A New Dimension of Infrastructure

Realizing People's Potentials

Infrastructure...
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Infrastructure provides the basis of human life and contributes to the sustained improvement of livelihoods by supporting regional and national economic growth. Many people live under a variety of threats in the large part of the world, such as Afghanistan, Iraq, and Africa. The role of infrastructure which provides these people with access to basic services is increasing more importance than ever.

In postwar Afghanistan, Japan has been undertaking the rehabilitation and improvement of war-torn roads that are indispensable for transporting urgent supplies needed for the reconstruction of the country and the restoration of people's livelihoods. Japanese ODA has long been assisting the provision of safe water for the survival of local people in many parts of Sub-Saharan Africa. Such efforts must be strengthened and expanded so as to create a safer living environment as quickly as possible and thereby help local people improve their life prospects and realize their aspirations. To understand the importance of infrastructure in ODA, it is crucial more than ever to focus on the human dimension of its development. Infrastructure must be provided in such a way that it will stimulate and activate the potential capability of local people. JICA will identify grassroots needs and aspirations through direct contact with local people and will carry out the projects to meet their needs. JICA will cooperate with recipient countries in institutional development and physical construction of infrastructure in tandem. We will approach the infrastructure development comprehensively by crossing bureaucratic barriers of government agencies, sectors, regions or even countries. We hope that our support in infrastructure development will reduce people's threats and will provide a firm foundation on which people can achieve their aspirations.

The President of JICA
OGATA Sadako

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Why Infrastructure Now?

Infrastructure is essential for people to live, but it is often poorly developed, or inadequately functioning because of poor operation and maintenance, in the developing world. In some cases, infrastructural facilities have been poorly planned and implemented to begin with and brought negative impacts on local habitat and population. The inadequacy of infrastructure and the poor functioning thereof impede people from realizing what they hope for, and make it difficult for the developing countries to achieve their development goals.

Before discussing what should be done for the development of infrastructure with renewed awareness of its importance, it is necessary to review and learn from the past performance of international cooperation.

1 Infrastructure for People

Village Water Supply (Papua New Guinea)

Kennon Road (the Philippines)

Infrastructure for Daily Living

Infrastructure is requisite for human survival and livelihood: it guarantees people the right to live in safety and good health.

People need a hygienic environment to live in, with access to safe potable water and sanitary sewerage. They need easy access to health care facilities. They need irrigation on their farmland to produce a stable supply of food. Appropriate infrastructure is necessary to protect them and their properties from devastating natural disasters like earthquakes and floods. The Netherlands protects her land below the sea level by the extensive development of tide embankments. People need schools for their education and empowerment. Village tube wells and water taps lessen the daily toil of carrying water from afar, freeing children to attend school. Easy access to basic services enables women, the elderly and the other socially underfranchized to participate more actively in economic and social pursuits. Feeder roads link up outlying villages to the markets of local towns, and this helps village farmers to earn stable cash income. Infrastructure thus supports the daily lives of people in many indispensable ways.

- *The construction of rural roads provided us with easy access to urban centers. (Answers to the interview conducted in the Philippines)*

Definition of Infrastructure

The word "infrastructure" is derived from the Latin words infra meaning "beneath", and structura meaning "to construct". As exemplified by the Silk Road, transport infrastructure historically enabled long-distance trade and the diffusion of great civilizations. The concept of infrastructure includes institutions like legal and administrative systems as well as physical assets like roads, schools and water supply and sewerage systems.

Some people distinguish between economic and social infrastructure, but it is difficult to characterize the functions of a given facility as exclusively economic or social.

Infrastructure to Support Sustainable Development

Infrastructure supports the economic growth of a particular region or country, and through the redistribution of wealth, helps sustain the continued improvement of the quality of life. Roads and ports contribute to the expansion of the market, and irrigation facilities raise agricultural productivity.

Infrastructure plays an important role in creating a good investment climate for the private sector. Private investors are always attracted to areas with adequate infrastructure. Low-income countries will be able to stimulate private investments by developing not only physical facilities but also social infrastructure such as good governance and appropriate institutional development. Such fostering of a favorable environment will spur private investment, employment creation and productivity improvement, culminating in regional and national economic growth. Indeed, East Asian countries did exactly this and successfully attained economic growth and reduced absolute poverty.

- *Development of agricultural and rural infrastructure enabled us to produce a stable supply of food and thereby checked the tide of migration from villages to cities in search of jobs. (Answer to the interview survey conducted in the Philippines)*

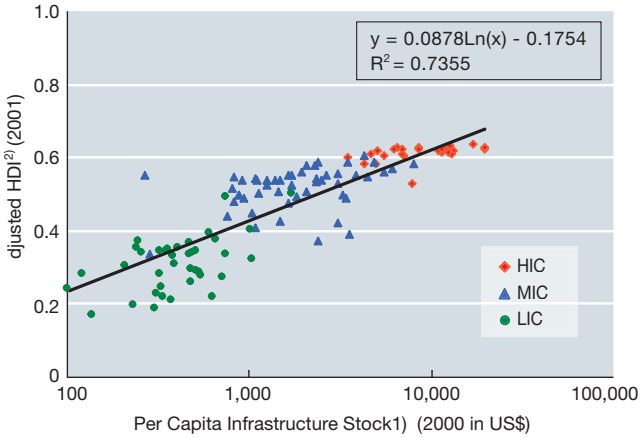
Infrastructure Development across Borders

Amid the accelerating globalization, the investment in infrastructure has been rapidly picking up in many cities, regions and countries, which want to obtain the competitive edge over rivals. Along with the growing trend of regional economic integration shown by FTA and others, cross-border infrastructure development has now assumed greater importance, boosting, for example, the long-standing interest in the Asian Highway for the Greater Mekong Region. In Asia, major cities compete with one another by investing in the high-tech infrastructure to attract private investors. In China and Eastern Europe, the provinces or regions are similarly vying for domestic and foreign private capital.

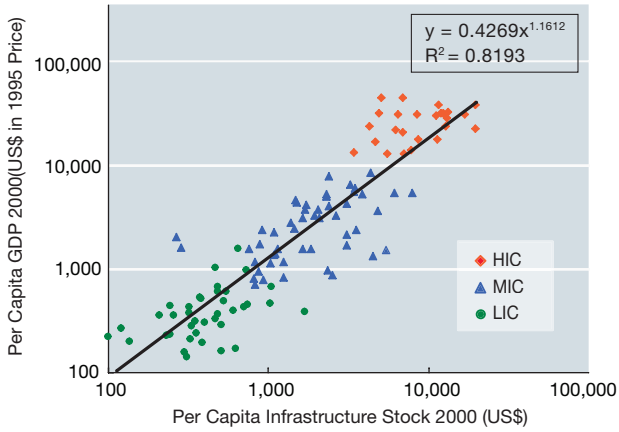
The availability of infrastructure is a vital component to tip the balance in the on-going global competition for investment. At the same time, infrastructure serves to enhance the unity of a region or country. A well-placed network of transport infrastructure functions as a vortex to unite a nation, and when it extends across borders, it will establish axes of stable interactions between nations.

Infrastructure: Correlation to Social Development and Economic Growth

Infrastructure Stock [1] and Adjusted Human Development Index [2]



Per Capita GDP and Infrastructure Stock



1) *Per capita stock of infrastructure is obtained by aggregating the stocks in 2000 of electricity, roads and railways, water supply and sewerage, and fixed and cellular phones, each multiplied by the respective average unit price in US dollar, and then dividing the aggregated sum by population.*

2) *HDI is a composite index developed by UNDP to measure achievement in three basic dimensions of human development. The adjusted HDI in this figure omits the third dimension of living standards as measured by per capita GDP. The first dimension represents healthy human life as measured by life expectancy at birth (years). The second dimension shows knowledge as compositely measured by the adult literacy rate (with two-third weight for population aged 15 and above) and combined gross enrolment ratio of primary, secondary and tertiary education (with one-third weight for school age population). HDI and the adjusted HDI express the performance in each dimension as a value or index between 0 and 1 relative to the pre-defined maximum and the minimum values and then calculate a simple average of three or two dimension indexes. Given the maximum and minimum values of what UNDP calls goalposts, the value of highest performance for adjusted HDI is 0.67.*

Source : Compiled from UNDP 2002 Human Development Report and M. Fay & T. Yepes, 2003.

2 Infrastructure Bottlenecks: Obstacles to Development

Provision of economic and social infrastructure is extremely limited in many developing countries. The bottlenecks in infrastructure pose serious problems, obstructing economic growth and frustrating people's aspiration to improve their standards of living.

Obstruction of Development

According to the World Bank estimates, global population living in absolute poverty (US$1.08 or less a day in 1993 PPP price) totaled 1.1 billion in 1997. Approximately 1.2 billion had no access to safe potable water. In Sub-Saharan Africa, only 10% of the population could benefit from the access to electricity. The inadequacy of infrastructure deprives people of their right of access to basic social services. It serves to increase poverty and widen the poverty gap among people. Ultimately it breeds the seed of social unrest, threatening the very survival of people and society.

The economic infrastructure such as energy and transport is sine qua non for industrial growth, but poorly developed in many developing countries. Bottlenecks in infrastructure impede their regional and national economic growth and ultimately prevent them from attaining true self-reliance.

Enormity of Needs

Infrastructure is fundamental to generating economic growth and improving the quality of life in the developing countries. Their needs for infrastructure development are huge, as indicated by the fact that their current per capita stock of infrastructure is worth only one tenth of the average among high-income countries.

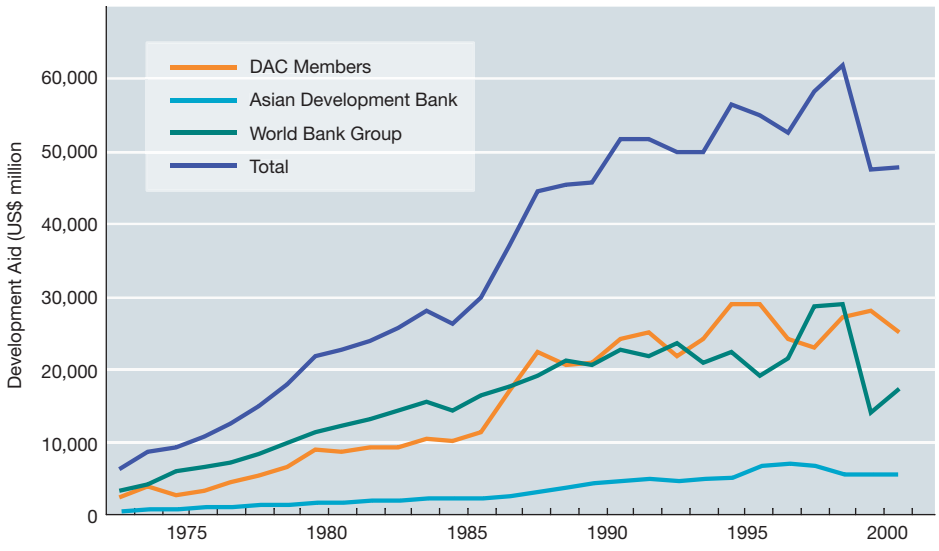
However, few developing countries can afford the required investment in infrastructure on their own. Many of them have been relying heavily on development assistance from bilateral and multilateral donors and will continue to expect at least as much from external aid.

Decelerated External Assistance

The aggregated bilateral aid of DAC members and the concessional lending of multilateral organizations (the World Bank group and Asian Development Bank) increased almost lineally from the beginning of 1970s through 1990s and totaled $61.9 billion in 1999. This amount was equivalent to the GNP of Chile, Peru, Pakistan, the Philippines or Malaysia of the same year. Lending by the World Bank had historically been equivalent to the sum total of all DAC member countries' bilateral ODA. However, the Bank sharply cut its concessional loans by $15 billion in 2000. As a result, total bilateral and multilateral aid dropped to $47.4 billion, back to the level of a decade earlier. The total amount of development aid continued at approximately the same low level the next year, in 2001. One of the reasons for this setback was undoubtedly the financial crisis triggered in 1997 that served to push up the Bank's increased emergency lending, but drew resources away from traditional lending.

Further, private investment has sharply dropped, and thus the total investment on infrastructure has been at a low level in these years.

Aid Flows from DAC Members, ADB and World Bank



Source : Aggregated from the annual reports of the DAC, ADB and World Bank.

3 Lessons from the Past Experience

The construction of an infrastructural facility did not always mean that all local people could enjoy equal access to the service it provided. The facility sometimes created not only the accessibility gap among local people but the conflict of interest between those who positively benefited from its service and the others who were made to suffer by forced relocation or dislocation. The awareness of the past disappointing performance must guide our rethinking of what and how to contribute to infrastructure development in the developing world.

Lack of Actions as against Infra Gap

The accessibility gap is caused, first of all, by the absolute shortage of infrastructure stock relative to the potential users and beneficiaries of its variegated services. The shortfalls of infrastructure were sometimes caused by the misjudgment of apparent lack of effective demand, and sometimes by the limited outlay of fund to finance the large and risky investment needed for its full-scale development.

There was the wishful expectation that the private sector would invest in certain types of infrastructure. However, the absence of adequate institutional supports and incentives made the financial risks of such ventures too high for private investors. Moreover, some existing facilities began to fall in disrepair and go out of service, reducing the available infrastructure stock even further.

What is more, practically no effective action has been taken to cope with the growing problems of the accessibility gap among people.

Limited and Biased Reach of Infrastructure Services

Even when some facilities were constructed, their services failed to reach all the potential beneficiaries in too many cases. The reasons for such a failure varied. In some cases, the prior appraisal of needs was incorrect. When the needs were correctly assessed, the subsequent decisions over project details, such as sites, components, total investment costs and technical specifications, were either ill-conceived or misguided. Even in those cases in which the needs and the project details were correctly appraised and aptly designed, the facilities were sometimes forced to terminate their service because of poor operation and maintenance.

These problems have always been known to exist, but they have never been fully and squarely dealt with. Japanese ODA has been increasing the project budget allowance for financing part of operation and maintenance costs, but is still probing the better and more effective way to solve the issue of poor operation and maintenance. Part of the reason is reportedly that the construction of new facilities makes the presence of Japanese aid more visible in the recipient countries than the financing of recurrent expenditure on operation and maintenance, and that it is considered more easily accountable among the cadre of ODA decision makers to approve the budget allocation for new physical structures than for the multi-year recurrent commitment.

Negative Impacts of Infrastructure Development

Some cases of infrastructure development are reported to have created a variety of negative impacts. Some projects involved the relocation of local inhabitants at the site, and these people were made to suffer worsened livelihoods by dislocation. Other projects had the serious negative impacts on local habitats and irreparably damaged surrounding ecosystems. Some projects involved the issues of good governance: namely, corruption in selecting project sites or in evaluating tenders, rigging or other unfair practices against competitive bidding and so forth. In other cases, the overestimated demand for service led to the inflated project costs, which subsequently placed a heavy burden on the government budget in the developing country concerned.

On-going Efforts

Reaffirmed Importance of Infrastructure: Infrastructure is essential not only to support economic growth but to improve various dimensions of human existence, notably the eradication of pervasive poverty. Behind the reaffirmation of infrastructure lies the realization that it is difficult to attain sustainable development by the investment in social sectors alone. In those developing countries with minimal growth, moreover, it is hard to expect their governments to invest either in the new provision of social infrastructure or in the substantial improvement of existing social services.

Actions to Reduce Infra Gap: With growing awareness of the absolute shortage in infrastructure stock, donors have been discussing the importance of effective policy incentives for promoting private investments in infrastructure and the pivotal role of the public sector in the provision of core infrastructure.

Understanding and Identification of Needs: Many donor institutions and NGOs have been seeking and devising suitable methods and techniques to identify and put together the varying needs of infrastructure development. Of special note are the on-going efforts to establish appropriate approaches to small-scale infrastructure development.

Effectiveness of Services: Efforts to realize and sustain the full effectiveness of basic infra services have led to the multi-pronged approaches to the investment in infrastructure, with concomitant development of appropriate institutions, organizations and human resources.

Mitigation of Negative Impacts: With growing recognition of the negative impacts of infrastructure development on local communities and natural habitats, major bilateral and multilateral donors have begun to regulate project design and implementation more closely. They have strengthened their guidelines for environmental and social considerations. Some of them have decided to maintain the transparency of decision making in the process of project formulation and implementation.

On-going efforts briefly mentioned above are meant to raise the effectiveness of infrastructure projects. These approaches have found new issues that call for proper attention in the future infrastructure development.