

## Effort to keep number of field surveyors

Masaru KAIDZU, Japan

**Key words:** Vocational school, Survey Act

### SUMMARY

Field Surveyors are the key group to implement survey. In Japan, there are basically three ways to become a licensed surveyor. Through education in universities or colleges, through education in registered vocational schools, or through examination. Recently, due to decrease of young population and diversity of job field in modern society, high school students who want to enter vocational schools have decreased. Presently number of students who enter vocational schools are stable in low level.

Graduates of vocational schools are trained more in field practice compared to university graduates. Human resource is always a big issue to meet demand of construction and survey on site. In response to strong demand of survey companies, Survey Act was amended. We can now update contents of course easily to fit for advancement of technology. We hope this change will attract more students in survey field....

### **SUMMARY (optional summary in one other language in addition to English, e.g. your own language)**

Type the summary in the second language here ...

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## 1. Surveyors are working for disaster resilient society

There are many countries where earthquake, typhoon or strong cyclone frequently occur and suffer from natural disaster. Being located in monsoon area and also located in tectonic plate boundary, Japan is not an exception. We suffer from earthquakes, volcanic activities, flood, land slide typhoon and tornado. For example, on the new year day, Noto peninsula area (Japan sea coast) was hit by large earthquake. Source faults are located just under northern part of peninsula. Roads and Rail ways are damaged. Maximum 4m of land uplift was observed. As a result, seashore retreated, and some ports lost enough depth. Other than corrupted buildings, fire, damaged infrastructure, lost access from both land and sea prevented quick recovery. It was just at the end of August that troops of Self Defense Force end their mission of rescue on site. Under such situation, survey companies in and around the damaged area worked very hard for survey and record deformation of ground and infrastructure. After the disaster, we must record the situation numerically. Through such numerical data, we can find the reason of damage and take necessary measure to prepare for next natural disaster. Surveyors who work on sites are the key factor of such activities.

## 2. Shortage of human resources

According to the survey carried out by Geospatial Information Authority in 2017, Only 40.7% of survey companies answered both surveyors and assistant surveyors are fulfilled. Majority of survey companies are facing a problem of insufficient technical staffs.

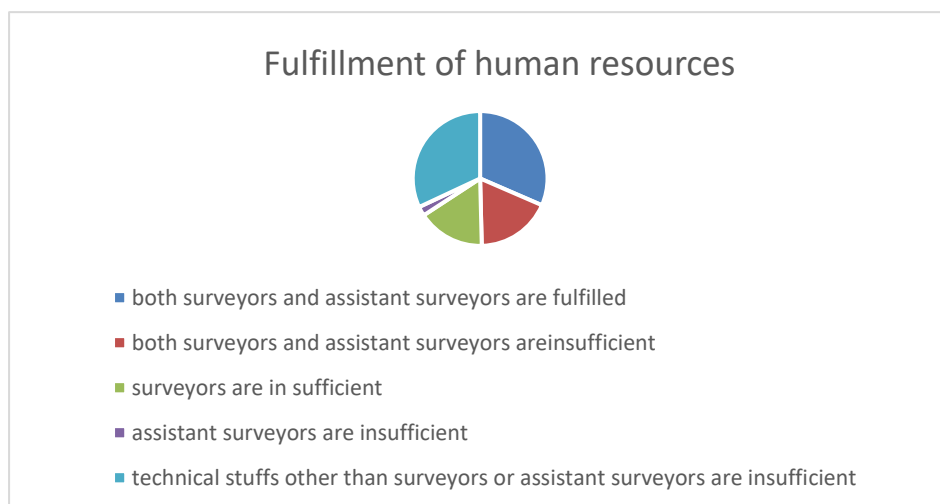


Figure 1. fulfillment of technical human resources in Japanese survey companies after Geospatial Information Authority (2019)

In order to solve such problem, we can either increase number of licensed surveyors or increase number of young people who learned surveying as a part of the school education and work for survey companies.

**2.1 Decreasing population in young generation**

Increasing number of surveyors or ratio of surveyors work for survey companies also face the problem of decreasing population especially in young generation. Figure 2 shows temporal variation of Japanese Population after “e-stat” (open data by Japanese government).

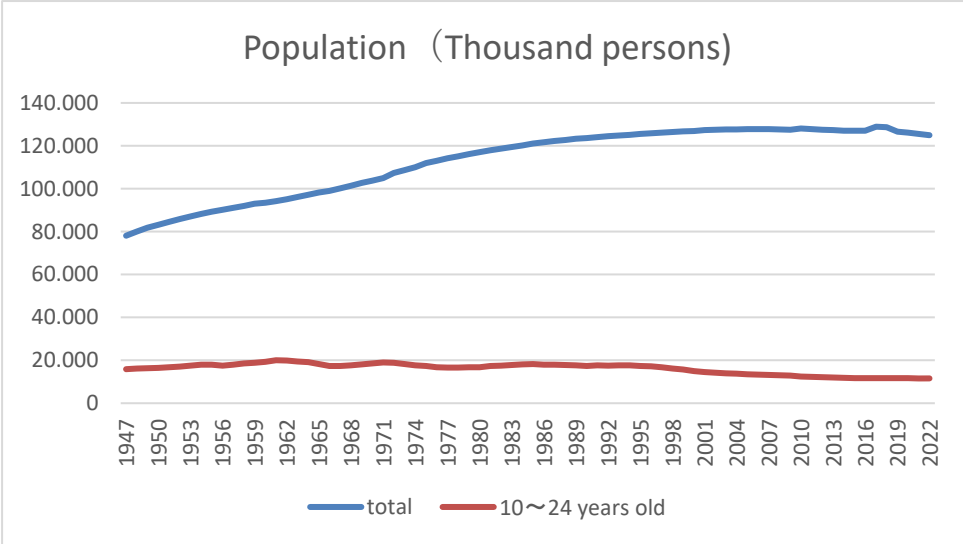


Figure 2. Temporal variation of Japanese population After Government of Japan. e-stat (2023)

The figure shows total population started decreasing ca. 2017, population of school and university age start decreasing in ca. 1990. It means we must compete with other field of job occupation. The situation is not easy. Anyway, we are trying to increase opportunity to be surveyors or assistant surveyors.

**2.1 Young people's views on work**

There is a series of surveys conducted by the Japan Productivity Center from 1969 to 2019 on the vocational views of new employees. Figure 3 shows changes in the purpose of young people’s work (Japan Productivity Center (2019)).

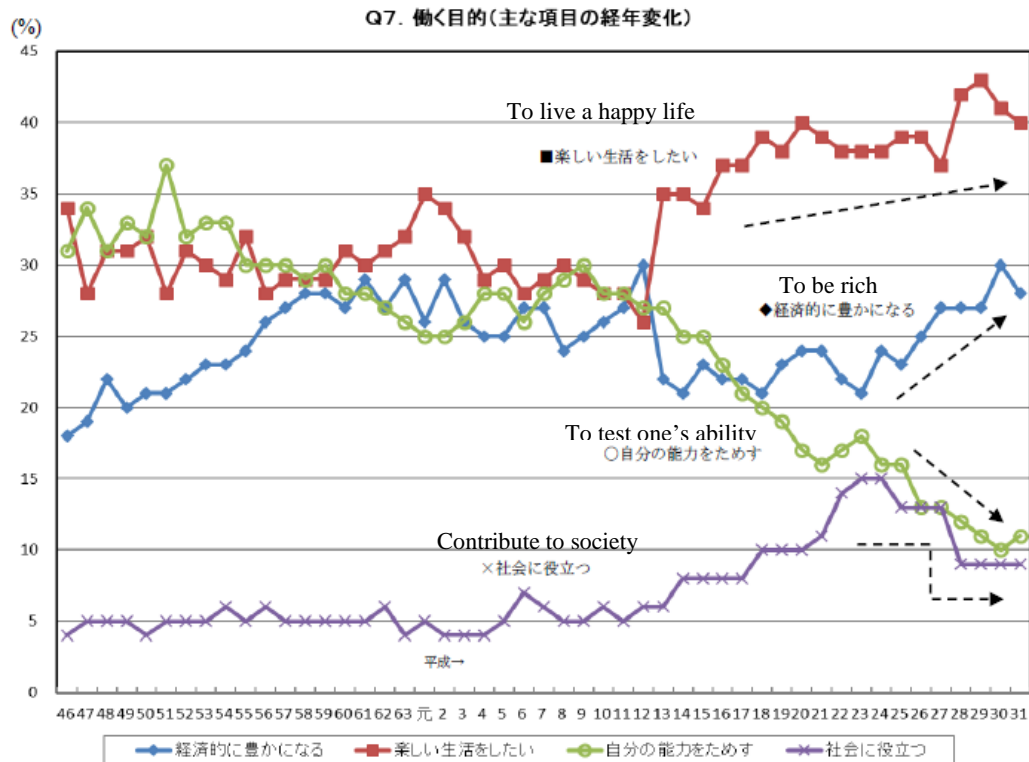


Figure 3. Time series of young people’s Purpose of working After Japan Productivity Center(2019)  
Numbers on horizontal axis is a year in Japanese calendar

Horizontal axis is in year that covers 1971 to 2019. There are 3 major epochs. One is 1984. From this epoch, “To be rich” stopped increasing. In 2001, suddenly “Live a happy life” increased and at the same time, “contribute to society” start increasing and “test one’s ability” start decreasing. In 2012, “To be rich” start increase again and “contribute to society” start decreasing.

To check whether the trend is continuing, we used the result of survey conducted by Sony Life Insurance Company in 2024. Samples are 1000 newly employed and 2nd year employees. The survey result shows only 56.4% of newly employed and 47.2% of 2nd year employees answered “Yes” to the question ”Do you want to be promoted to more than director of division?” (Sony Life Insurance (2024)). It seems about half of young people prefer living a happy life rather than promoted to be a manager. The tendency is same as the result of the survey of Japan Productivity Center. Form these, we should assume young people value happy life. The payment is of course important in their preference. Once they start thinking of contributing to society but increase of ratio of those who value contributing to society recently lost momentum. Even so, about 10% of young people think that working is for contributing society. That is a relief for old generation like me., It is nice that recent technological advancement made us meet this

demand. We can get the same geoinformation in shorter time than before. Young generation enjoy better work life balance recently. Public image of surveying may be still a little outdated. It is important to show people including parents of students that surveying is a good profession. At the same time, we should increase number of students in survey course both in universities and vocational schools so that they select a surveyor as their profession.

**2.2 Way to get a Surveyor/Assistant Surveyor License**

In Japan, there are 3 ways to become licensed surveyor/ assistant surveyor. Main route is through education in universities and colleges. Other is through education in registered vocational schools. The remaining way is to pass the examination. Figure 4 shows steps.

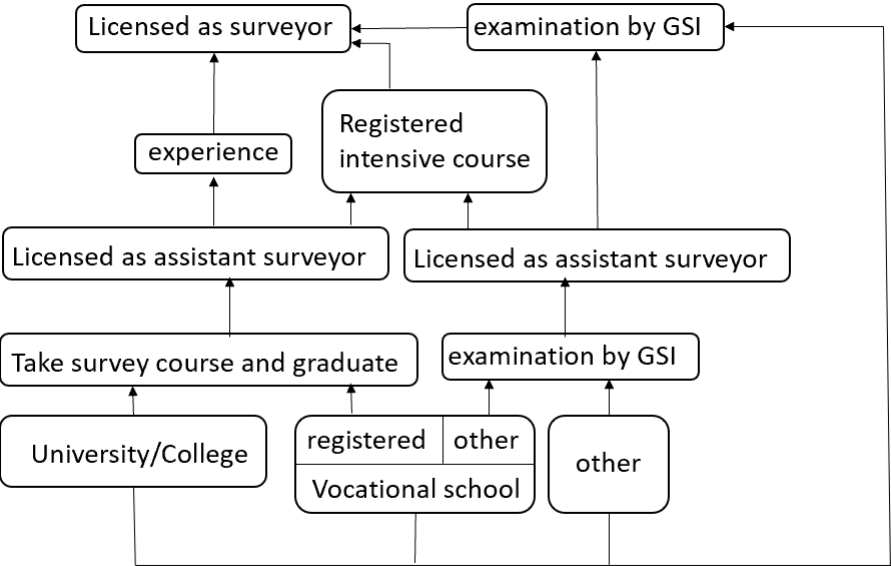


Figure4. Way to obtain license of surveyor or assistant surveyor  
Simplified diagram based on Survey Act.

As the number of newly licensed assistant surveyors, university/college graduates are large. However, registered vocational schools are much more concentrated in survey. Their curriculums are more practical, and the students go through more practice. Those graduate registered vocational schools are quite attractive for survey companies. When those graduated a registered vocational school seek for job in survey companies, they can select a company from long list.

**2.4 Registered vocational schools**

Among vocational schools, some of them are equipped with sufficient instruments and equipment and teaching staffs are licensed and well experienced and number is sufficient. If their educational condition can meet the requirement stated in regulation based on survey act, they are eligible to be registered as organization for education of surveyors. The graduates of those registered vocational schools can be assistant surveyors when they graduate. Because their education is suit for surveyors, graduates can be licensed surveyors after 2years (real experience in the survey practice) of experience. Thus, registered vocational schools are important pathways for young people who want to start working soon and at the same time classified as “to be licensed surveyor”. In shortest way, high school graduates can be assistant surveyor in one year when they graduate vocational school and become surveyor in additional a few years. It is a very efficient way to be a licensed surveyor. It means that to enhance accessibility to registered vocational schools for young people is one way to increase licensed surveyors. So far, instrumentation, topics, number of class hours, number of qualified teachers were regulated in Survey Act. It is good to keep quality of course but it prevents course curriculum from flexible response to advancement of technology and social demand.

### **3. Amendment of Survey Act**

In 2024 amendment of survey act, condition for organization to educate students to be licensed surveyors was moved from act itself to order of Minister in charge. Minister’s order is a procedure with high authority, and we can expect high quality education in such organization to be maintained. At the same time, when new technology emerged, we can catch up flexibly than before because we do not have to amend Act itself in The Diet. This will make those schools more attractive for young students.

### **4. Conclusion**

Under situation of decreasing population of young generation, we must compete with many other fields to keep work force in survey field. One of important ways is to correspond to young people’s carrier view. Recent advancement of survey technology will ease the problem of work life balance. Another effective way is to increase chance for young people to be licensed surveyors. To do so, it is important that suitable university/ college or registered vocational schools are easily accessible, and the course should be modern and attractive. To support such effort, Survey Act was amended. Now, we can keep watching quality of education as before and at the same time, flexibly respond advancement of technology or social demand. We hope this measure will attract more students in survey field.

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## **BIOGRAPHICAL NOTES**

1951 Born in Niigata Pref., Japan  
1975 Graduate Faculty of Science, Naoya Univ.  
1975-2005 Geographical Survey Institute, Ministry of Construction  
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