Summary of the White Paper on Land, Infrastructure, Transport and Tourism in Japan, 2024

Policy Bureau, Ministry of Land, Infrastructure, Transport and Tourism (MLIT)



Ministry of Land, Infrastructure, Transport and Tourism

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Composition (Part I: MLIT's efforts to achieve a sustainable life and society)

- Japan's <u>birth rate is declining</u> so rapidly that it is creating a crisis situation. The declining birth rate will have a serious impact on Japan's economy and society in the future through a <u>decrease in population (especially the working-age population)</u> and the aging of society, resulting in a shrinking economy, shortages of people in industry and society, and a decline in regional communities. Therefore, it is of utmost importance to <u>reverse this trend and raise the birthrate.</u>
- Under these circumstances, the <u>Children and Families Agency</u> was established in April 2023, and the General Principles for Child-Related Measures and the Children's Future Strategy were formulated (approved by the Cabinet in December of the same year) to realize a child-centered society and measures to counter the declining birth rate that are of a totally different dimension. <u>The third national spatial strategy (national plan)</u> approved by the Cabinet in July of the same year calls for the "formation of regional living areas" to create "national land combining the potentials of the regions in the new era." This is a vision for the future revitalizing regional communities in response to challenges such as crisis accelerated population decline in rural areas due to accelerating population decline, etc.
- MLIT's administrative fields have a close bearing on infrastructure, transportation, and the lives of individual citizens. It is vital that the nation reduce the impact of population decline to a minimum and continue to tackle major challenges such as how to ensure economic growth, secure regional transportation, respond to labor shortages, and respond to increasing intensity and frequency of natural disasters.
- Against this background, the theme of the report is "MLIT's endeavor to realize a sustainable life and society." The report analyzes the initiatives expected in the fields of MLIT in addressing the pressing challenges of declining births and an aging and shrinking population, and provides an overview of the current situation and a vision for the future.

Chapter 1 Population decline and the administrative fields of MLIT

OThe report, recognizing the current situation of declining births and an aging and shrinking population is serious, discusses, among other issues, the impact of a decline in workforce (working-age population) on Japan's economy. Then the report provides an overview of the challenges related to declining birth rate in Japan, as well as those concerning the aging of society and the maintenance of vibrancy in regional communities.

Chapter 2 Initiatives in the fields of MLIT and future prospects

OIn light of the situation and challenges involving the nation as it faces declining births and an aging and shrinking population that are serious concern, the report discusses the initiatives in the fields of MLIT and provides a vision for a sustainable and prosperous society. *The full text of the White Paper on Land, Infrastructure, Transport and Tourism is published on the MLIT website.



https://www.mlit.go.jp/stati stics/file000004.html



Section 1 The pressing challenges of declining births and an aging and shrinking population

- Japan's population has been declining for 13 consecutive years since 2011, and <u>the total population is projected to</u> <u>fall below 90 million by 2070</u>. The nation is also rapidly aging, with the percentage of people aged 65 and above (the rate of aging) projected to increase from 28.6% in 2020 to <u>38.7% in 2070</u>.
- The report summarizes the challenges of declining births and an aging and shrinking population that are serious concern, and addresses the initiatives expected mainly in the fields of MLIT, in order to help realize a society that leads to a sustainable and prosperous future.



Chapter 1 Population decline and the administrative fields of MLIT



Section 1 The pressing challenges of declining births and an aging and shrinking population 1. Japan's economy, society, and population decline

1. Japan's economy, society, and population decline

- Workers in Japan have been <u>aging rapidly over the past 20 years</u>. There are concerns that <u>labor shortages may</u> <u>worsen</u> in the future because <u>the number of retiring older workers is expected to increase and the number of younger workers is expected to fall as the birth rate declines</u>.
- It is important to improve productivity by <u>saving manpower and labor through the use of new technologies</u> and to <u>create innovations</u> that lead to a significant increase in productivity as the workforce is expected to decline amid the shrinking population.

[Challenges associated with a decline in the working-age population]

(Aging workforce)

- In 2023, the age composition of workers by industry was such that those aged 55 and above accounted for 31.9% of all workers in all industries, while those aged 29 and below accounted for 16.7%.
- In particular, workers were aging rapidly in the construction and transportation industries, where there was a higher percentage of workers aged 55 and above and lower percentage of workers 29 and below compared with the average of all industries.



[Changes in the age composition of

[Expected initiatives]

(Saving manpower and labor through the use of new technologies)

• As the workforce is expected to decline in tandem with a shrinking population, it is important to save manpower and labor and improve productivity through the use of new technologies.

(Example) Use of drones in maintenance and inspection of infrastructure facilities Use of automated driving technology in mobility and logistics services

(Creation of innovations)

• It is important to create innovations that transcend the conventional framework in <u>order to drastically improve productivity</u>. It is also important to accelerate initiatives that may lead to innovations. Such efforts include support for start-ups that use advanced technologies and ideas to create new business ventures, and the promotion of industry-academia-government collaboration.

[Column: Saving manpower and labor in housing construction using 3D printer technology]

- Serendix Inc. <u>uses 3D printers for housing construction to save labor at</u> the construction site, shortening the work process and reducing the <u>number of workers</u>.
- In March 2022, the company <u>built the first 3D printed house "serendix10"</u> (10m²) in Japan, in 23 hours and 12 minutes. In July of the following year, the company built <u>3D printed house</u> "serendix50" (50 m²) for a twoperson household, in 44 hours and 30 minutes.
- As robotic technology continues to evolve, the labor-saving efforts currently observed in the field of housing construction may eventually spread to the entire construction industry. The use of 3D printers may become mainstream as a means of increasing the efficiency of construction work.





3D printed house "serendix50"

Interior of a 3D-printer house (© CLOUDS AO)

Source) Serendix Inc.

Chapter 1 Population decline and the administrative fields of MLIT



Section 1 The pressing challenges of declining births and an aging and shrinking population 2.Decline in the future working-age population

2. Decline in the future working-age population

- In 2023, the <u>birth rate was 1.20</u>, the lowest on record, and the <u>number of births was approximately 730,000</u>, an alltime low. A decline in the birth rate and the number of births directly leads to a decrease in the working-age population. Therefore, <u>efforts must be made to raise the birth rate and the number of births</u>.
- The number of dual-income households is increasing, so is the percentage of women continuing working before and <u>after childbirth</u>. Thus, it is necessary to improve a working environment that supports workers to balance their work and childbirth, child-rearing.

[Challenges in raising the birth rate and the number of births]

(Increase in dual-income households, the percentage of women continuing to work after childbirth)

- As of 1992, the number of <u>dual-income households</u> exceeded that of households <u>with full-time</u> <u>homemakers</u> (households consisting of a man who is employed and a woman who is not). <u>As of 2022,</u> the number of <u>dual-income</u> households was about 2.3 times that of households with full-time <u>homemakers</u>.
- During the period from 1985 to 1989, 39.0% of women who had been employed before giving birth to their first child continued to work after childbirth (they include both women who used childcare leave and those who did not). This ratio rose to 69.5% (nearly 70%) during the period from 2015 to 2019.



[Employment status of wives before and after the birth of their first child: changes over time]



[Column: Taking children to work]

- Tsukubamirai City officially adopted a <u>bring-children-to-work</u> campaign in December 2023 to <u>support the child-rearing of city</u> <u>employees and promote diversified work</u> <u>styles</u>.
- The system can be used when a daycare facility is temporarily closed or a caregiver is temporarily unavailable. <u>This is for children</u> <u>up to sixth grade</u>.



Source) Tsukubamirai City

[Expected initiatives]

(1) Establishment of a workplace environment conducive to childrearing for both men and women

(Promotion of flexible work styles for women)

Promotion of the transfers to a department or office location worker prefer upon returning to work and the use of annual paid leave on an hourly basis. Adoption of flexible working style such as shorter working hours and flextime that allow workers to set their own hours according to the age of the child.

(Promotion of the use of childcare leave by male workers)

Creation of an environment conducive to the use of childcare leave at birth for fathers by conducting workshops on such a system, establishing a consultation service, and disseminating information on the actual use of childcare leave at birth for fathers.

(Establishment of a childcare environment that supports workers)

• Establishment of daycare centers to take care of children according to the working hours of guardians (extended daycare, nighttime daycare, etc.), as well as facilities in front of train stations, etc., that transport children to and from daycare centers in the suburbs when guardians simply drop off their children at such facilities.

(2) Community development conducive to child-rearing

(Establishment of residential and living environments conducive to child-rearing)

• Preferential use of public housing, etc., with a superior child-rearing environment by child-rearing households and promotion of the use of vacant houses designed for such households.

(Securing transportation for children attending extracurricular activities)

• Use of housekeeping services that transport children to and from extracurricular activities and transportation services that exclusively cater to such needs in order to secure a means of transportation.

(Improvement of parks designed for safety and security)

 Enhancement of safety and security in parks by addressing issues such as barrier-free access, crime prevention, disaster prevention and disaster 5 mitigation, and measures to prevent deterioration of the facility.



3. Aging society and the maintenance of the vibrancy of regional communities.

- In prefectures within a metropolitan area, the rate of aging remains relatively low. However, the rate of increase is high with respect to the number of people aged 65 and above. Therefore, both urban and rural areas must take measures to cope with the aging of their population.
- Japan's population is concentrated in Tokyo, but the population decline is expected to **spread not only to** small cities but also to medium-sized cities that play a central role in people's daily lives. Thus, it is necessary to implement measures to support lifestyles and society in response to the population decline.

[Concerns about a decline in the vibrancy of regional communities]

(Aging population)

- The nation's population has been rapidly aging over the past 30 years. The rate of aging increased from 12.1% in 1990 to 28.6% in 2020.
- It is projected that the rate will rise to 37.1% by 2050. The number of prefectures with a rate of aging exceeding 40% is expected to reach 25 by 2050, compared with zero as of 2020.

(Population decline in regional communities.)

• The rate of population decline is likely to accelerate in municipalities with smaller populations, and the number of people living in municipalities with populations of less than 300,000 may decline by 20% or more, according to projections regarding population declines (by population size) from 2020 to 2050.

[Index of people aged 65 and above and the percentage of people aged 65 and above in 2050]



[Projected rate of population decline in municipalities by population size (2020-2050)]



[Expected initiatives]

(Development of regional communities to maintain daily living services)

It is important to use digital technology that can eliminate the constraints of space and time so that transportation problems can be eased for those visiting from neighboring communities for shopping or medical care. In promoting this measure, it is necessary to maintain daily living services for the entire region through cooperation among adjacent communities that share socioeconomic ties, and through collaboration among municipalities. businesses. organizations, residents, and other stakeholders.

(Creation and expansion of a "related population")

It is important to create and expand kankei jinko (related population), a term that refers to people who involve themselves in a particular community in various ways on an ongoing basis even though they are not residents. These people, for example, participate in, or manage, local festivals and events every year. The participation of such people in regional cooperative activities may help solve social problems in the community, revitalize the community. and lead to an increase in the number of future migrants in the future.

(Improvement in the efficiency of infrastructure maintenance and management)

In addition to promoting the use of new technologies and public-private • partnerships, it is important to optimize infrastructures through consolidation and reorganization, which involve the elimination or removal of certain infrastructures and the conversion of their functions according to local needs. At the same time, efforts must be made to take a wide-area perspective that transcends the existing administrative areas, bundle different infrastructures in multiple and various fields, and manage such a group of infrastructures efficiently and effectively.

(Revitalization of regional communities by making them more vibrant)

City centers have a well-developed public transportation network and various urban functions and infrastructures. Therefore, such areas can be revitalized by adding more vibrancy through an effective use of vacant houses, vacant lots, and existing facilities, and by turning multi-purpose facilities with public, and commercial functions into a revitalization hub.

Chapter 1 Population decline and the administrative fields of MLIT



Section 2 Aiming for a future-oriented change and a sustainable and prosperous society 1. Comparison between Japan and overseas

1. Comparison between Japan and overseas

As the birth rate declines, society ages, and the population shrinks, there is a need to make a change for the future in order to achieve a sustainable and prosperous society. Thus, it is necessary to secure a workforce and improve productivity to overcome labor shortages, improve workplace and child-rearing environments to raise the birth rate, and ensure the sustainability of regional communities by making them more vibrant and creating and expanding a "related population."

[Trends in labor productivity]

- Japan's <u>labor productivity per worker ranks</u> <u>31st among the 38 OECD member countries</u>. The nation's <u>hourly labor productivity ranks</u> <u>30th</u>, the lowest since 1970 and the <u>lowest</u> <u>among the seven major industrialized</u> <u>countries</u>.
- It is important to increase labor productivity per worker and per hour amid concerns about labor shortages associated with a decline in the working-age population.

[GDP per capita, labor productivity per worker, and labor productivity per hour in OECD member countries]



[Comparison between Japan and overseas]

[Trends in birth rates]

- Japan's <u>birth rate is currently low compared with</u> <u>that of other countries</u>. The nation's <u>birth rate</u>, <u>which was around 2.0 in 1960</u>, has been under <u>1.5 since the 1990s</u>.
- Some countries with declining birth rates not only provide economic support such as family allowances, but also promote measures to improve childcare and childcare-leave systems and create an environment that allows for a wide range of choices regarding childbirth, childrearing, and employment. Japan, too, must promote initiatives to increase its birth rate.

[Trends in total fertility rates in other countries (Europe and the United States)]



[Trends in population aging]

- Japan's rate of aging was low until the 1980s compared with that of major industrialized countries in the West.
 However, since 2005, the rate has been higher than that of any of these countries as the nation's population rapidly ages.
- In Japan, where the birth rate is declining, the rate of aging is expected to continue to rise. Thus, there is an even greater need to respond to the aging of society.



[Rates of aging around the world]

1. Initiatives for a sustainable society through the use of technologies

- In order to prevent stagnation in economic activities caused by labor shortages associated with a rapidly declining population, it is important to implement measures to <u>improve productivity</u> through the use of various technologies.
- Efforts to improve productivity are expected in the <u>areas of manpower and labor savings and technology and</u> <u>innovation infrastructures.</u>

[Promotion of manpower and labor savings]

(i-Construction)

• Aiming to improve productivity through the <u>use of information and</u> <u>communication technology (ICT), etc. at construction sites.</u>

(ICT construction, building information modeling [BIM]/construction information modeling [CIM], etc.)

(DX in the infrastructure field)

 Digital transformation (DX) in the infrastructure field promoted by MLIT is an initiative to transform business operations by utilizing data and digital technology. It aims not only to improve productivity at construction sites but also to create new value by ensuring the safety and security of people and improving infrastructure services.



Aiming to realize the future society described above, a specific example of Society 5.0 in the fields related to MLIT Source) MLIT

(Automated driving)

• MLIT has formulated "a policy framework for the establishment of an institutional foundation related to automated driving". It is working on the implementation of advanced automated driving at Level 3 or above.

[Technology and innovation infrastructures]

- It is important to use new technologies and create innovations to <u>drastically</u> <u>improve the productivity of inspections, operations, etc.</u> in the infrastructure field.
- This will enable <u>automated and remote operations</u> at construction sites, as well as the <u>use of AI</u> for efficient and advanced information gathering and monitoring.

[Column: NORTH-AI/Eye: Innovations in infrastructure management with the use of AI through government-academia collaboration]

- In Hokkaido, a cold and snowy region that covers approximately 22% of the nation's land, there were challenges related to infrastructure management. These challenges included how to improve the efficiency of inspection work involving long rivers (approximately 1,900 km) and roads (approximately 6,900 km).
- MLIT's Hokkaido Regional Development Bureau, which manages the infrastructure, is working on innovation with the use of AI through government-academia collaboration.
- Images captured by vehicle-mounted cameras and drones are analyzed using AI to diagnose and evaluate deterioration and deformation of the facilities. This is carried out on a trial basis to make inspection work more efficient and sophisticated.





2. Initiatives for a society friendly to children, child-rearing, etc.

- It is necessary to create an environment in which young people of child-rearing age can feel secure in their marriage, childbirth, and child-rearing.
- Accelerating a <u>project to development of children-centered communities</u> (a measure to form community living spaces for children), and implementing initiatives to build momentum to <u>support children and those raising children throughout society</u>.
- It is important to promote work-style reform and diversity and inclusion (D&I) in industry so that women, people of childrearing age, etc. can play an active role at a time when diversification of work style is developing.

[Promotion of the creation of a community centered around children, etc.]

• Creating a community friendly to children and child-rearing

The measures include the following: enhancement of the support environment for children and child-rearing through the development of children's playgrounds; <u>development of areas around river banks</u> where children can safely experience the natural environment; promotion of traffic safety measures for school routes, etc.; promotion of the <u>development of childcare support</u> <u>facilities at "Michi-no-Eki"</u> nationwide; and efforts to raise awareness of the need for child-centered public transportation services.



 Creation of an environment to facilitate the mobility and going out of those raising children Some public transportation facilities such as train stations have nursing rooms, as well as vending machines for childcare products. They also provide baby stroller rental services. This makes it easier for those raising children to leave home without worrying. (Example: Ueno-okachimachi Station on the Toei Subway Oedo Line)



Source) Tokyo Metropolitan Government (Children's Smile Movement

[Transportation services for children and those raising children]

• There are cases in which parents refrain from going out with children because they do not have a private vehicle, or cases in which children give up attending extracurricular classes because of they cannot secure transportation. Transporting children to and from extracurricular classes would limit the working styles and working hours of guardians in child-rearing households. It is important to develop transportation services for children and those raising children in order to create an environment conducive to child-rearing.

[Column: Transportation services for children attending extracurricular classes]

Efforts are underway at hab Inc. to commercialize transportation services for child-rearing households. The company is seeking to provide transportation to children attending extracurricular classes. The services use a system in which AI automatically identifies the bus stop, travel route, and timetable, and notifies the app user. The services will allow children to share a taxi, and let guardians check the taxi's current location and view the interior of the vehicle using a dedicated my page. Thus, the services are both convenient and safe.

• The services are expected to give more free time to guardians by reducing their need to drive children to various locations and expand the children's learning opportunities.



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Chapter 2 Initiatives in the fields of MLIT and future prospects

Section 1 Current status and direction in the fields of MLIT 2. Initiatives for a society friendly to children, child-rearing, etc. (2)

2. Initiatives for a society friendly to children, child-rearing, etc.

[Initiative for new and continued employment of women, etc.]

- As the number of working women increases, it is important to improve their retention rate by <u>creating friendly workplaces</u> and prevent a situation in which they are forced to quit working in order to raise children.
- MLIT has formulated an action plan to promote women's active participation in the construction industry. The goal is to make the construction industry a friendlier place for all workers, regardless of gender. The public and private sectors are working together to implement various initiatives to <u>encourage</u> women to enter and remain in the industry.
- MLIT is taking measures to secure diverse talents, including women, in the trucking industry by promoting efforts to improve the workplace environment. For example, it supports the introduction of machinery to make cargo-handling tasks easier. MLIT also widely advocates <u>the views of female drivers</u>.

(Realization of a sustainable logistics industry to solve the "2024 problem," etc.)

• It is necessary to address issues such as worker shortages in the logistics industry and make the industry more attractive to workers. It is necessary to implement measures to prevent logistics stagnation in light of the overtime work regulations applied to truck drivers starting in FY2024.

Key points of the emergency package for logistics innovation



O Raise standard freight rates to reflect current price trends, adding compensations for waiting and cargo- handling work, etc. Source) Created by MLIT using materials from the Ministerial Meeting on Japan's Distribution Network Reform (October 6, 2023).

[Initiative to achieve work-life balance]

• Companies must <u>offer a work-life balance</u>, increase the workers' job satisfaction, and create a friendlier workplace <u>in order to secure and nurture employees</u>, including young talents.

(Realization of a sustainable construction industry to solve the "2024 problem," etc.)

- In order for regional construction industry to continue to fulfill their role, it is important to secure workers on a medium- to long-term basis. In particular, it is important to pursue work-style reform in light of the overtime work regulations implemented in FY2024.
- MLIT has been working to improve the treatment of construction workers. It has ensured that workers are covered by social insurance. It has also been making efforts to <u>raise</u> <u>the unit price of public works design contracts for 12 consecutive years</u> and increase wages for skilled workers to a level that matches their superior skills and harsh working conditions.
- MLIT is promoting the <u>Construction Career Up System (CCUS)</u>, an industry-wide institutional infrastructure for the <u>visualization of workers' skills and experiences</u> and for <u>cross-industry implementation of appropriate skill assessment</u>. In order to help <u>improve</u> <u>the compensation of skilled workers</u>, MLIT will further promote the utilization of the competency evaluation system based on skills and experience. It also <u>estimates and</u> <u>releases the amount of annual income appropriate for each CCUS level</u> with the aim of achieving a compensation commensurate with skills and experience.
- In addition, CCUS contributes to a <u>reduction in paperwork, etc.</u> MLIT seeks to help <u>improve the productivity of the construction industry</u> by promoting the widespread use of CCUS.

< Construction Career Up System overview>



Chapter 2 Initiatives in the fields of MLIT and future prospects



Section 1 Current status and direction in the fields of MLIT 3. Initiatives for the sustainability of regional communities

3. Initiatives for the sustainability of regional communities

- The survival of regional public transportation, infrastructure, etc. is being threatened by labor shortages associated with a declining population. <u>There are increasing risks that threaten sustainability, safety, and security</u>.
- It is important to <u>establish an environment that creates a flow of people to non-urban areas and expand this flow</u> while enhancing regional strength.



[Efforts to maintain the vitality of regional communities]

(The formation of regional living areas)

- There is a danger that the <u>function of daily living services</u>, which support lives in regional communities, may decline or disappear as the population shrinks.
- It is important to aim for the <u>formation of regional living areas</u> where services necessary for daily living are provided in a sustainable manner. This should be achieved through <u>regional management based on public-private partnerships</u> that cut across various fields unrestricted by municipal <u>boundaries</u>, as well as through the <u>use of digital technology</u> to improve the quality of physical spaces.
- Efforts must be made to optimize and combine necessary services such as regional public transportation, shopping, medical care, education, etc., accelerate the implementation of digital technology, and build a mechanism for economic circulation within the region, thereby solving the problems of the region to make it more attractive.

[Strategic management of a group of regional infrastructures for revitalization (group management)]

- Many local governments face <u>structural and budgetary</u> challenges in pursuing appropriate infrastructure maintenance and management.
- It is important to promote strategic management of a group of regional infrastructures for revitalization (group management) in addition to implementing initiatives that are more advanced and efficient (e.g., using new technologies and pursuing public-private collaboration). In group management, local infrastructures are strategically managed from a comprehensive and multifaceted perspective, with multiple wide-area infrastructures in various fields treated as a single group.

(Example of wide-area collaboration [vertical] ⇒ [model area] Akiota Town,Kitahiroshima Town and Hiroshima Prefecture)

- Akiota Town and Kitahiroshima Town face problems such as a decline in the number of employees and the need to pass on the skills of retiring veteran staff. It is necessary to <u>maintain the current level</u> of administrative services, including infrastructure maintenance, toward the future.
- The goal is to promote sustainable initiatives that <u>transcend the administrative boundaries of</u> the two towns and the prefecture and the establishment of a system to implement such initiatives. Specifically, the towns will study how to efficiently and effectively handle general road management operations (maintenance and repair, snow removal, emergency response, etc.). <u>The measures may include joint</u> orders to be placed by the towns and the prefecture.





Section 2 Prospects for a desirable future

- With Japan's birth rate expected to continue to decline, MLIT conducted a public opinion survey and asked people about their hopes for the 2050s regarding life and society. Section 2 provides an outlook for people's lives and society based on the results of the survey and the opinions of experts.
- People's hopes for the 2050s regarding life and society included "society friendly to children and child-rearing," "society friendly to the elderly," and "society where everyone can enjoy an affluent lifestyle." indicating expectations for a society where people can enjoy diverse and affluent lifestyles regardless of gender, age, nationality, etc.
- In the public opinion survey, the respondents were also asked about their expectations for the future in the field of MLIT, under four themes: "sustainable society through the use of technology," "society friendly to children and childrearing," "society friendly to the elderly, etc.," and "toward the revitalization and maintenance of regional communities." The responses to each theme and the respondents' expectations for life and society were then summarized.



Expectations regarding new life and society in the 2050s and beyond

(%) (Note): Total number of respondents was 4,320. Respondents answered all questions by selecting applicable options. The graph shows the percentage of respondents who selected each answer.

Source) "Public Opinion Survey" released by MLIT

Chapter 2 Initiatives in the fields of MLIT and future prospects Section 2 Prospects for a desirable future (2)



- For the question regarding "sustainable society through the use of technologies," respondents expressed expectations for manpower-and labor-saving initiatives using AI, robots, and drones.
- For the question regarding "society friendly to children and child-rearing," respondents emphasized the importance of children living safely and securely, and in good health and spirits.
- For an outlook, the White Paper discusses "maintenance of next-generation infrastructures with AI, robots, and drones" and "automated driving friendly to children and child-rearing."

64.3

49.4

43.6

50

60

70 (%)

35.9

32.5

Technologies expected for a sustainable society

Manpower and labor savings through artificial intelligence (AI), robots, drones, automated driving, etc.

Autonomous and decentralized infrastructures, etc. to strengthen resilience (Example: infrastructures that can be used without being connected to a network, such as power grids or water and sewage facilities)

> Improvement in the natural environment through the promotion of decarbonization (GX), etc.

Improvement in operational efficiency through the promotion of digital transformation (DX)

(Note): Total number of respondents was 4,320. Respondents answered all questions by selecting applicable options The graph shows the percentage of respondents who selected each answer. Source) "Public Opinion Survey" released by MLIT

What is important in realizing a society friendly to children and child-rearing



Source) "Public Opinion Survey" released by MLIT



Column

Maintenance of next-generation infrastructures with AI, robots, and drones

- Dangerous work at height can be reduced if visual inspections are conducted with the use of drone cameras for high and narrow locations such as bridges.
- · It is expected that a robotic arm attached to the human body may make the worker more resistant to fatigue and allow for safer work.
- · Inspection results kept in an information system will enable more efficient planning for infrastructure renewals.

Column

Automated driving friendly to children, child-rearing

- · Time otherwise spent on picking up and dropping off children can be used for work or household chores. This allows parents to use their time more efficiently.
- · Al technology enables shared bus transportation services that connect multiple preschools, both nurseries and kindergartens. It allows for bus transportation with optimal route operations at any aiven time.
- The establishment of advanced automated driving technology will allow for child-friendly services. For example, it will allow children to take field trips more flexibly. It will also make it easier for parents to pick up and drop off children more frequently according to their physical condition.

Chapter 2 Initiatives in the fields of MLIT and future prospects

Ministry of Land, Infrastructure, Transport and Touri

Section 2 Prospects for a desirable future (3)

- For the question regarding "creating a society friendly to the elderly, etc.," <u>many respondents cited "securing means of transportation,</u>" indicating that this need is high.
- For the question regarding the "revitalization and maintenance of regional communities," the most common answer was the <u>"creation of attractive workplaces and employment opportunities," followed by the "development of human resources for</u> <u>local industries.</u>" The results suggest the need to add more value to local industries and to foster human resources.
- The White Paper includes interviews with experts regarding "regional public transportation in an era of declining births and the aging of the population," and "efforts to achieve a sustainable town." For an outlook, it also discuses "securing regional transportation with the use of automated driving services" and "future work styles (workation, etc.).

What is important in achieving a society friendly to the elderly (for each residential area)



(Note): Total number of respondents was 4,320 (1,440 for each area). The graph shows the percentage of respondents in three different geographical areas who selected each answer.
Source) "Public Opinion Survey" released by MLIT



Source) "Public Opinion Survey" released by MLIT

Measures necessary to maintain local vitality

Expert Interviews

Regional public transportation in an era of declining births and the aging of the population

Column

Securing local transportation with the launch of automated driving services

- · Case: Introduction of a Level-4 automated driving service
- Electromagnetic induction lines are used for automated driving in mountainous areas, where radio waves are unstable, to operate service routes
- The service achieves labor savings by allowing <u>a single worker</u> in the remote surveillance center to control as many as three <u>vehicles</u>

Expert Interviews Yuki mizu daichi tsunan machi

(snow, water, land, Tsunan Town)

Efforts to create a sustainable town

Column

Future work styles (workation, etc.)

- A <u>work style that is not tied to any specific location</u>, achieved through a flexible environment and working conditions, with each individual pursuing a work-life balance
- Expectations for the spread of "workation," in which travelers <u>combine work and holidays</u> at tourist destinations (in a vastly different environment) during off-peak periods, such as weekdays



\odot MLIT's initiatives regarding the 2024 Noto Peninsula earthquake are discussed in a special feature article

Initiatives in the fields of MLIT (example)

- Established hotlines with 43 cities, 16 towns, and four villages, mainly in the Hokuriku region, and dispatched the Technical Emergency Control Force (TEC-FORCE) from various locations to support the affected areas.
- Conducted damage assessment (roads, rivers, sabo works, seacoast, railroads, ports, airports, etc.) and emergency safety assessment (buildings).



[Reference] Columns featuring interviews with experts (1) (related to Chapter 1)



OWorkplace reform, innovation, and D&I in the construction industry, Yoh Sasaki, 112th presid Japan Society of Civil Engineers and professor at Waseda University	lent of the
 The term "diversity and inclusion" (D&I) has come into widespread use, but there are differences with respect to how the need for D&I is perceived Toward the realization of Civil Engineering D&I 2.0/Cannot achieve a meaningful impact if perceived merely as a measure to cope with labor shortages It is important to increase diversity of ideas and experiences, not diversity of attributes/ D&I and innovation are inseparable Toward an inclusive society that embraces diverse values Recognizing small, unique developments within a larger development How to diversify values throughout society In regional communities, there used to be a place for each person to play an active role Good design and landscape require the involvement of diverse people/ Sustainable in the sense that individuals exercise their abilities and live happily 	
OThe relationship between labor market mobility and wage growth/innovation in Japan, Keisuke Kondo at the Research Institute of Economy, Trade and Industry (RIETI) and associate professor at Kobe U), senior fellow Iniversity
 Individuals have a potential for high labor productivity Compensation for improved productivity should include a flexible increase in wages, including bonuses Shortages of human resources to implement research seeds in society Innovative technology changes people's lives and society 	600
 How to achieve redistribution Emotional attachment to places is important for fostering democracy 	
 Sustainable and prosperous life achieved by DX 	
OSociety should heed the voices of children and youths as a routine practice, Junya Dohi, rep Wakamono no machi, a nonprofit organization	resentative o

- Efforts to listen to children's voices can help combat the population decline
- •Efforts to listen to the voices of children and young people
- $\cdot Provide$ children who have poor access to transportation with a place to spend their time
- $\cdot \ensuremath{\mathsf{Children}}$ should decide for themselves where to spend their time
- •Public spaces should be used by the private sector to create a place where children can spend their time and where community events take place
- •People in the child-rearing generation need a small, supportive environment, as well as a local community, where they can experience a sense of belonging
- One indicator is whether the voices of children and youths are being heard •Residents' voices should be heard even in municipalities where the population is growing



16

[Reference] Columns featuring interviews with experts (2) (related to Chapter 2)



OPotential of automated driving in mobility, Shinichiro Okazaki, vice president at TIER IV, Inc.

- Social role expected of automated driving
- •Current status of automated driving
- ·Infrastructure that makes automated driving possible
- Improvement of technology to promote public acceptance of automated driving
 Role of government in automated driving
- Ultimate goal is fully automated driving
 Fully automated driving changes people's lifestyles

ORegional public transportation in an era of declining births and the aging of the population, Sakiko Murakami, associate professor at Fukushima University

- Important to balance residents' contribution with local government assistance
 It is necessary to support local bus routes since everyone could lose transportation access
- ◆ There should be more co-creation efforts in the community
- •Seeking proactive advice and evaluation from policymakers
- $\cdot New$ technology is only a means to an end
- People should ideally have easy access to transportation even if they cannot drive It is important to develop transportation hubs in the community

O*Yuki mizu daichi tsunan machi* (snow, water, land, Tsunan Town): Efforts to create a sustainable town, Haruka Kuwabara, mayor of Tsunan Town, Niigata Prefecture

- ◆ Initiatives to create a sustainable town
- •Promotion of industries as an economic base, the fostering of workers for such industries, and labor savings and automation
- ·Creation of a child-centered society where people can fulfill their wishes regarding work, marriage, and child-rearing
- ·Efforts to attract new residents and a "related population" and disseminate information about the town
- $\cdot \mathsf{Efforts}$ to strengthen preparedness against any disaster
- Making Tsunan a pride of the nation
- •Creation of a virtuous cycle in the local economy
- $\cdot \text{Creation}$ of a hometown that makes people want to return



