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Japan's Transportation Policies for the Elderly and Disabled

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1. Basic philosophy of the elderly and the disabled in Japan

1.1 Outline

1) Social policies: From normalization toward a universal system

Policies on the mobility and transport of the elderly and the disabled have developed centering on those who are the objects of welfare measures. Since the 1970s, the terms "normalization" and "barrier-free design", which are basic terms related to welfare, have been used together with the term "welfare community development" that integrates the first two terms. After 1990, when the popularization of barrier-free design started to accelerate in fields such as architecture and transport, the term "universal design" made its debut as a term for "measuring everybody", thus departing from the idea being limited to the disabled or elderly. Some prefectures and cities set up a "universal design office". The Ministry of Land, Infrastructure and Transport has implemented a project for universal design ("social inclusion").

2) From the disabled alone toward including everybody

The term used to define the object, people, for relevant measures, has been changed. This term was limited to "disabled" in the 1970s; the phrase "elderly and disabled" was used from the 1980s to the beginning of the 1990s; "limited mobility group,mobility-impaired" (elderly, disabled, expectant/nursing mothers and those who carry baggage) in the mid-1990s, and "everybody" has been used since about 2000. The scope of administrative polices, which centered on welfare at the beginning, has gradually extended to the fields of road/architecture, then to the field of transport. It now encompasses a number of different fields.

1.2 Relationship between normalization and other concepts

Barrier-free design, which centers on the disabled, is a concept closely related to normalization and welfare community development. Fig. 1 shows the relationship between the three concepts. In order to understand the relationship between normalization, welfare community development and barrier-free design correctly, it is necessary to see normalization as a superordinate concept that includes the other two. Normalization is a concept that was born in the 1950s in Denmark. It implies measures that "enable everybody to live comfortably, regardless of age, sex, disability, perception and ability to move". In order to explain normalization in plain language from the viewpoint of community development, this term means that the disabled are happier and living in more humane conditions, able to live, albeit with some difficulty, a self-supporting life with other people in a community, rather than living a well-off but isolated life at a particular facility provided with sufficient food, clothing, and accommodation.

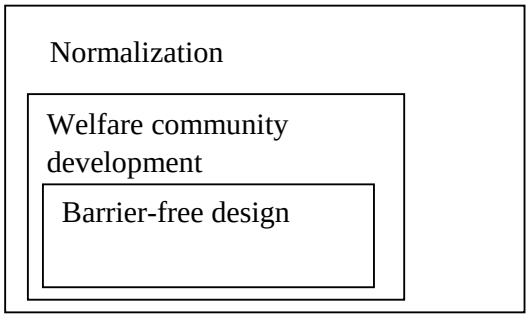

Figure 1. **Relationship between the three basic**

1.3 Barrier-free design and universal design

1) Institution and history

Barrier-free design started in 1953 as a movement to remove barriers for the physically handicapped in the field of architecture. This movement, which is referred to as "welfare community development" in Japan, began in Machida City in 1974 as a formal system when it adopted the "principle to improve the welfare environment in Machida". Subsequently, it has spread and taken root in other local governments as a means of developing welfare communities.

In the past, it has been difficult for the disabled to use various types of building design, roads and transport facilities. Therefore, the importance of removing such barriers was emphasized. Barrier-free design means a design that removes those barriers that obstruct the social participation of disabled people. In contrast, universal design, which is not limited to the elderly or disabled alone, as in the case of barrier-free design, aims at facility design that everyone finds easy to use.

2) Categories of barriers

In terms of the barriers that obstruct the social participation of the disabled, there are four categories, those related to: physical matters, information, systems, and consciousness.

3) Seven principles of universal design

Universal design is an approach concerned with making products and building design as easy to use for everybody as possible. More specifically, products and buildings shall: (1) be used fairly; (2) provide high degrees of freedom; (3) be simple; (4) be easy to understand; (5) be safe; (6) shall not require unnecessary bodily strength, and (7) maintain an appropriate space and size that is easy to use. [2), 3)]

4) Difference in the understanding of universal design between Japan and the U.S.

As mentioned above, universal design made its debut 30 years after barrier-free design. While mentioned by Welch in 1977, Ron Mace (1985) was the first to define and use the term "universal design". Most of the versions of universal design in Japan are related to the concept advocated by Ron Mace. Furthermore, it is thought that universal design was born in the U.S. in order to depart from the measures limited to wheelchair users.

In addition to the seven principles, what can be known as novelty for universal design is a method of attaining universal design. Universal design features, which cannot be seen with barrier-free design have: a wide range of applicability or general use (to allowing as many people as possible to use the products and buildings); the base and options (i.e. basic specifications are standardized with options for individuals added), and alternatives (allowing other methods to be substituted).

What makes barrier-free design and universal design incomprehensible is simply the difference in understanding of these terms between the U.S. and Japan. In the U.S., "barrier-free design" has, in recent years, taken on a negative connotation as a term that means specifications used by only the disabled. In contrast, the term "barrier-free design" is more widely used in Japan to imply universal design. In this regard, it is natural that universal design in Japan is thought to be a concept that has evolved from barrier-free design. [4), 5)]

2. Policies and systems for transportation in Japan

2.1 Outline

1) From individual guidelines to spatial improvement

Japan's Transportation Accessibility Improvement Law and its guidelines compare favorably with those in other countries. In particular, road improvement policies are the most advanced in the world, except for the fact that the roads are narrow. Barrier-free accessibility is also spreading at a remarkable speed on the existing railways. Chubu Airport and Haneda Airport's second terminal claim a universal design that ranks highly in the world.

Measures in Japan feature concentrated and spatial planning improvements around railway stations and at metropolitan centers. These enhance the effectiveness of those guidelines. An approach of this kind is not seen in the U.S. or Europe. The improvement of stations and surrounding areas, which is specified by the Transportation Accessibility Improvement Law, demonstrates a new evolution originated in Japan that will be well rewarded in 10 years time.

2) Separate road and terminal guidelines

Different guidelines were set for roads and terminals in Japan, as different ministries governed them.

2.2 System and evolution of welfare community development

"The 1987 guideline on welfare community development in Tokyo" defines that "welfare community development" is a process of practice policies on hardware and software improvements. In other words, it positions welfare community development as a process designed to comprehensively improve the infrastructure where people live, whether disabled or not, not only in the field of hardware, such as architecture, roads and transport facilities, but also in the field of software including the means of care provision and communications. The basis of this concept involves the idea that people must be able to live stress-free lives within local communities.

A number of administrative policies have been promoted on community development by local governments as well as earlier Ministries of Welfare, Construction and Transport. [1), 3)]

1) Ministry of Welfare (presently the Ministry of Health, Labor and Welfare) (Table 1)

In order to support welfare community development, the Ministry of Welfare launched projects to create "welfare model cities for the physically disabled" (projects to improve the living environment in cities with a population of 200,000 or more). More specifically, the ministry promoted these projects to develop "model cities for the physically disabled" in 1973, "welfare cities for the disabled" in 1979, "easy-to-live-in communities for the disabled" in 1986, "welfare communities suitable for the disabled" in 1990, and "disabled and elderly-friendly communities" in 1994. These projects are almost the same and applicable to object municipalities of different sizes, although their titles differ slightly. These projects comprehensively address the subjects related to software and hardware, help welfare community development to spread and take root in different areas at an early stage. [1), 3)]

Table 1. **Evolution of welfare community development policies**

Administrative organization	Year	Community development, road and transport systems
Ministry of Welfare	1973	Project to develop "welfare model cities for the disabled" (improvement of the living environment, population 200,000 or more)
	1979	• Project to develop "welfare cities for the disabled" (population 100,000 or more)
	1986	
	1990	• Project to develop "easy-to-live-in communities for the disabled" (population 50,000 or more) • Project to develop "easy-to-live-in welfare communities" (population 30,000 or more)
Ministry of Construction (housing and community development)	1981	Design guidelines for the disabled requesting building and repairs at governmental agencies
	1982	Architecture design standard that considers utilization by the disabled
	1994	Enforcement of Law for Promoting Easily Accessible Public Transportation Infrastructure for the Aged and the Disabled (Heart Building Law)
	1991	Project to develop welfare communities
	1994	Project to develop citizen-friendly communities
	1994	Principles to develop spaces for life and welfare
Ministry of Welfare, Ministry of Construction	2000	Enforcement of Law for Promoting Easily Accessible Public Transportation Infrastructure for the Aged and the Disabled (Heart Building Law)
	1996	Handbook for planning welfare community development
	2002	Revision of Heart Building Law
Local governments	1974	Principle of improving the welfare environment, Machida
	1976	Ordinance to protect welfare in Kobe and citizen welfare plan
	1986	Promotion of comprehensive welfare community development, Tokyo
	1988	Enforcement of the guideline on welfare community development, Tokyo
	1992	Enforcement of the ordinance on welfare community development, Hyogo and Osaka

2) Ministry of Construction (Ministry of Land, Infrastructure and Transport)

Major policies of the Ministry of Construction (Ministry of Land, Infrastructure and Transport) are to implement guidelines on architectural design and promote projects to develop welfare communities. The guidelines on architectural design were integrated with the Law for Promoting Easily Accessible Public Building Infrastructure for the Elderly and the Disabled (Heart Building Law) which was enforced in 1994. The policy on the spatial welfare community development was integrated with that of the Ministry of Welfare, and terminated its role after the enactment of the Transportation Accessibility Improvement Law.

3) Local government (Table 1)

"The principle on the improvement of the welfare environment, Machida, in 1974", which is the prototype guideline on welfare community development, has spread to various local governments and prefectures across the country. The objects of this guideline were architecture, roads and parks, for which the basis of welfare community development was established more than 30 years before. In 1992, the Hyogo and Osaka Prefectures adopted ordinances on "welfare community development", which evolved into one that stipulates penalty, revising the former principle with requesting provisions. Even after 1994, when the Heart Building Law was enacted, the role of local government did not terminate, instead more stringent guidelines, if adopted by local governments to exceed the level set by the government, were applied on a priority basis. [1), 3)]

3. Transportation Accessibility Improvement Law

3.1 Outline

In the 21st century, two laws were enacted to substantially govern community development for the disabled. One is the Heart Building Law on architecture, and the other is the Transportation Accessibility Improvement Law on traffic. It is thought that barrier-free design will advance in urban planning, traffic and architecture, but it may take some more time.

The Transportation Accessibility Improvement Law is an abbreviation of the Law for Promoting Easily Accessible Public Transportation Infrastructure for the Aged and the Disabled, which was promulgated on May 11, 2000 and enacted on November 15, 2000. The minimum dimensions relating to road width and gradient specified by this law are called known as the smooth mobility standard. In addition to those standards stipulated by the legislation, there are two major guidelines. One refers to improving public transport facilities for passengers at traffic terminals (August 2001); the other deals with increasing the smoother mobility of roads (November, 2001).

1) Purpose

The purpose of the law is, in order to ensure a social self-reliant life for the elderly and disabled, to require the following from railway operators and local governments: railway operators shall improve the structures, passenger facilities (railway station terminals), and rolling stock for public transport; local governments shall improve the roads, station plazas, paths, and other facilities in the areas around passenger facilities (railway stations and their surrounding areas within a radius of 500 to 1,000 m).

2) Target

The target of the law is to complete barrier-free accessibility by 2010 at railway stations, streetcar stops, bus terminals, ferry terminals and airport passenger terminals that are used by 5,000 people or more on average per day. Implementing barrier-free design means: eliminating differences in level; installing tactile tile blocks to guide the visually impaired, and installing toilets for the physically handicapped.

Barrier-free accessibility shall be completed by 2010 for 30% of 51,000 railway vehicles and streetcars. In 10 to 15 years, 60,000 buses shall be replaced with those that have a low-floor construction, of which 20 to 25% shall be of the non-step type. Barrier-free accessibility is also intended for 50% of 1,100 passenger ships and 40% of 420 airplanes.

3) Concept of improvements made as a result of the Transportation Accessibility Improvement Law

The law prescribes that those who provide transport services shall improve public transport facilities for passengers, as well as rolling stock, in order to improve the mobility of passengers, thus increasing their convenience to users. Its contents are: (a) information and treatment, (b) continuity from passenger facilities to those facilities outside, and (c) universal design. (See Table 2 for details.) [11)]

Table 2. **Concept of improvements made to public transport passenger facilities and vehicles**

Item	Contents
(a) Information and treatment	Providing appropriate information and employee education/training
(b) Continuity from passenger facilities to outside facilities	Improving the mobility within passenger facilities for intermodal transport between different railways/buses
(c) Universal design	Improving facilities that enable the elderly and the disabled to utilize the same facilities as other people

a) Newly-constructed and existing facilities

The standard on mobility improvement shall be applied when a facility is newly constructed or remodeled on a large scale, and efforts shall be made to do so for existing facilities and rolling stock. [11)]

b) Measures to improve mobility

In order to improve passenger facilities and rolling stock and thereby improve the mobility of the elderly and disabled, public transport operators shall prepare one or more continuous passages as well as the necessary facilities and equipment from the exit/entrance of passenger facilities to all boarding/alighting platforms. The necessary provisions for this purpose include boarding/alighting platforms, means of access, facilities required for information on train operations, and toilets for the disabled. [9)]

4) Plan of preferential improvement zones

a) Significance of improving the mobility of passengers in preferential improvement zones

The Transportation Accessibility Improvement Law specifies the areas (stations and surrounding areas within a radius of 500 to 1,000 m) around specified passenger facilities (railway stations) as preferential improvement zones where projects to improve the mobility of passengers shall be promoted in unison on a preferential basis. The basic concept involves the following: (a) effective promotion of

projects, (b) cooperation of the involved parties, and (c) understanding and cooperation of community people.

3.2 Barrier-free design for roads

1) Evolution of barrier-free design for roads

The barrier-free design for roads started from the 1973 notification by the Ministry of Construction, which set the standard downhill gradient (8% or 1/12) for differences in levels and the effective road width at 90 cm to enable wheelchair users to pass. In 1985, the Ministry also determined the profile of the tactile tile blocks to guide the visually impaired, as well as a method of installing these tiles. More specifically, the Ministry developed a nationwide standard for tile installation with the size of warning (dot-shaped) and guiding (bar-shaped) pattern tactile tiles at 30 x 30 cm and the height of their raised parts as 5 mm, the dot-shaped tiles were to be installed just before the sidewalk at crossings while bar-shaped tiles were to be placed in the inside transverse direction. In 1993, the Ministry changed the minimum width of sidewalks from 150 to 200 cm to allow two wheelchair users to cross in front of each other. According to the 2000 Transportation Accessibility Improvement Law, the standard to improve the mobility of pedestrians is applied to specified paths at stations and in the surrounding areas that are specified as preferential improvement zones. In the preferential improvement zones, the downhill gradient from the sidewalk to the roadway was changed from 8% (1/12) to 5% (1/20). The standard height of the sidewalk from the roadway was also changed from 15 to 5 cm (Table 3). [1), 5), 6), 7), 8), 9,) 10)]

Table 3**. Evolution of the standard road structure**

Year	Standards	Contents
1973	Structures of sidewalks and two-level crossings	Downhill gradient from sidewalk to roadway (8%), installation of tactile tiles to guide the visually-impaired
1985	Guideline on the installation of tactile tiles to guide the visually-impaired	Unification of the profile and arrangement of tactile tiles to guide the visually-impaired
1993	Revision of the ordinance on road structures	Minimum width of sidewalk 2 m
1999	Standard on sidewalks	Standard on the difference in level and gradient of sidewalks

2) Improved roads lead to smoother mobility

The Transportation Accessibility Improvement Law, enacted in 2000, prescribes the need to reduce the physical loads on the elderly and the disabled barrier-free accessibility to road spaces when they are moving, and improve the convenience and safety of movement.

Sidewalk administrators shall, according to the basic concept created by municipalities, comply with the standard on the barrier-free accessibility of roads when they construct sidewalks and elevators for roads or improve differences in levels on sidewalks, gradients and slopes, in order to improve the mobility of pedestrians. They shall also construct sidewalks (for pedestrians and bicycles) on those roads normally used by the elderly and the disabled. The traffic barrier-free law has changed the height of sidewalks in

those zones that comply with the basic concept, from 15 to 5cm and the maximum sidewalk slope from 8% (1/12) to 5% (1/20). [5), 6), 7)]

3.3 Barrier-free accessibility for public transport

1) Railway measures for the mobility-constrained

a) Germinal stage (1950-1979)

Railway policies for the elderly and the disabled sprung in 1952 from the system that discounted passenger fares for those disabled during the war. According to a notification by the Ministry of Transport in 1973, the Japanese National Railways started to improve facilities as a policy for physically handicapped people, and admitted wheelchair users on-board without attendants. Guide dogs and personal effects were also carried free of charge (Table 4).

b) Actual emergency stage (1980-1989)

Policies on the disabled started in the 1980s, or from those provisions applying to those who had difficulty moving (currently referred to as the mobility-constrained). These principles of comprehensive policies on transport were based on a long-term overview in 1981 of the Council for Transport Policy. The first governmental policy was the "guideline on improving facilities for the physically handicapped at public transport terminals" (Table 4).

c) Diversification stage (1990-1999)

(1) Rolling stock: In 1990, the government adopted "a model design for public transport facility rolling stock structure for the elderly and the mentally/physically disabled."

(2) Facilities for vertical movement at railway stations: In 1990, Yokohama City and Kanagawa Prefecture started a project to subsidize the installation of elevators at railway stations. The Ministry of Transport then adopted a guideline on escalators longer than 5 m (1991) and elevators at railway stations (1993).

(3) Guideline: The guideline adopted in 1983 was revised in 1994 as the "guideline on improving facilities for the physically handicapped at public transport terminals".

(4) Transportation Accessibility Improvement Law

The government enacted the Law for Promoting Easily Accessible Public Transportation Infrastructure for the Aged and the Disabled (Transportation Accessibility Improvement Law) in 2000, which is applicable to terminals, rolling stock, railway stations and their surrounding areas. The government adopted a guideline in 2001 on improving the mobility of passengers in public transport facilities. This guideline details the law and specifies additional standards (Table 4).

Table 4**. Railway policies relevant to the mobility-constrained**

Year	Measures	Contents
1952	Discounted passenger fares for the physically disabled (Japanese National Railways, private railways, buses)	Mainly for the war-disabled
1968	Free carrying of wheelchairs	Free carrying of wheelchairs
1973	Notification by the Ministry of Transport: Improving railway facilities by Japanese National Railways for the physically disabled	Boarding of wheelchair users without attendants, free carrying of guide dogs and personal effects
1981	Council for Transport Policy, principle of transport policies based on a long-term overview	Including those who have difficulty moving or are weak
1983	Guideline on improving the facilities for the physically disabled at public transport terminals	The first guideline in Japan
1990	Model design of public transport rolling stock structure and facilities for the mentally/physically disabled	First design guideline in Japan
1990	Subsidization of the installation of elevators at railway stations in Kanagawa Prefecture. Principle of subsidizing the installation of elevators at railway stations in Yokohama City	The first subsidization of railways in Japan
1991	Guideline on improving escalators at railway stations	5 m or over
1993	Guideline on improving elevators at railway stations	5 m or over
1994	Guideline on improving facilities for the elderly and the disabled at public transport terminals	Second revision of the guideline
2000	Law for Promoting Easily Accessible Public Transportation Infrastructure for the Aged and the Disabled (Heart Building Law) enforced	Barrier-free accessibility plan for terminals, rolling stock, railway stations and surrounding areas
2001	Guideline on improving passenger mobility in public transport facilities	Third revision of the guideline

4. Special transport services

4.1 Outline

1) ST services

The Ministry of Health, Labor and Welfare started the transportation service under the care insurance system only a few years ago. The Ministry of Land, Infrastructure and Transport has allowed NPOs to receive passenger fares under legislation law similar to the community car scheme in the U.K. This has established a basis of NPO participation in ST services. Nevertheless, Japan's ST services are far behind those in the U.S. and Europe.

An important issue now is how to re-organize the legislation on ST services as a whole. The real ability of local autonomous bodies will be verified with regard to how they plan public transport in the future. What is required at present for local governments is to establish an organization to implement the authority and plans on transport, including that by bus, a service closely related to people's lives.

2. Bus

The Tokyo metropolis and the Osaka Prefecture started operating buses equipped with lifts in 1991. Non-step buses (low-floor buses in Europe) were also introduced in 1997. Medium-sized buses were developed in the 2000s. Standardized buses were also developed to integrate the specifications of non-step buses. Such buses are used across widely in urban areas, but not in local or mountainous areas.

3) Care taxi

More than 10 years ago, a volunteer group in Tokyo implemented a door-to-door service. This service is designed for volunteers to help the disabled when they get up from bed, change clothes, shift to the wheelchair, move from the porch to the lift van, arrive at the hospital, and apply for a medical examination. After waiting at the hospital until the medical examination is over, the volunteers stay with the disabled person all the way to home and help them settle into their private room. This is process is known as "a transport with care". The taxi company, Medis, in Fukuoka, practiced this transport service before the care insurance system started. At the initial stage of care insurance, 5,700 yen was required for 30 minutes of physical care, this sum included 2,100 yen for the helper assisting the person from bed to taxi (covered by the care insurance), a taxi charge of 1,500 yen for the trip to the hospital (not covered by the care insurance), and 2,100 yen for the rest of the helper's care (covered by the care insurance). The taxi company took note of the fact that, if the taxi driver had a second-class helper qualification, performed these processes by him/herself, the expense would decrease to 2,100 yen. Under the taxi company system, an elderly person who must be cared for is received, sent to the hospital, and brought back for a total of 2,100 yen. Of this sum, the user pays 210 yen and the rest is covered by the care insurance system. This practice has spread to various places in the country. Since taxi charge expenses are high in care insurance, the care taxi charge was changed, as a result of trial and error, to 1,000 yen in fiscal 2003. In addition, the disabled can use care taxis thanks to the disabled people support system that began in fiscal 2003. The pending issues related to such services, including the integration of care insurance and support expenses, will not be resolved soon. Therefore, the manner in which these services will change remains unknown for at least a few more years. This situation is a result of delayed policy implementation on elderly mobility in Japan. This holds true in the field of transport as a whole. From the viewpoint of an international paradigm, more public funds must be invested into mobility support and environmental load reducing measures. Unfortunately, however, this has not yet begun.

4) Universal taxi

Barrier-free accessibility for taxis is at its most advanced in London. In 1998, 16,000 taxis out of 18,000 were equipped with a ramp for wheelchair users. Currently, most of London's taxis are of this type. Such taxis are also seen in San Francisco in the U.S., Adelaide in Australia, and cities in Canada, as well. In recent years, cruising taxis equipped with a lift and those that claim care as a selling point have emerged in Japan. Vans with a lift used as a cruising taxi by both disabled and non-disabled people, are known as universal taxis.

5) DRT

About 20 DRT cars now operate in Japan for passenger services and tests. These vehicles mostly operate where bus services are not available or have been abolished in local, depopulated or mountainous areas. DRT cars do not operate frequently in urban areas except for the omnibus-type taxis in Tama New Town, and Obihiro.

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