
Desirable Communities in a Few Decades

--- Consideration as an Engineer Facing a Period of Maturity ---

OMATA Atsushi, Director-General, National Institute
for Land and Infrastructure Management

1. How to draw a picture of community / land

After devoting several years to the cause, the National Institute for Land and Infrastructure Management (NILIM) established a firm research policy and, following an evaluation of institutions conducted last year, introduced a framework for performing R&D activities at home and abroad. In reference to the opinions received from the Evaluation Committee, we need to implement reviews and improvements constantly. Meanwhile, new viewpoints of R&D in the housing and social capital fields have been broadly discussed in the Round-Table Conference on Basic Policy ¹⁾ of the Social Capital Council, etc. Various new concepts and technologies have appeared, including smart city, MaaS, IoT, and AI. However, how do we draw a future picture of our land or community realized via the research, development and installation of these technologies? This subject is discussed in this paper in the background of recent socioeconomic development, which is said to have entered a stage of maturity.

Housing development and the provision of other social capital in postwar Japan has repeated a pattern of first securing a construction site and then starting construction on a vacant lot. In other words, this approach is similar to drawing a picture on a white canvas. The facility is designed and constructed in accordance with a certain concept / plan -- a picture to be drawn. This is considered reasonable for a growing society.

However, since Japan's socioeconomy is said to have entered a stage of maturity, various issues have arisen, including the deterioration of social capital, the revitalization of vacant housing and new community development. Hence, how to use and

change existing stock in a future society has been often discussed. That is, the issue is how to retouch an old picture so that it looks new. If the only concern is to maintain the functions of individual facilities, it suffices to explore technologies for each facility in light of advanced design standards, etc. However, to redraw the picture, engineers require a target, such as whether to repair or remove a bridge or what the streetscape should look like in relation to the entire community. Do we have the technology to redraw a community to a targeted future image? Discussions are often made about community development for regional vitalization, addressing for example a group of buildings in the historic district, streetscapes in the Taisho Roman style, and shopping arcades from the Showa era. In such streetscape development using existing stock, it is often easy to share a future picture of a community. However, the basis for this is due in part to a streetscape from early modern to modern times being left either intentionally or accidentally in a community. Historically, streetscapes in Japan have changed because of repeated destructive damage across a broad area due to war, natural disaster, etc. partly because buildings were mostly built of wood. Consequently, there are almost no old streetscapes that have survived over several centuries like in Europe and elsewhere. This is believed why it is difficult to draw a future picture of a community that everyone can agree to. Now that various streetscapes exist under a mature socioeconomy and the maintenance, renovation and reuse of individual facilities are being discussed and implemented, it would be greatly significant for engineers to consider an "ideal" picture of a good streetscape that would last long into the future. Isn't it

important, even in the meaning that engineers have a source of vitality for R&D, to consider a target picture of community where residents 100 years after would feel that they live in a good town?

The same also applies to the natural environment as the base of streetscape. The land of Japan is small and the plains where the present socioeconomic activities concentrate have been formed in only the two thousand years after the Jomon Era. Human activities have existed since the formation of the ecosystems in these plains. In addition, in the mountainous land of Japan, many human activities have been conducted and forests have been used since the Jomon Era. As a key word in nature conservation, *satochi-satoyama* (community-based forest areas and the surrounding countryside) appeared a long time ago, so the natural environment that fostered Japanese society has been groomed for the most part by human activities. At present, however, there are no longer human activities like before in the *satochi-satoyama* (including rivers) due mainly to the progress of urbanization, and it is changing into a new natural environment. Engineers in the housing / social capital field should scientifically discuss how Japan's plains and natural environment of peripheral mountainous land will change also in respect of sustainable management of future lands and communities. Particularly, since there is growing concern over climate change, it would also be a technical challenge to consider future communities and sustainability concerning management of social capital that is present with natural environment, based on discussion on what kind of natural environment can be established in the plains of Japan.

2. Local communities and their functions

While disasters occur frequently, there is a discussion about the fact that many residents do not evacuate even when an evacuation order is issued. In this discussion, focus is placed on the relationship between the function of local government, which issues evacuation orders (public help), and the function of individuals who evacuate (self-help). However, it seems that the function of the local community (mutual help) that lies

in-between local government and individuals has not been discussed in recent years.

Not only the viewpoint of bearing mutual help for encouraging evaluation of individual residents, but local community can have various functions for community development and maintenance / management of social capital such as setting of community development objectives suitable for the community or participation in sustainable maintenance of social capital. When aiming to form good streetscapes and living environments in Japan tens of years or a century from now, it is possible to consider a social system where the local community maintains the social capital including roads, rivers, and parks and revitalize existing streetscapes through frequent use of public space. It has been a long time since the collapse of the local community first attracted attention, but it would be necessary to establish a new relationship between government and the local community in order to build such a social system. So, what entity can be established as a new local community? As the *satochi-satoyama* was formed based on the relationship between nature and the local community, which existed as a socioeconomic system at that time, what will be a sustainable socioeconomic system where the local community is involved with new land or community management? This is an issue that should also be considered in regards to a local community that supports future community development, and maintains and manages social capital.

The discussed topic might be a little specific as an opening message of the NILIM Report, but the R&D challenges in the housing and social capital fields seem to be still full of possibilities, including new technologies.

☞ See the following for details.

1) Interim Report of the Round-Table Conference on Basic Policy for Land Transport Technical Administration: Panel on Infrastructure Development / Council of Transport Policy, Technical Subcommittee, Technology Group, Round-Table Conference on Basic Policy for Land Transport Technical Administration, Nov. 2018
<http://www.mlit.go.jp/common/001260362.pdf>