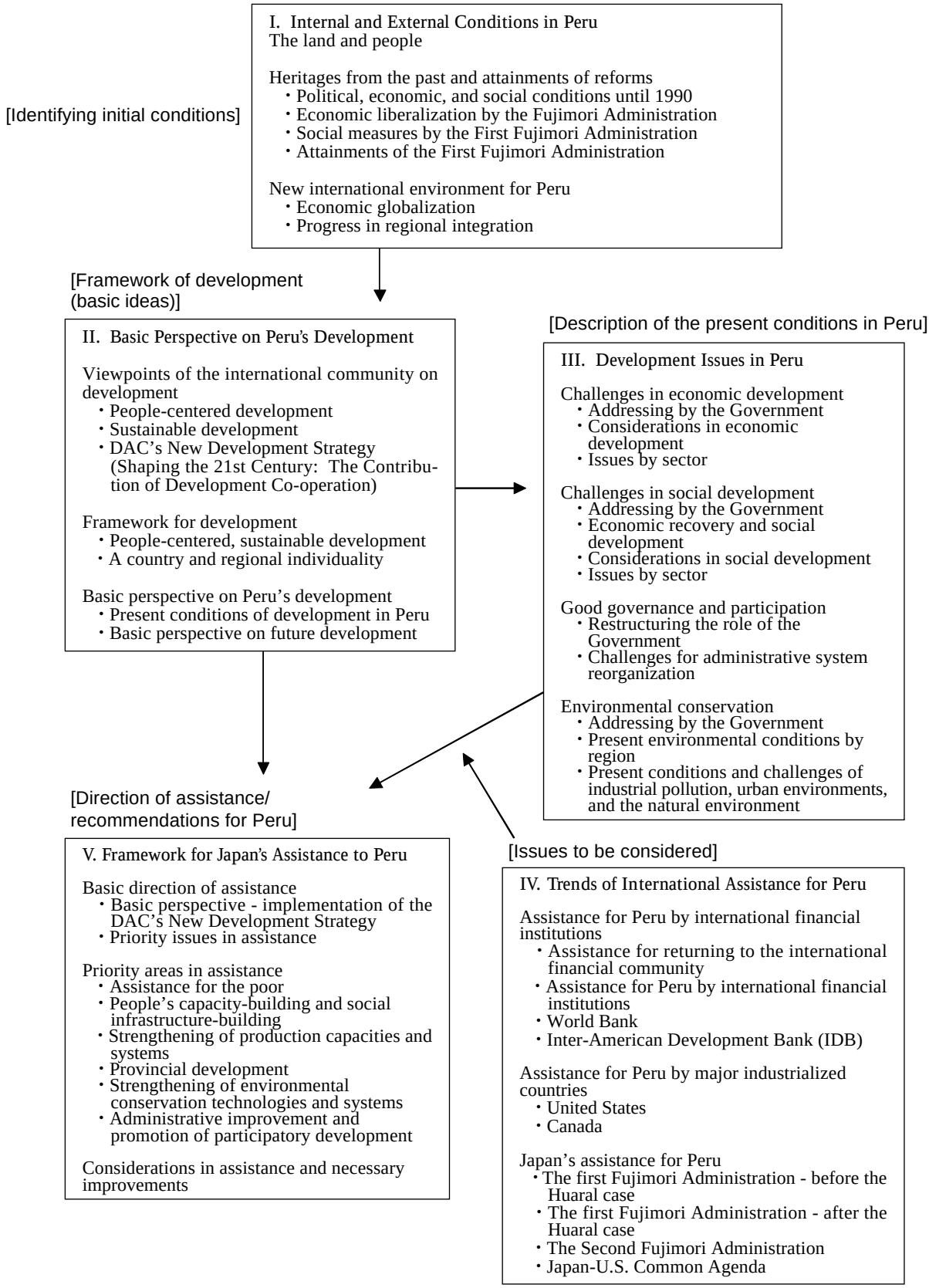


Figure Composition of the Country Study Report for Japan's Official Development Assistance to the Republic of Peru

II Committee on the Study of the DAC's New Development Strategy

1. Outline of the DAC's New Development Strategy and Organization of the Committee

"Shaping the 21st Century: The Contribution of Development Co-operation" (the DAC's New Development Strategy), adopted at the High Level Meeting of the Development Assistance Committee (DAC) of the OECD, held in May 1996, regards "the improvement of the quality of the lives of all" as the most important development goal. The Strategy defines a development vision focusing on poverty alleviation, social development, environmental sustainability and regeneration (social development and environmental improvement), economic growth through developing countries' participation in globalization from a long- and medium-term perspective, and the appropriate role of governments which support them. As a means of realizing these the Strategy shows comprehensive ideas on development and assistance, such as developing countries' self-help efforts (ownership) and coordination with industrialized countries assisting them (partnerships); comprehensive approaches which mobilize governments at all levels, the private sector and NGOs; individual approaches that address different conditions in each developing country; and results-oriented approaches.

JICA considered that this Strategy could become a guideline for Japan's future assistance for developing countries and organized the Committee from November 1996 to March 1998 in order to positively pursue the Strategy. The Committee worked out the policy to effectively and accurately direct Japan's efforts toward the realization of the Strategy and compiled the results into a report with recommendations.

2. Outline and Report Composition

The report consists of four volumes as mentioned below.

○ Volume 1 Summary Overview

This volume provides a comprehensive understanding of the DAC's New Development Strategy. The volume proposes basic ideas and approaches in implementing the strategy, on the basis of the sectoral studies (Vol. 2) and country studies (Vol. 3). Then general recommendations are provided.

○ Volume 2 Sectoral Studies

The Strategy defines specific goals to be attained through development in the areas of poverty, education, health care, and the environment. This volume analyzes the details of these goals and the current conditions in these areas. The volume also analyzes aid trends among other aid organizations, studies the framework for Japan's sectoral assistance, and makes recommendations for each area.

○ Volume 3 Country Studies

This volume conducts a study of Cambodia, Ghana, and Zimbabwe where Japan has been taking the initiative in promoting policy dialogues and strengthening aid coordination. There is an analysis of the current social and economic conditions in these countries and the direction of their development. Then the framework for Japan's assistance to these countries is studied in line with the Strategy and the results are compiled into recommendations.

○ Volume 4 Country Information

The DAC's New Development Strategy places importance, from a results-oriented perspective, on monitoring the outcomes of development programs. This volume selects basic indicators for measuring results, compiles statistical data, and provides information on developing countries' individual approaches in relation to the Strategy and the current conditions of assistance of other donors for each sector identified in the strategy.

3. Outline of Summary Overview and Recommendations

Regarding various approaches mentioned in the DAC's New Development Strategy, the sectoral studies in this report provide useful suggestions for international aid coordination, multi-sectoral approaches and comprehensive approaches, and the country studies give clarification on country approaches and results-oriented approaches. The Summary Overview integrates these and studies the framework of Japan's assistance, giving recommendations for implementing the Strategy. This volume defines seven basic ideas as follows and shows specific ways of approach in line with these ideas.

a. Emphasis on ownership by developing countries, assigning them a central role in the implementation of the DAC's New Development Strategy
b. Emphasis on international aid coordination in an age of globalization
c. Support for development that is balanced in terms of growth and distribution
d. Emphasis on establishment and reinforcement of good governance in developing countries

e. Emphasis on country approach
f. Aid priority for countries committed to implementation of the DAC's New Development Strategy
g. Development of implementation system of Japanese aid in keeping with the DAC's New Development Strategy

The report mentions the necessity of improving Japan's assistance system for the Strategy's implementation and studies issues confronting the system. The strengthening of the country approach is important, among others, and the report recommends that the assistance system be improved, for this purpose, through a review of the functions of the policy-making organizations, implementing agencies, the headquarters, and local offices.

4. Committee Composition

■ Chairperson

Yoshiaki ABE
Professor, Institute of Asia-Pacific Studies, Waseda University

■ Committee Members

Shigeru ITOGA
Coordinator, APEC Study Center, Institute of Developing Economies

Ichiro INUKAI
Professor, Faculty of International Relations, In-ternational University of Japan

Senro IMAI
Development Specialist, Institute for International Cooperation, JICA

Seiji UTSUMI
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Hideki ESHO
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Akira KASAI
Technical Advisor, JICA

Etsuko KITA
Chief Field Supporter and Logistics, Emergency and Humanitarian Action, WHO

Kaoru HAYASHI
Chief Researcher, Research Institute of Development Assistance, The Overseas Economic Cooperation Fund

Katsumi HIRANO
Senior Research Fellow, Area Studies II, Institute of Developing Economies (IDE/JETRO)

III International Symposium "Health Initiative in Asian Economic Crisis — Human Centered Approach"

The international symposium "Health Initiative in Asian Economic Crisis–Human-Centered Approach" was held at the United Nations University (Shibuya-ku, Tokyo) on April 27, 1997. The symposium was organized by the Ministry of Foreign Affairs, the Ministry of Health and Welfare, JICA, the Overseas Economic Cooperation Fund (OECF), and the Foundation for Advanced Studies on International Development (FASID). There were 18 speakers and commentators from Japan and abroad, and an audience of over 450 people.

1. Symposium Purpose

The symposium was intended to promote a human-centered approach emphasizing the social dimensions of development, focusing on health care, in Southeast Asian countries, where the socially vulnerable, including the poor, have been greatly affected in their basic human needs, as a result of their governments having undertaken austerity measures and severe structural adjustment policies in order to overcome monetary and financial crises. The purpose of the symposium was to study and analyze the current conditions of social development in these countries, on the basis of broad knowledge obtained from past experiences in coping with the economic crisis in Latin America in the 1980s. The symposium aimed also to seek directions for the self-help efforts of developing countries and desirable policies for the international community including Japan.

2. Outline of the proceedings

(1) On behalf of the organizers, Minister for Foreign Affairs Keizo Obuchi, in his opening address, expressed his great concern about the impact of the Asian economic crisis on the health of the socially vulnerable in the affected countries. He emphasized two points as the purpose of the symposium, namely, learning from the past experiences of the world community and understanding the current situation exactly and sharing information on it.

(2) The symposium proceeded in four sessions on the basis of the four themes mentioned below.

a. Session I "Economic Crisis: current situation in health/medical care/social sector in Asian countries in crisis"

Participants from Indonesia and Thailand and Japanese researchers explained the actual situations in these countries. They mentioned a steep rise in medicine prices due to fallen exchange rates and reductions in health services due to curtailed budgets. They pointed out the importance of identifying the socially vulnerable and defining priority areas.

b. Session II "Lessons from past experiences (Latin American crisis)"

As applicable lessons learned from the past crises, Dr. Michael Reich (Professor, Harvard School of Public Health) pointed out the importance of introducing health care, not as a supplement to structural adjustment policy, but as an integral part. Dr. Richard Jolly (Special Adviser to the Administrator, UNDP) pointed out the importance of adjustment with a human face from a long-term perspective.

c. Session III "Issues to be tackled and policy directions"

Policy-makers from Japan, the United States, and Malaysia and an economist from the Asian Development Bank explained the donor nations' approaches and the Malaysian experience in social development. Mr. Kenzo Oshima (Director-General of the Economic Cooperation Bureau, the Ministry of Foreign Affairs, Japan) pointed out the importance of not looking at the negative aspects of the economic crisis, but of regarding it as an opportunity to review and improve the ongoing policies in Asian countries.

d. Session IV "Wrap-up Panel Discussion"

Participants from Japanese and US NGOs explained their activities in the sectors of health, nutrition, and medical care.

3. The Chairman's Summary

(1) Matters basically agreed

- ○ It is essential to identify the socially vulnerable who need to be provided with assistance with priority.
- ○ The Asian economic crisis should be regarded as a good opportunity to strengthen the social sectors of the affected countries.
- ○ It is necessary to formulate an action plan for establishing sustainable and stronger systems, taking account of the situation after the crisis.
- ○ Projects need flexibility in planning and implementing, and the importance of NGOs' roles needs to be recognized.

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(2) Emergency responses
- ○ Short-term measures for earning foreign currency indispensable for obtaining basic medicines should be implemented.
- ○ Investment-effective measures for the poor and the vulnerable should be promptly identified and their implementation given priority.
- ○ A system of monitoring and reporting the impact on women and children, who can be most affected, should be established.

(3) Longer-term responses
- ○ Adjustment programs need to be growth-oriented and also need to include social measures.
- ○ A strengthened monitoring and evaluating system is needed for appropriately responding to the needs of the poor.
- ○ It is necessary to invest in the development of new social systems and establish an Asian Institute for Strategic Studies (tentatively named).

IV Committee on the Country Study for Japan's Official Development Assistance to the Lao People's Democratic Republic

1. The Committee Background

The Lao PDR has been promoting their transition to a market economy since 1986, under their open economic policy named the New Economic Mechanism, intending to emerge from their position as a least less developed country by 2020. Laos, however, being landlocked, is operating at a disadvantage concerning trade. It is also a disadvantage that the mountainous regions covering the greater part of the country divide its domestic economy into sections. It is an undeniable fact that historical and geographic conditions have produced serious insufficiencies in human resources and basic economic infrastructure such as the transport network. In short, the Lao PDR can be classified as one of the poorest Asian countries and as lacking the organizations and systems needed to run a market-oriented economy.

Japan has adopted country approaches and regional approaches in providing active assistance for three Indochinese countries, which are making efforts to introduce market-oriented economies since 1980 when assistance to these countries was resumed. Assistance from Japan, the top bilateral donor for the Lao PDR, could have great influence on the direction of Laos's development.

Social and economic conditions in the Lao PDR have been greatly changed by their entry to ASEAN in July 1997, recent increased opportunities of regional development in Indochina, and the outbreak of the Asian monetary crisis.

JICA, keeping these circumstances in mind, organized the Committee on the Country Study for Japan's Official Development Assistance to the Lao People's Democratic Republic for the purpose of studying the necessary measures for assisting the nation, which is under various constraints, in smoothly addressing globalization.

2. Study Process

The Committee had met six times, with the first meeting held on August 29, 1997 and the last on February 16, 1998. Focusing on understanding the conditions from 1986 when the Lao PDR announced their intention to introduce a market economy under their New Economic Mechanism policy to the present, the Committee analyzed the general socioeconomic conditions in Laos and the trends of assistance from major donor nations and international organizations to the country. The Committee made efforts to identify the major development challenges confronting the country, taking into consideration their integration into the regional market as a consequence of their entering ASEAN in July 1997, as well as trends of international development plans in Indochina. The Committee, based on these studies, compiled a report on the framework of Japan's assistance to Laos.

In the process of the study, the Committee conducted a field survey in December 1997, for the purpose of exchanging views with the Government of the Lao PDR, major donor nations and organizations, the JICA Laos Office, and the Japanese Embassy in Vientiane.

3. Committee Composition

(1) Committee

■ Chairperson

Yonosuke HARA
Professor, Institute of Oriental Culture, The University of Tokyo

■ Committee Members

Tetsusaburo KIMURA
Professor, Faculty of International Relations, Asia University

Kenji DOMOTO
Associate Professor, Faculty of Economics, Shiga University

Motoyoshi SUZUKI
Associate Professor, Faculty of Humanities and Social Sciences, Mie University

Seiichi FUKUI
Professor, Faculty of Economics, Osaka-gakuin University

Akihiko ONO
Associate Professor, Faculty of Economics, Osaka City University

Satoshi CHIKAMI
Faculty of Social & Information Sciences, Nihon Fukushi University

Satoshi IIJIMA
Director, 4th Division Operations Department 1, Overseas Economic Cooperation Fund (OECF)

Miyoko SHIMAZAKI
Lecturer, Department of Economics, Nihon Fukushi University

Kazuo KURODA
Assistant Professor, Center for the Study of International Cooperation in Education,

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Hiroshima University
Hiroaki NAKAGAWA
Director, First Regional Division, Planning Department, JICA
(2) Advisers
Hiroyuki TSUBURAYA
Counsellor of Regional Plan for National Forest, Management and Planning Division, National Forest Management Department, Forestry Agency, MAFF
Hayao ADACHI
Development Specialist, JICA

4. Report Outline

In the report, the Committee regarded the Lao PDR not only as a country in transition to a market economy, but also as a less developed country in the process of transforming the domestic economy from self-sufficient and fragmented economies into an integrated market economy. The Committee studied how economic growth could be attained and what should be done to improve the BHN level that was still low in the country, while being confronted with the two challenges of domestic market integration and transition to a market economy. This was viewed in light of the merits and demerits produced from entering ASEAN which are getting into the Asian network (regional tariff liberalization) called AFTA (ASEAN Free Trade Area) by 2008.

The Lao economy was stable from 1986 until the Asian monetary crisis in July 1997. The report concludes that this is attributable to comparatively good performance in the agriculture sector, which accounts for 60% of the GDP, and successful economic reforms through the introduction of a market economy. The report, however, points out the following problems in promoting a market economy and economic globalization in the Lao PDR.

○ There is an extreme deficiency of personnel capable of addressing these issues and human resources development is urgently needed.
○Hydroelectric power generation and forestry are the only sources of foreign exchange.
○Because of the sparse population, neither the direct foreign investment of labor-intensive downstream industries nor export-oriented industrialization would be effective.
○ The country has only insufficient domestic transport and communications infrastructure to establish domestic markets.

In rural areas where the greater part of the people and the poor among them live, the people are faced with various challenges: raising agricultural productivity, measures against environmental degradation due to short cycle slash-and-burn farming from increasing population pressure, the necessity of creating employment other than farming, extending education, and the expansion of health care services.

The report defines, based on the above, the following four points as priority areas for Japan's assistance.

(1) Agricultural and rural development
Increased food production and the promotion of rural industries should be pursued, in recognition of the fact that improved rural conditions will result in both poverty alleviation and an improved BHN. Small-scale and multiple approaches would be effective in addressing such issues as health care services and educational system building at the local level. This is relevant also to (2) below.
(2) Human resources development
Assistance should be provided for two issues in parallel in human resources development: higher-level capacity development for fostering human resources capable of dealing with a market economy, and the extension of basic education among the people in the rural and the mountainous areas.
(3) Development of infrastructure and energy
The establishment of an integrated domestic market is indispensable for the sound development of a market economy in the Lao PDR, and is of critical importance in extending social services. Assistance should be provided in coordination with other donors, with due consideration given to the improvement of the management and maintenance systems and compatibility among sub-sectors. Electricity will continue to need to be used as a valuable source of foreign exchange and its development is increasingly being funded by the private sector. Assistance in these area is needed.
(4) Environmental conservation and environmental resource management
Forest conservation is indispensable for the development of the Lao PDR. It is desirable that cooperation be focused on participatory forest conservation, in combination with measures for stabilizing slash-and-burn farming. Assistance in river basin management planning is also important from the viewpoint of land utilization, soil conservation, and water source culti-

vation. Assistance would be also needed in system building, with the Science, Technology, and Environmental Organization at the core.

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V Report on the JICA International Symposium on "Local Development and the Role of Government — A New Perspective of Assistance"

1. Symposium Background

It is said that, in more than 60 among 75 developing and transition countries with a population of more than 5 million, power is being decentralized to local governments in some form. The change in the relations between the central governments and the local governments in developing countries is greatly affecting their development and in particular the development at local levels. In assisting the promotion of local development and narrowing regional gaps, even in countries where little progress has been made in decentralization, it is becoming increasingly important to understand the situations of the local governments and their administrative and financial capacities and relationships with the central government. In other words, the functions of the domestic institutional framework, which have been regarded as given, needs reconsideration from the view points of local development. It is required to review local development and the reduction of regional gaps, in reference to domestic governance including central-local relationships in developing countries.

In this new environment, it has become necessary to pay attention to governance in developing countries, in extending cooperation that contributes to regional progress. Providing assistance, without careful study on systems such as central-local relationships and local governments' administrative capacities being left as a kind of black box, could dilute the efficiency and effectiveness of the assistance, particularly when the assistance is implemented in regional areas. The areas of poverty, health care, and education, which are prioritized in the DAC (Development Assistance Committee) New Development Strategy, require detailed plan of implementation with close attention to the conditions in each region and need local capacities for providing services and planning and implementing programs. The promotion of effective cooperation in these areas will require measures for improving regional administrative capacity and local governance.

JICA, recognizing these circumstances, conducted an issue-wise study from 1996 to 1997 under the title of "Local Development and the Role of Government."

This symposium, being based on the results of the study, was intended to study central-local relationships in developing countries where the trend of decentralization is growing, the impact on local development, and an ideal way of assistance for addressing these issues.

2. Symposium Outline

Date: March 5, 1998
Attendance: about 130 people
<Program>
○Keynote address "Governance and development — reform of decentralization"
Speaker: Dr. Michio Muramatsu, Professor, Kyoto University
○Session I "Decentralization in developing countries —current situation, and influence on economic development"
Speakers : Yuji Suzuki, Professor, Hosei University
Dr. Chen Yao, Western China Development Research Centre, Chinese Academy of Social Sciences
• Session II "Local Development and the Role of Government."
Speakers : Dr. Michio Muramatsu, Professor, Kyoto University
Dr. Adrian Panggabean, University of Indonesia
Hon. Mayor Alvin B. Garcia, Cebu City Mayor, the Philippines
• Session III "The Role of ODA"
Speakers : Mitsuaki Kojima, Managing Director, Planning Department, JICA
Dr. Michael M. Calavan, Chief, Office of Governance and Participation, USAID, Manila
Robertson Work, Principal Technical Adviser,
Management Development and Governance Division, UNDP

In the keynote address, Professor Muramatsu referred to the significance of decentralization and the role of the central government. He asked the audience to pay attention to the existence of various types of central-local relationships. He gave an explanation of central-local relations of the integrated type and that of the separate type. He pointed out the importance of the residents' participation and ownership, as well as various forms of partnerships such as those between the capital and the provinces, and between the government and aid organizations.

In Session I, Professor Suzuki made a conceptual arrangement of the total framework for understanding the issue of decentralization in developing coun-

tries. Then, Dr. Chen spoke about a case of decentralization in China.

In Session II that followed, Professor Muramatsu discussed Japan's experience in narrowing regional gaps. Then Dr. Panggabean presented his paper on Indonesia's approach to and issues in narrowing regional disparities, focusing on intergovernmental financial transfer. Mayor Garcia from the Philippines, where decentralization has been progressing since the establishment of the Local Government Code, talked about opportunities created by the Code and problems awaiting solutions, from the standpoint of the head of a local government.

In Session III, Managing Director Kojima explained JICA's approach, focusing on the role of development assistance. Dr. Calavan presented the USAID program in the Philippines, and Mr. Work explained the UNDP's idea of development assistance in the area of decentralization and illustrated it by giving some examples.

The symposium was attended by over 130 people. Among others, there were many participants including ambassadors from Latin American and African countries. It seemed that they were greatly interested in the theme because decentralization was either under way or an imminent political issue in their countries. In questions and answers, views and questions were lively set forth from among the audience on how to address the theme, challenges in promoting decentralization, and approaches by aid organizations, reflecting their deep interest in the theme. In this symposium both donor and developing countries indicated a common recognition of the importance of this theme, and deep interest was aroused with the large audience. This certainly was the first step towards a further study of local development and the role of the government.

3. Symposium Report

A report is being compiled in Japanese and English, based on the minutes and the materials distributed at the symposium. It will be distributed to the organizations concerned in 1998. For details, please refer to Mr. Ozawa, Director of the Research and Development Division, Institute for International Cooperation, JICA.

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VI The Second Country Study for Japan's Official Development Assistance to the People's Republic of China

1. Study Background

The Committee on the First Country Study for Japan's Official Development Assistance to the People's Republic of China was organized in 1989 and was chaired by the late Mr. Saburo Okita. The Committee compiled the final report in 1992. In those days China had been promoting reform and open policy for about 10 years. Macroeconomically being unstable, there was the possibility that the reform and open line could result in a setback. The First Country Study Report, in support of the reform and open policy, made recommendations focusing on the economic stability, inflation control, and the elimination of bottlenecks in the infrastructure.

In August 1997, about five years after the recommendations were made, the Committee on the Second Country Study for Japan's Official Development Assistance to the People's Republic of China was organized. The Committee studied the direction of Japan's ODA to China, with 2005 as the target year, based on China's development and result analysis of Japan's assistance to China since the First Study Report was compiled. The Committee completed their report in February 1999.

2. Committee Composition

(1) Committee members

■ Chairman
Toshio WATANABE
Professor, Graduate School of Decision Science and Technology, Tokyo Institute of Technology

■ Macroeconomy
Kyoichi ISHIHARA
Professor, Faculty of Cross-Cultural Studies, Kobe University

■ Industrial Development
Kazuyoshi UEHARA
Professor, Kyoto Institute of Economic Research, Kyoto University

■ Education/Human Resources Development
Yutaka OTSUKA
Professor, Graduate School of International Development, Nagoya University

■ Regional Development
Hiroyuki KATO
Professor, Faculty of Economics, Kobe University

■ Politics
Tomoyuki KOJIMA
Professor, Faculty of Policy Management, Keio University

■ Agriculture
Toshio TAJIMA
Professor, Institute of Social Science, The University of Tokyo

■ Public Finance
Minoru NAMBU
Professor, School of Economics and Business Administration, Kobe University of Commerce

■ Infrastructure
Hiroshi OITA
Director, 1st Division, Operation Department II, The Overseas Economic Cooperation Fund (Until May 1998)
Kaoru HAYASHI
Director, 1st Division, Operation Department II, The Overseas Economic Cooperation Fund (From May 1998)

■ Health and Medical Care
Kenji HAYASHI
Director, Department of Demography and Health Statistics, National Institute of Public Health

■ The Environment
Kazuo HISHIDA
Technical Adviser, The Overseas Economic Cooperation Fund

■ Aid Trends
Tsuguo YASHIMA
Advisor of Center for Research and Developmental Conservation, International Good Neighborhood Association

(2) Task force

■ Chief of the Task Force
Ikufumi TOMIMOTO
Development Specialist, Institute for International Cooperation, JICA

■ Education/Human Resources Development
Eiko IZAWA
Associate Specialist, Second Project Study Division, Grant Aid Project Study Department, JICA

■ Politics
Kyoko OKUBO
Research and Development Division, Institute for

International Cooperation, JICA

■ Infrastructure

Shoichi OKUMURA
Development Cooperation Division, Economic Cooperation Bureau, Ministry of Foreign Affairs

■ Mining, Industry/Energy

Toshinobu, KATO
Deputy Director, Industrial Development Study Division, Mining and Industrial Development Study Department, JICA

■ Poverty

Hirofumi SUZUKI
Administration Division, Training Affairs Department, JICA

■ Health and Medical Care

Masao TATEBA
Deputy Director, Administration Division, Procurement Department, JICA

■ The Environment

Koji FUJIYA
Deputy Director, Second Development Study Division, Social Development Study Department, JICA

■ Women in Development

Yuri HONDA
Research and Development Division, Institute for International Cooperation, JICA (Researcher, Japan International Cooperation Center) (Until February 1998)

■ Social Security

Hiroko MAEDA
Lecturer, Faculty of Foreign Languages, Kyoto Sangyo University

■ Macroeconomy

Tomoo MARUKAWA
Researcher, Economic Development Research Department, Institute of Developing Economies

■ Agriculture

Yoshiko MURATA
Research and Development Division, Institute for International Cooperation, JICA (Researcher, Japan International Cooperation Center) (Until January 1998)

■ Aid Trends

Masato WATANABE
Second Regional Division, Planning Department, JICA

■ Secretariat

Ritsuko NAKAMURA
Research and Development Division, Institute for International Cooperation, JICA (Researcher, Japan International Cooperation Center) (Until September 1998)

Shiomi MIKI
Research and Development Division, Institute for International Cooperation, JICA (Researcher, Japan International Cooperation Center)

3. The Committee's conclusion

(1) Japan's official development assistance to China (which has been provided for 20 years) has been contributing greatly to the country's modernization, reform and open policy since the organization of the First Committee.
(2) Current social and economic conditions in China differ considerably from those when the First Country Study was under way. A number of issues to be addressed more seriously than ever have emerged including poverty, the environment, food, and the building of an institutionalized market economy.
(3) In view of Japan's limited resources for ODA in the future and China's extensive land and large population, it is necessary to focus cooperation on the top priority issues which cannot be solved by China's self-help efforts alone. It is also necessary to construct a model for extending the fruits of assistance.
(4) The purpose of Japan's ODA is to contribute to China's stable growth, which is desirable for Asian nations including Japan and also for the entire world.

4. Priority Issues and Regions

(1) Priority issues
a. Poverty eradication and regional gap removal

Priority issues
(i) Poverty eradication and regional gap removal
(ii) Environmental conservation
(iii) Agricultural development and food supply
(iv) Building an institutionalized market economy

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Priority regions
Assistance should be focused on central and western China where the people are especially poor.

Strategic assistance is needed in poverty eradication and narrowing regional gaps. It is also important to build, with yen loans, infrastructure, and industrial foundations in poor regions and to go further to support the implementation of projects relevant to poverty alleviation. Japan's ODA for China needs to shift focus, on the whole, from economic development to social development (health care, education / human development, social security etc.). The Committee studied specific items in the areas of health care, education / human development, poverty alleviation in rural regions, social security, and women in development. It is necessary to pay careful attention to China's diversity in terms of development stages and geographic conditions in implementing assistance.

b. Environmental conservation

In view of China's appropriations for environmental conservation not necessarily being adequate, the point is how to provide efficient cooperation in this area. The environmental model city initiative now under way is designed for providing cooperation which will provide a very noticeable demonstration and resulting effects so that experiences there will be extended to other regions. At the same time, it is not enough to deal with pollution problems in only the model city. It is important to have a regionally extensive environmental perspective. This perspective must consider the direction of change in the city's industrial structure with the introduction of a market economy and the relationship with industrial structures and pollution conditions in nearby regions and other industrial cities in the upper and lower reaches of the river. The Committee studied specific items in the area of measures against air pollution, acid rain and water contamination, urban environmental conservation, forest conservation, flood control, and disaster prevention.

c. Agricultural development and food supply

So far, cooperation has been focused on the construction of facilities, the installation of equipment and apparatuses, and the transfer of production-related technologies. Now the cooperation priority, however, needs to shift to joint research for providing a stabilized food supply and agricultural structure reform, policy making and institutional building, and joint development with China of technologies that will help farmers increase their incomes. In order to attain a proper regional balance, cooperation should be focused on the poor regions in central and western China to reduce poverty and regional gaps. The Committee studied cooperation for increasing farmers' incomes and reducing poverty and regional gaps, cooperation toward the industrialization of agriculture, cooperation for building infrastructure needed in distributing agricultural products, cooperation in market management, and agricultural cooperation from which far-reaching effects were expected.

d. Building of an institutionalized market economy

It is thought that China has already passed through the stage of system building and policy orientation to institutionalize a market economy. Future cooperation should therefore place importance on the consolidation of the existing systems, improvement of operational efficiency, and enhancement of the reform results. The Committee studied specifically the reform of state-owned enterprises, fostering of and assistance for small- and medium-scale enterprises, financial and monetary systems, macro-economic control, cooperation in the energy sector, and cooperation in infrastructure building.

(2) Priority regions

The priority of Japan's assistance will shift from the coastal region to the inland areas, particularly the poor regions in central and western China. It is necessary to give due consideration, in identifying projects, to regional individuality and characteristics, as well as regional capacities of formulating and accepting projects, and to take account of per-capita GDP and poverty-related indicators, as common criteria in selecting target regions. Japan's definite intention, as the largest bilateral donor, to aim assistance at the poorest regions will induce more domestic support in China for these regions. Collaboration and cooperation that are consistent with other bilateral and multilateral aid organization's policy on assistance for China will become possible.