

# Reconsidering the National Land and Social Infrastructure

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*(Key words) National land, social infrastructure, population decline, falling birth rate and aging of society, next-generation*

## 1. Introduction

I recently had the opportunity to tour the Science Museum of Map and Survey at the Geographical Survey Institute. One of its many exhibits is the Earth Plaza, a popular attraction which provides visitors with the actual feeling of seeing the Japanese Archipelago from an artificial satellite on an outdoor 22m diameter spherical map, which includes the entire domain of the national land of Japan (cut from a giant terrestrial globe). It is reported that many visitors are deeply impressed by this exhibit. I was, of course, also deeply moved. It motivated me to reconsider, from a brand new perspective, the ideal form of the national land and social infrastructure, which are usually considered from the ground level perspective.

As the population, car ownership, and various other indices are declining, Japan has entered a new era. The social economy suited to a shrinking population is now widely discussed. I would, therefore, like to take a fresh new approach to the question, “How should the national land, where nearly 130 million citizens are living their lives, be managed?”

## 2. Our domain as the foundation of social infrastructure

The foundation of the nation is probably constructed on its land. Consequently, maintaining this domain in stable condition must be considered as part of social infrastructure. Japan seems to be recognized as a small country consisting of many islands enclosing a large sea area, but in actuality, it possesses the world’s sixth largest exclusive economic zone (EEZ), and the natural resources existing in this zone have attracted international attention. This is the reason why maintaining the stability and protecting the coastlines, being essential to maintain the EEZ, should be continued. Words such as “domain” may sound exaggerated, but it is well known that a road network, which symbolizes infrastructure, was constructed and maintained by the military of the Roman Empire primarily to protect its expanding domain.

In addition to considering this matter in this way, it is important to consider whether or not our domain will, through the improvement of the social infrastructure, become user friendly as the foundation of the lives and activities of the people. In other words, how will it efficiently and reliably support economic

activities with international competitiveness? Or will it allow us to maintain natural environments comfortable enough for people to spend their lives safely and securely? From this perspective, we will occasionally have the chance to notice the need to revise existing indices of social infrastructure improvement and ways of representing social infrastructure on maps.

## 3. National land continually collapsing

Viewed from the topographical perspective, most of the land of the Japanese Archipelago consists of steep mountains protruding from the ocean surface. These mountains have, since ancient times, continually collapsed under meteorological impacts produced by heavy rainfall and sunlight. It includes places where soil collapsed and discharged from the mountains has finally settled and, over a long period, formed gently sloping land., where people have settled by cultivating the land. They are ephemeral plains created originally by the collapse and run off of mountains, so stabilizing them is acting against the natural force of nature, and we are forced to continue to battle this process. The Japanese Archipelago exists in a high earthquake frequency zone where a number of plates collide and annual typhoons arrive like uninvited guests, causing the destruction of the national land.

The history of flood control in Japan, which is almost synonymous with containing the flow of water and sand in usually unusable space such as river areas, can be called a record of a fierce struggle to overcome the forces of nature. In the face of a continuous population decline and ongoing financial pressure, we have to rack our brains from a variety of perspectives to decide how to efficiently manage the continuously changing national land.

## 4. River basins and transportation infrastructure

Continuous rains and collapsed soil form river basin topography along the course of the flowing water. It is not so difficult to envision, from the perspective of water use, how a culture matured through agriculture, and its economy has been created and developed as river basin units. But when you try to travel from one river basin to another, you are unfailingly forced to travel over mountains. So in Japan, transportation has historically been developed on water, while that on land developed later, remaining poor until recent

years.

So many railways, roads, and other land transportation systems in Japan are often constructed in river basins, that the maintenance of these structures must attempt to preserve the national land from landslides, slope failures etc., especially in mountainous regions. If these structures are built along the sea coast to avoid these threats, salty sea spray causes harsh corrosion, shortening their lives. A battle with landslides on National Highway 112 Gassan Road and with salt damage to concrete bridges and slope collapses on National Highway 7 along the coastline help me recall my impressive experiences at the Tohoku Regional Bureau, Sakita River and Road Office almost 20 years ago. An overview of the management of Japan's national land can remind us how the social infrastructure has been provided under harsh national conditions.

#### **5. Considering the population decline, falling birth rate and aging society**

As mentioned above, the population of about 130 million people now living on the national land has begun to fall. The National Institute of Population and Social Security Research has predicted that the population of Japan will drop below 100 million around 2050. And according to another report by this research institute, the population of Asia and the entire world population including that of Africa will both peak at the same time in 2100.

So, setting aside discussions of the estimated population size and of the population appropriate for the national land, perhaps the configuration of the population of Japan in 2050 will display a certain constancy in line with its low birth rate. Whether or not the structure of the population returns to its previous pyramid shape, the structure of society will probably change accordingly. What this structure will be must be discussed, but a more serious question is how we are to live for next 40 years. In other words, to deal with this structure, which will be extremely top heavy under the impact of the falling birth rate and aging of society, we must complete the renovation of the nation to adapt it to future conditions, through the firm support of economic activities under the burden of huge welfare costs.

So, we must reconsider what sort of social infrastructure to establish and how to operate it so a reduced population can use it effectively and easily. It will definitely be impossible to construct good infrastructure with high costs and with the large quantity of labor which will be needed for its maintenance, considering the poor energy efficiency of its use. I think that this is a strategic research challenge.

#### **6. Conclusion**

Now in this age of population decline, the

improvement of social infrastructure is being replaced by its management and its use. The necessary conventional economic policies are no longer effective under deflation and declining growth, and the conventional economic indices are also ineffective as tools for national land management.

A new book titled *Theory of Japan as an Outlying Country* is now a best seller <sup>1)</sup>. An example of *Nihonjinron*, which means writings on the theory of the uniqueness of Japanese people, it argues that the main stream of scholarship or religion has always been elsewhere, and that Japan, an outlying country from the world's perspective, can only be considered impertinent to do its utmost to try to become a model. It correctly points out the principle of behavior by Japanese people, and that the time has come when we must consider the fact that there are no models in other countries. The global standard has simply been the American standard or the Anglo Saxon standard, rapacious capitalism without morality, a lack shown in the process of sub-prime loans ending in Lehman shock. Japan has existed as a unique civilization up to today because, although it has continually accepted Confucianism, Buddhism and other inflowing cultures from outside the country, it has been able to discard aspects which do not match its essential character to accept only that which is suitable and beneficial.

As you watch only sensational news, you might have noticed the fact that the food, fashion, comics, animated movies and other aspects of the culture of the younger Japanese generation are imitated around the world. When considering the future social infrastructure, you had better realize that its users are the next generation.

#### **References:**

1) Uchida Tatsuru: *Theory of Japan as an Outlying Country*, Shinchosha, November 2009