

SOCIAL ASPECT

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Summary

The integrated development of waterworks and sanitation is important not only in urban areas, but also in rural areas. After the development of the water supply and sanitation facilities, the most important issue is the sustainability of water supply and sanitation services in order to encourage the willingness to pay of communities.

Increased accumulation of infrastructure leads to the increase in Gross Domestic Product (GDP). Therefore, the planned infrastructure development is inevitable to advance in the economic growth.

However, the accumulation of infrastructure alone is not sufficient for economic growth. It is important that proper infrastructure should be developed at the proper time depending on which stage of economic growth the countries stand.

There is a wide range of waterworks from small-scale waterworks for providing drinking water to multi-purpose large-scale works.

The following items need to develop an appropriate institutional management (1) development of legal system, (2) payment by the users as beneficiary, (3) interest in meter management system by the waterworks companies, and (4) human resource management.

1. Introduction

The condition of water supply system in developing countries, both the coverage to total population and the quality of services (water pressure, quantity and quality of water, service time water is supplied, etc.), are not satisfactory. Additionally, the condition of sanitation such as sewerage or septic tanks as well as toilet facility is worse than that of water supply. Therefore, simply development of water supply or sanitation system can hardly achieve the whole improvement of hygiene of life environment, including the prevention of inundation, vector insects such as flies and mosquitoes, and water-related infection. Moreover, not only the developments of facilities, but also the ‘software’ remedies, such as promotion and enlightenment of knowledge of health and hygiene, are also necessary to improve for the whole hygiene of life environment.

The integrated development of waterworks and sanitation is important not only in urban areas, but also in rural areas. In general, it is more important in rural areas, since they are economically handicapped. After the development of the water supply and sanitation facilities, the most important issue is the sustainability of water supply and sanitation services in order to encourage the willingness to pay of communities.

2. Priority of water supply and sanitation

According to the reports by the World Bank shown in Figure 1, there is a positive correlation between the development of infrastructure and economic growth. It has been reported that increased accumulation of infrastructure leads to the increase in Gross Domestic Product (GDP). Therefore, the planned infrastructure development is inevitable to advance in the economic growth.

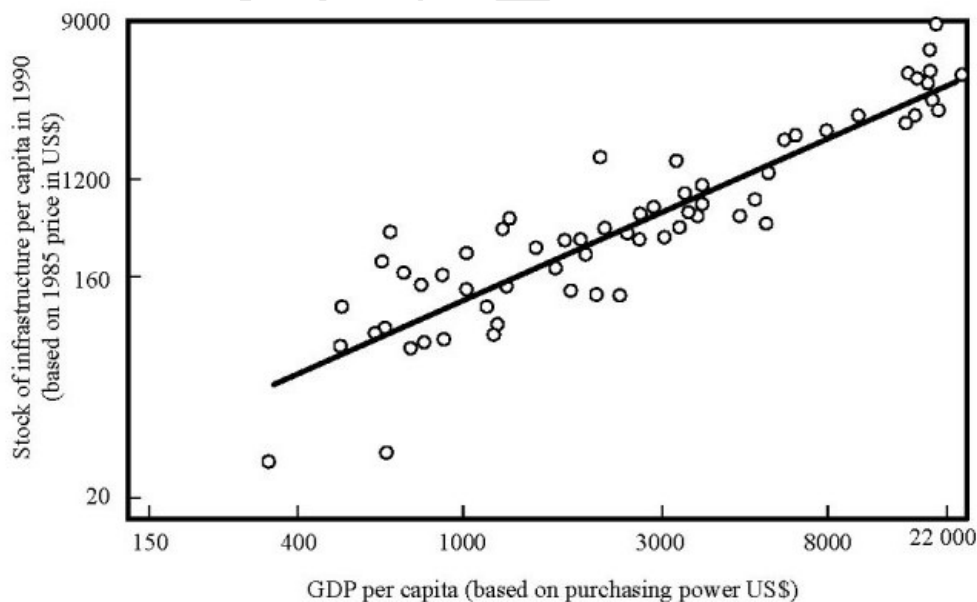


Figure 1: Increase of GDP and infrastructure

However, as a matter of course, the accumulation of infrastructure alone is not sufficient

for economic growth. It is important that proper infrastructure should be developed at the proper time depending on which stage of economic growth the countries stand. As seen in Figure 1, there are differences in the accumulation of infrastructure in different countries while their GDP levels are approximately the same. Sometimes accumulation of infrastructure does not smoothly lead to larger production.

Figure 2 shows “the changes in infrastructure components due to the differences in the country’s income level.” Infrastructure is a basis for production activity, and there are two kinds of infrastructure, i.e. economic one and social one. The former includes roads, railways, ports, communications, and electricity, while the latter includes insurance, water supply, sanitation, and public schools. According to Figure 2, order of infrastructure development is determined by the degree of range it covers. The smaller the range, the earlier the order is. Thus irrigation comes first, water supply second, then railways third. Similarly, the wider the range, the later the order is, and this includes communications, electricity, and highways.

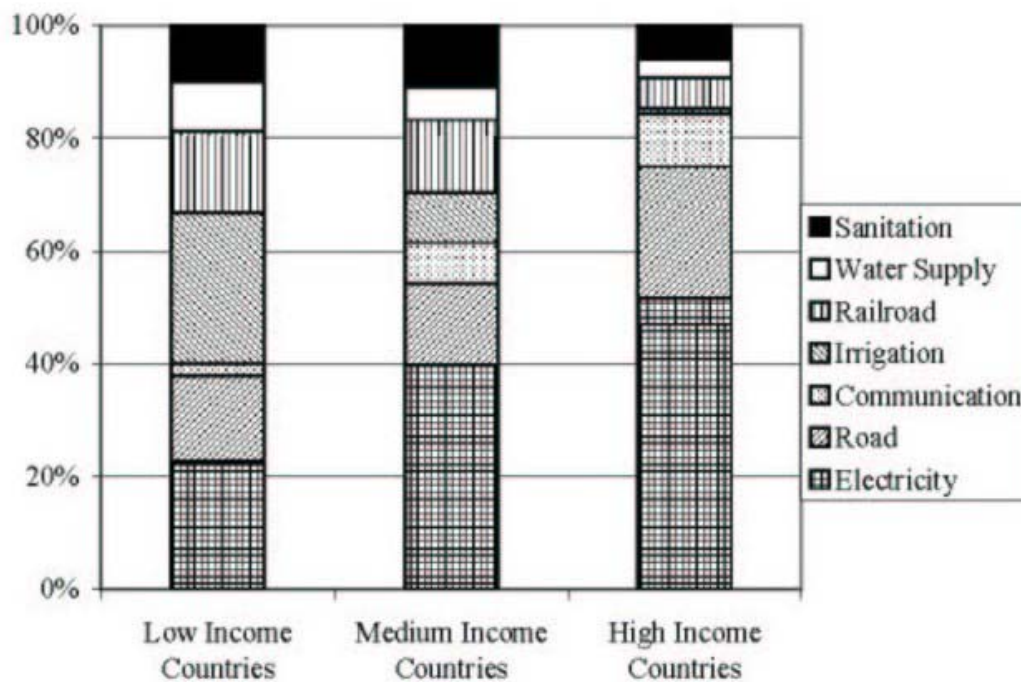


Figure 2: Comparison of infrastructure stock by income level

The figure also shows that the rate of water supply is approximately nine percent in low-income countries, six percent in medium-income countries, and three percent in high-income countries. The percentage decreases as the economy grows. It is clear that its development is focused on during the low-income stage. Such tendency is most prominent in irrigation, and water supply comes next in development order for infrastructure. However, it only holds approximately nine percent of actual investment spent on infrastructure in low-income countries, which is a very small percentage for its earliness in development order. Waterworks is regarded as a Basic Human Needs (BHN), and the amount of aids for the field is steadily increasing. Their propriety is doubtful, however, considering from a development economic view.

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Bibliography and Suggestions for further study

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Biographical Sketch

Yasumoto Magara is Professor of Engineering at Hokkaido University, where he has been on faculty since 1997. He was admitted to Hokkaido University in 1960 and received the degree of Bachelor of Engineering in Sanitary Engineering in 1964 and Master of Engineering in 1966. After working for the same university for 4 years, he moved to National Institute of Public Health in 1970. He served as the Director of the Institute since 1984 for Department of Sanitary Engineering, then Department of Water Supply Engineering. In the meantime, he was also obtained the Ph.D. in Engineering from Hokkaido University in 1979 and was conferred Honorary Doctoral Degree in Engineering from Chiangmai University in 1994. Since 1964, his research subjects have been in environmental engineering and have included advanced water purification for drinking water, control of hazardous chemicals in drinking water, planning and treatment of domestic waste including human excreta, management of ambient water quality, and mechanisms of biological wastewater treatment system performance. He has also been the member of governmental deliberation councils of several ministries and agencies including Ministry of Health and Welfare, Ministry of Education, Environmental Agency, and National Land Agency. He meanwhile performs the international activities with JICA (Japan International Cooperation Agency) and World Health Organization. As for academic fields, he plays pivotal role in many associations and societies, and has been Chairman of Japan Society on Water Environment.

Professor Magara has written and edited books on analysis and assessment of drinking water. He has been the author or co-author of more than 100 research articles.