

# Improvement of future population and household forecast tool by reflecting user needs and future outlook

(Study period: FY 2019–)

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## 1. Introduction

In January 2017, the NILIM released a future population and household forecast tool (hereinafter “the tool”) that could forecast the number in a population by five-year age groups and genders and the number of households by unit of individual blocks and sections while conventional tools were only able to forecast the population and households in units of municipalities.<sup>1</sup> Many people are now using the tool. This tool has gone through improvements to reflect user needs. As a result of the improvement, Version 2 (2015 National Census Edition) was released in July 2018 with improvements, such as the latest population forecast function based on the 2015 National Census.<sup>2-3</sup> This article introduces the details of the main improvements implemented in FY 2019, the usage status, and the future outlook.

## 2. Main improvements to this tool conducted in FY 2019

### 1) Preparation of quick manual (August 2019)

This tool consists of the following programs: the future population and household forecast program - the main function that performs forecast computations and sub-functions that perform the mesh arrangement of forecasts and display graphs and maps, including the simplified forecast graphing program, the population information mesh arrangement program, and the simplified forecast drawing program. Manuals providing detailed guides to the operation procedures are available for individual programs. Still, many users have commented that reading multiple manuals was such a burden for first-time users. Thus, the *Quick Manual for Future Production and Forecast Tool* was created and released. The *Quick Manual* describes the basic operation procedures so that first-time users can quickly have hands-on experience with the tool.<sup>3</sup> This two-page, A3 size *Quick Manual* describes the flow from setting the target municipality and forecast computation to outputting the forecast as graphs and maps using images of operation screens so that users can visually and instinctively understand the procedure (Figure 1).

### 2) Addition of the number of households forecast computation function (October 2019)

Many users have requested the addition of the number of households forecast computation function. At the time when Version 2 was released, however, the improvement could not be made because the data on the headship rate by gender of the householder, five-year age group, and family category based on the 2015 National Census by the National Institute of Population and Social Security

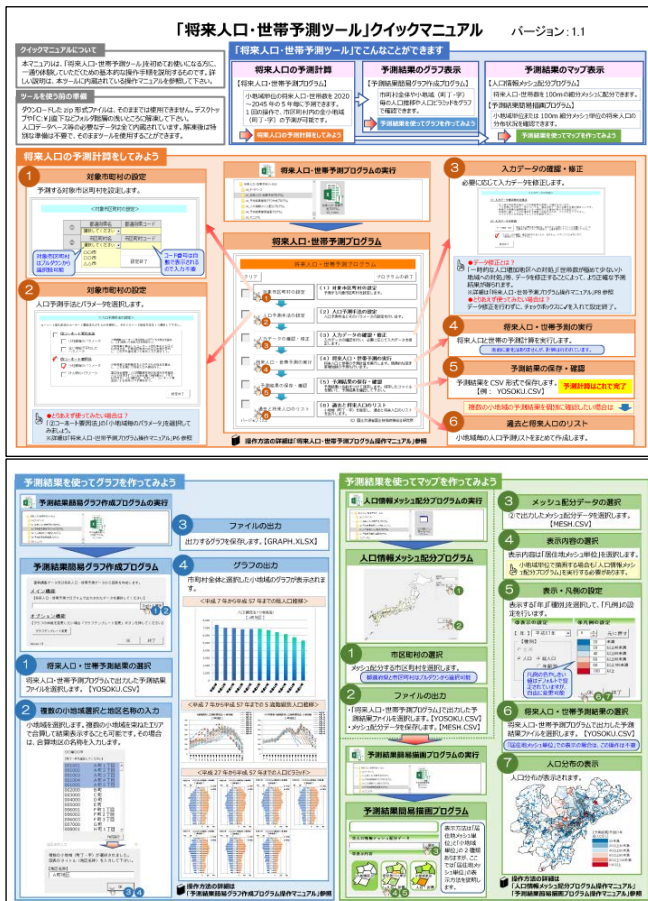


Figure 1: Quick Manual for Future Population and Household Forecast Tool

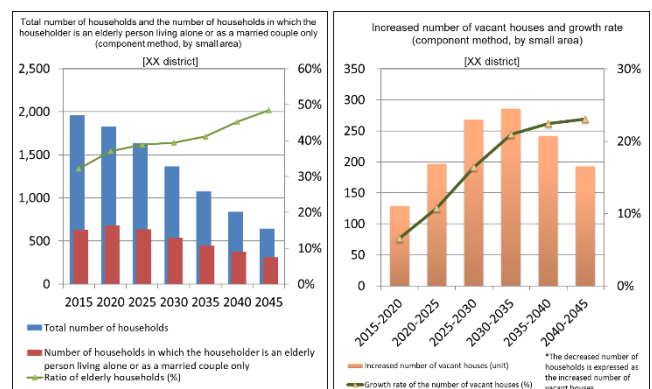


Figure 2: Image of the output of the number of household forecast as a graph

Research were not yet available.

Now that the data are available, an improvement was made to add a function to forecast and compute the number of household, etc. (Figure 2).

### 3. The tool usage status

According to the data provided by the Geospatial Information Center that released this tool, the total number of accesses to this tool was about 4,000 per month, and the total number of downloads has been about 200 to 400 per month. Immediately after the release of Version 2 in August 2018, the accesses reached about 19,000 per month and downloads about 1,200 per month (Figures 3 and 4). The profile of download users is as follows: private businesses (54.6%) - mainly urban planning consulting firms; municipalities (17.0%); and universities and colleges of technology (11.4%) (Figure 5).

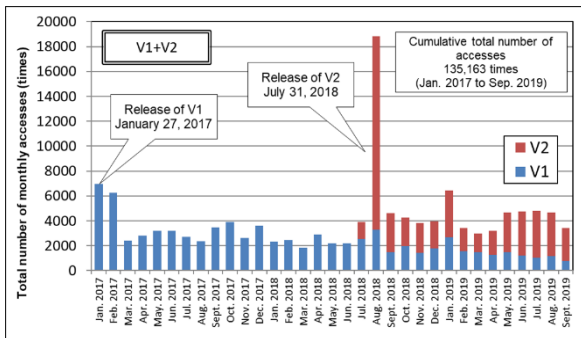


Figure 3: Total number of accesses (created based on data provided by Geospatial Information Center)

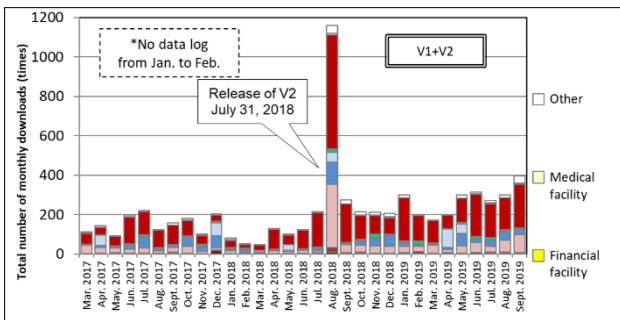


Figure 4: Total number of downloads by user type (created based on data provided by the Geospatial Information Center)

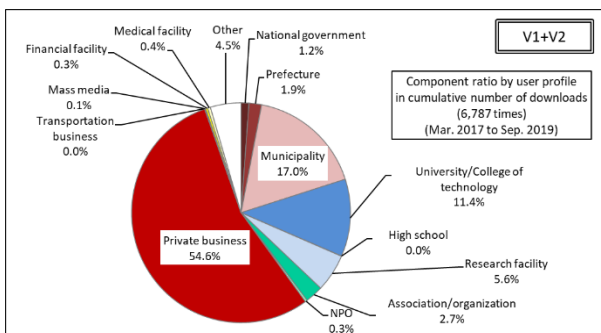


Figure 5: Cumulative total number of downloads by user type (created based on data provided by the Geospatial Information Center)

According to comments received from users, they seem to be using the tool mainly for the examination of urban spatial planning, such as optimal location planning and regional public transportation network planning, as well as to forecast demands in the field of welfare, medical care, education, and crime control.

### 4. Future prospects

This tool is going to go through continuous improvements based on user needs. Also, other tools, such as a forecast program to support proper allocation of medical care and welfare facilities<sup>4</sup> (Figure 6), which is interlinked with the forecast computation outcome of this tool to support the proper allocation management of medical care and welfare facilities, will be released when they become available for social applications.

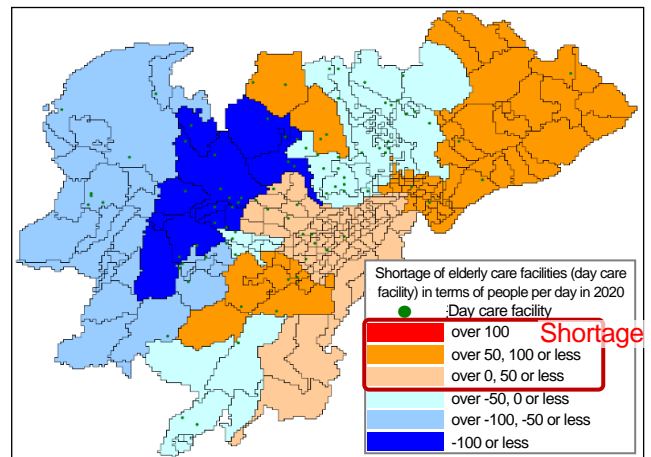


Figure 6: Example of forecasting the shortage of elderly care facilities (day care facility) using the forecast program to support the proper allocation of regional residence support functions

For more information:

- 1) NILIM Press Release “Development of a district-level future population forecast tool - To promote compact city development by forecasting the future of a city”  
<http://www.nilim.go.jp/lab/bcg/kisya/journal/kisya20170127-2.pdf>
- 2) NILIM Press Release “Future population forecasting based on the latest national census is now possible - The improved version of district-level future population forecast tool-”  
<http://www.nilim.go.jp/lab/bcg/kisya/journal/kisya20180731.pdf>
- 3) Geospatial Information Center “Future population and household forecast tool V. 2 (2015 National Census edition)” download webpage)  
<https://www.geospatial.jp/ckan/dataset/cohort-v2>
- 4) Project Research Report of NILIM #62: “Development of strategic stock management technology for regional safety and stability functions” -Edition IV Development of method for forecasting the amount of regional residential support functions needed in a region in the future and to forecast proper allocation of these facilities  
<http://www.nilim.go.jp/lab/bcg/siryu/kpr/pm0062.htm>