The application of accessibility in public library building design in Jakarta, Indonesia

A E Bonk, N Nurdiani, W Katarina

Architecture Department, Faculty of Engineering, Bina Nusantara University, Jakarta, Indonesia, 11480

Corresponding E-mail: nmurdiani@binus.edu

Abstract. While the number of people with disabilities increasing every year, there is very little awareness of the importance of access for disabilities, one of the examples is the accessibility in the library. This paper presents the study of the disability-friendly facilities that is provided by the National Library of Indonesia. The study is aimed to investigate whether the facilities provided by the libraries has already meets the standards by both international and national regulations. The research which has been done in National Library of Indonesia resulted that overall, the accessibility provided by the library is considered appropriate by both of the standard of International Federation of Library Association and Institutions and by the Ministerial Regulation. And the facilities which needed to be improved are stair, toilet, furniture, and information sign.

Keywords: accessibility, public library, accessible design, disabilities.

1. Introduction

This study is raised based on the United Nation’s Sustainable Development Goals. With the aim of inclusive development for people with disabilities, in 2017 United Nation Indonesia has targeted the Sustainable Development Goals to become goals in global development to end the poverty in Indonesia by 2030. One of the goals is to pay more attention to the needs of persons with disabilities by providing accessibility services starting from public facilities that are being built and will be built later [1].

Public library as a public facility provided by the government for free has a big role in the term of education for the Indonesian’s people. Indonesia is the 4th biggest country in the world. Jakarta as the capital city of Indonesia has the most population in Indonesia with much of the population are residents with the age of students. The benefits and objectives of the library have also been explained in the Law of Republic of Indonesia, that said the Library as a space, place for learning and develop the potential and improve the intelligence of the nation.

Disability is any condition that make a person more difficult to do certain activities or interact with the environment around them. The person has a different ability in doing their activities compare to ordinary people. Types of disability can be classified into several types. Such as vision, hearing, thinking, learning, movement, mental health, remembering, communicating, and social relationships.

As the 4th biggest country in the world, Indonesia has an increasing number of people every year. Which means, the number of people with disabilities also increases every year. Central Bureau of Statistics has shown the top 3 types of people with disabilities that occur in Indonesia. They are visually impairments, hearing impairments, and physical disability [2].
Table 1. Percentage of people with disabilities (ages 10 and above).

| No | Categories                           | Percentage |
|----|--------------------------------------|------------|
| 1. | Visual Impairments                   | 6.36%      |
| 2. | Hearing Impairments                  | 3.76%      |
| 3. | Physical Ability (Leg)               | 3.35%      |
| 4. | Remembering                          | 2.82%      |
| 5. | Communication                        | 1.52%      |
| 6. | Mental Health                         | 1.32%      |
| 7. | Physical Ability (Hand)              | 1.31%      |
| 8. | Difficulty in Taking Care of Oneself | 1.02%      |

Source: Central Bureau of Statistics

Nationally, any rights related to persons with disabilities have also been regulated in Law of Republic Indonesia. And to fulfill the rights of people with disabilities, the government has also issued the laws about the availability of physical accessibility in Indonesia. Disability rights in using public libraries have also been regulated, which written that people who have physical, emotional, mental, and/or intellectual disabilities entitled to obtain library services according to each capabilities and limitations.

Accessibility is a facility provided for people with disabilities to realize equal opportunities in all aspects of life and livelihood. Based on the Ministerial Regulation, accessibility in Indonesia must meet 4 elements as national requirements, which are safety, ease, usability, and independence. While the principle of accessibility includes basic size of the rooms, pedestrian path with guiding block, parking area, route, entrance and doors, support system such as ramp, stair, and lift, toilet, and furniture, as well as sign information. Aside from the accessibility facilities provided by the building itself, the services of librarian sometimes become a problem for visitors with disabilities due to lack of focus on the goal or vision and mission of the public library.

There are some public libraries with disability-friendly facilities have been provided. For examples, the most famous and the biggest library in Indonesia, the National Library of Indonesia. As such, this study chose the National Library of Indonesia as the object research.

2. The methodology
2.1. The method of study
The research is using descriptive qualitative research methods. After organizing the accessibility aspect based on the IFLA standard checklist and Ministerial Regulation, the study then continued to observation of the National Library of Indonesia for its accessible facilities provided by the library [3, 4]. After the data are collected, the data will be grouped and described the accessibility variables that have been met based on the standards. Along with the problems and provide appropriate solutions to overcome these problems. Then designing the library building based on the organizing aspects and the reference from National Library of Indonesia.

2.2. The case study
The study selected in National Library of Indonesia, the tallest library in central of Jakarta (see figure 2 a, b). The National Library is not only a place for collection of books, but also has a varieties of other supporting facilities such as theater area, audiovisual services, reading area, data center, as well as rare book collection services. In addition to facilities that can be used by ordinary visitors, the National Library also provides facilities for visitor with special needs. Facilities for persons with disabilities, elder and old people, as well as children can be found on the 7th floor of the library. However, the National Library only focuses on providing collections for blind visitors. This is because of the visual impairment users use a totally different reading media with the other people.
3. Result and Discussion

3.1. Media Facilities

The media provided by the library has around 3,700 copies of Braille books, starting from student books to novel fiction. 700 to 800 audiobooks can be found and can be borrowed along with the audio player provided by the library. For the low vision visitors as well as the elder people who find it difficult to read small printed books, they can borrow a technology called CCTV Low Vision. It can help zoom in the text in the book. It can also change the color of the text to make it easy for the low vision visitor to read (Figure 2).

3.2. Accessibility Aspects

The variables research for the observation of accessibility facilities in the National Library of Indonesia are based on the standard of IFLA and the Ministerial Regulation. Which consist of parking area, circulation area, entrance, ramp, stair, lift, toilet, furniture, and information signs. Some of the variables of the facilities need to be provided for the physical disability, visual impairments, and hearing impairments user. But there are also some of the facilities that do not need to be accessible for one or two types of the disability, because these users are considered able to use normal facilities provided for normal people (see table 2).

|                         | Physical Disability | Visually Impairment | Hearing Impairment |
|-------------------------|---------------------|---------------------|--------------------|
| Parking Area            | v                   | v                   | -                  |
| Circulation Area        | v                   | v                   | -                  |
| Entrance Area           | v                   | v                   | -                  |
| Ramp                    | v                   | v                   | -                  |
| Stair                   | -                   | v                   | -                  |
| Lift                    | v                   | v                   | v                  |
| Toilet                  | v                   | v                   | -                  |
| Furniture               | v                   | v                   | v                  |
| Information Sign        | v                   | v                   | v                  |
The research which has been done in National Library of Indonesia resulted that overall, the accessibility provided by the library is considered Appropriate by both of the standard of International Federation of Library Association and Institutions and by the Ministerial Regulation. While the facilities which needed to be improved are stair, toilet, furniture, and information sign.

3.3. Library Building Design Development
The public library consists of 1 (one) level of basement and 4 (four) levels of the main building. Which then divided to public zone, private zone, service zone, and circulation corridor. Each floor is provided with the guiding block to the area that can be accessed by the visual impairment user. Library for visual impairment which provided medias such as Braille book, Audio player, Audio book, Talking Computer, and CCTV Low Vision located on the first floor to ease the visual impairment visitor. On the second floor it provides children library and public collection such as magazine, or novel fiction and non-fiction for visitor’s recreation. Audiovisual mini theatre also provided on this floor. Third floor of this library building is to study for it provides public collection such as periodical books and reference books. Lastly, there are private zone such as office area and semi-public zone, which is multifunction room on the fourth floor.

![Site plan](image)

**Figure 3.** Site plan.
Source: personal documentation.

3.4. Detail Accessibility Facilities Provided
3.4.1. Parking Area
Parking area for disabilities has already provided on the basement floor near the lobby lift.

![Parking area on the basement](image)

**Figure 4.** Parking area on the basement.
Source: personal documentation.
3.4.2. Entrance Door
This library building uses automatic glass door for the entrance which is equipped with a line of yellow color for low vision visibility. With the width of the aperture is 220 cm to be passed by wheelchair users.

![Figure 5. Entrance door. Source: personal documentation.](image)

3.4.3. Ramp
Ramp provided near the lobby entrance if the library building with the degree of the floor slope is 5° and equipped with 80 cm height of stainless handrail and guiding block on the ramp. Warning guiding block also equipped before and after the ramp.

![Figure 6. Ramp. Source: personal documentation.](image)

3.4.4. Stair
The antrede and optrede of the stair is 30 cm and 18 cm for user’s comfortable and equipped with 80 cm height of the stainless handrail which at the end of the handrail provided information in Braille text. Each steps of the stairs also provided step nosing as a marker at the end of the step. And at both end of the stairs equipped with warning guiding block.

![Figure 7. Public stair. Source: personal documentation.](image)
3.4.5. Toilet
Disabilities toilet with the standard dimension based on the regulation and provided with any information in Braille and audio emergency alarm indicator.

![Figure 8. Toilet.](source: personal documentation)

3.4.6. Furniture
Bookshelves used in the public library are Pull Down Bookshelves which the top shelf of the bookshelf can be pulled down to take the book for wheelchair users. So that it will not reduce the number of book collections. The mechanism principle of this bookshelves is just like the pulldown shelves which can be found in many kitchen cabinets.

![Figure 9. Furniture (bookshelves).](source: personal documentation)

3.4.7. Sign
Each floor provided with talking plan to tell information of the room provided each floor. Every rooms in this library also use signboard that conclude pictogram symbol, ordinary text, and Braille text with the blue background color for information.
3D Visualization of Library Building which could be seen the guiding block provided from the information area of the building, along to the circulation area. The library for the visual impairment users also provided with the guiding block around the room.

4. Conclusion
The research which has been done in National Library of Indonesia resulted that overall, the accessibility provided by the library is considered appropriate by both of the standard of International Federation of Library Association and Institutions and by the Ministerial Regulation. The library has already provided facility to support both the visual impairment and physical movement deficiency visitors yet has not prepared the support system for the hearing impairment visitors. The facilities which needed to be improved from the study of National Library of Indonesia are stair and information sign which will located at the circulation area of the library and the braille collection library, toilet in each floor of the building, furniture especially in the public library which will provide accessible bookshelves.

References
[1] United Nations 2020 Sustainable Development Goals Retrieved: 24th March 2020 https://sustainabledevelopment.un.org/
[2] Badan Pusat Statistik 2015 Profil Penduduk Indonesia Hasil Supas2015
[3] Irvall, B and Nielsen, G S 2005 *Access to Library for Persons with Disabilities* (Den Haag: International Federation of Library Associations and Institutions: IFLA Professional Reports No.89)

[4] Kementerian Pekerjaan Umum Republik Indonesia 2017 *Peraturan Menteri Pekerjaan Umum Tentang Pedoman Teknis Fasilitas dan Aksesibilitas Pada Bangunan Gedung dan Lingkungan* (Jakarta: Departemen Pekerjaan Umum)