

National land and infrastructure in a time of low birth rates, aging and declining population

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1. Population problems as a condition for national land management

When considering the management of national land and infrastructure, it is essential that we keep abreast of changes in various conditions in the background to prepare related technological policy.

However, they have been rapid of late, often moving into uncharted territory.

For example, the borderless international economy and rapid expansion of newly emerging countries have invalidated many conventional economic theories which were established regarding domestic matters.

The primary target of NILIM's research is to decide how we should manage national land and social infrastructure. Therefore I think that addressing not only international economic trends and long-term climate change but also rapid aging and population shrinkage are some of the major challenges we are facing. Here, I would like to consider trends in Japan's population shrinkage and what they signify, as well as stating my personal views on two or three remedial measures.

2. Views on demographics

On February 25th, the Statistics Bureau of the Ministry of Internal Affairs and Communications published its preliminary report on the 2010 National Census. In it, the population of Japan was said to have grown slightly by 288,000 or 0.2% compared to the previous survey in 2005. But I think a closer scrutiny will prove that the population is falling. According to the National Institute of Population and Social Security Research, Japan's population peaked in 2007 and is expected to fall below 100 million (around 80% of today's figure) four decades later in 2050. Judging from this prediction, the simple impression might be that Japan's population will gradually turn to a decline from now on.

However, a recent bestseller¹⁾ asserts that Japan's economic growth is related not to the total population but closely to the working population (people aged 15-64), as they are the main players in personal consumption, which accounts for 60% of GDP. The book also presents the shocking truth that this population in fact peaked in 1995 and has already decreased by around 9%. By 2050, moreover, it will have fallen to less than 50 million, a decline of 45% compared to the peak of 87 million. This can be

interpreted as showing that, to maintain the nation's vitality, we need powerful economic policies that can reverse the tide of decline in the working population.

In this paper, I focus on the "advanced elderly" (those aged 75 or over), who account for the majority of personal assets among those over the pensionable age (65), with the prediction that their number will approach 24 million by 2050. While most people aged 75 or over are assumed to be in an age cohort requiring support in a variety of situations, this means that there will be no choice but for the rapidly declining working population (i.e. active generations) to support the rapidly increasing advanced elderly generation while attempting to sustain and energize the national vitality, particularly economically. This means, in turn, that we need to implement national land management designed to rebuild social infrastructure in ways this requires.

3. Scope of maintaining and energizing national vitality

To maintain high vitality under the shrinking population, it will be necessary to make the infrastructure produce added value efficiently in an effective state for users at all times. To this end, I would like to propose that the completion of expressways, currently under development, be pushed forward to keep them functioning as road networks. By so doing, we should establish a globally unique road infrastructure that harnesses leading-edge technology in Japan²⁾.

There is a considerable expectation that electric vehicles (EV) can help to usher in a low-carbon society, with zero emissions (although depending on the power generation method). Recharging facilities are therefore already being built, and EVs are expected to be diffused rapidly. There are still many issues to be tackled for EVs to travel long distances; for example, high-performance batteries are expensive and limited in their capacity, and in addition, the recharging process is time-consuming. The batteries are also heavy, and this will cause difficulties in diffusing them for use in cargo haulage.

Nevertheless, the technology for supplying electric energy to moving EV from roads already exists as an infrastructure. There are several different technologies for non-contact transmission of electric energy, and if the method known as electromagnetic resonance (not induction) is used, it will be possible to supply energy

to vehicles some meters away by consecutively aligning coils on the road surface or in the median strip. In a case where energy is supplied from the road on expressways and vehicles on ordinary roads are powered by batteries, the EV systems will be diffused dramatically.

Systems of charging fees for the power consumed have already been developed to some extent, having been produced in conjunction with ITS technology. If these are combined with truck platooning technology for trucks, high-precision GPS using quasi-zenith satellites, and others, automatic transit of freight haulage vehicles might no longer be a pipe dream. While a contribution in environmental terms is assured, there is also potential for wave effects, such as solving manpower shortages in the distribution sector amid population shrinkage, reducing long working hours, and so on. Reducing costs in domestic haulage may even lead to increasing their competitiveness in national activities.

4. Scope of Quality of Life (QOL)

The aging society also means a long-living society. There is room for study, from the view of infrastructure, concerning ways to ensure that a longer life can also be a happier life. Decisive factors in QOL are, for example, whether or not a person can move about freely even in old age. Considering that many of the advanced elderly stop driving cars, it would be better for them to live convenient to public transport services.

Although much discussion has already been held on the rationale of compact cities, it is not easy to present a universal panacea, because cities all differ in their scales and existing transport infrastructures. But considering the simple maxim that “it should be the elderly who live in places where public transport services are convenient”, society as a whole will be expected to gradually move in such a desirable direction.

And if you were to give up the preconceived notion that station plazas are places for busy shopping malls, and remodel the vacant shops on shuttered streets into old people’s homes or other welfare facilities, the provision of public services would also be made more efficient. Moreover, a population of station front residents would make it easier for a certain level of commercial facilities, supermarket delivery services and others to become established. And if community buses and other local transport termini were established there, it would certainly attract regular users. Setting up nursery schools and other facilities at the same time might also be expected to have synergistic effects on these areas. Delivering such services in and around buildings located at large stations is also possible using the infrastructure.

5. Scope of mitigating natural disasters

In readiness for natural disasters, emphasis has long been placed on the concepts of self-help, mutual help

and public help. Until now, these have been keywords for finely focused evacuation guidance, etc., at times of natural disasters. But when considering the sharp decline in the working population as bearers of mutual help for the rapidly increasing advanced elderly, we have to consider how we can reduce their burden. This kind of situation often pertains in mountainous regions that contain depopulated villages. While it is essential for advanced elderly who require evacuation support to live in places that are safe and easily accessed by support services, and collectively if possible, to achieve this, efforts are surely needed to inform people that reducing the burden of “mutual help” is an act that leads to “self-help”.

6. Conclusion

We will never understand the essential meaning of the population shrinkage if we only consider total population. Most opinions on future population are the product of wishful thinking. However, the working age population in, say, 15 years’ time will only be augmented by younger people who have already been born, and has therefore already reached its peak value. This means we have to think out various measures to deal with this matter, so our eyes must be firmly focused on the facts.

Finally I hope we will not forget that the future composition of our population not only consists of target recipients of welfare but is also a prerequisite for proposing policy.

(References)

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