West Africa Built Environment Research (WABER) Conference
WABER 2021 Conference, 9-11 August 2021, Accra, Ghana
Proceedings Edited by Laryea, S. and Essah, E.
ISBN 978-0-620-95367-2

DESIGN TRENDS AND FUTURE PLANNING FOR INCLUSIVE DEVELOPMENT IN TROPICAL BUILT ENVIRONMENT

Asiah Abdul Rahim[1], Nur Amirah Abd Samad[2] and Wan Mohamad Amin W Seman[3]

[1]*Department of Architecture/KAED Universal Design Unit (KUDU), Kulliyyah of Architecture & Environmental Design, International Islamic University Malaysia.*

[2]*Department of Architecture, Faculty of Engineering & Built Environment, Universiti Kebangsaan Malaysia.*

[3]*KAED Universal Design Unit (KUDU), Kulliyyah of Architecture & Environmental Design, International Islamic University Malaysia.*

A brief history of the introduction of Universal Design and Accessibility in Malaysia where it has been established since 1990 of three Malaysian Standards regarding design for access to buildings. Coping with the demands of providing accessibility for Persons with Disabilities (PwDs) and the elderly has been a challenge for these past three decades. The intention is to distinguish current Universal Design trends and the level of public and professional awareness of inclusive development. Furthermore, an exploration of integrating inclusive development within the tropical built environment and our social construct of Asian culture and lifestyle. As a summary, to cater design for diverse age and ability is esteemed in providing recommendations or innovation design solutions to accommodate access design that complements in creating an accessible built environment.

Keyword: accessibility, access design solution, inclusive development, universal design

A BRIEF HISTORY OF UNIVERSAL DESIGN IN MALAYSIA

Essentially, the barrier-free concept was developed after World War II, when many troops returned from the war with disabilities such as amputation and hearing loss. As a result, rehabilitation centres that were deemed accessible for these injured soldiers were built. Furthermore, with the low mortality rate in Europe around that time, creating accessible facilities to accommodate their elderly population that were steadily increasing. Malaysia had just gained its independence when the prime minister at that time declared it in 1957 and initiated rebuilding the nation. The primary focus was on essential development for education, agriculture, economy and infrastructure. As the development was targeting the larger population, therefore, the erected buildings were not accessible. Gradually, urban

[1] arasiah@iium.edu.my

and rural development remained a government priority throughout the 1960s and 1970s.

Looking into global initiation of United Nations (UN) initiatives regarding Persons with Disabilities (PwDs) human rights movements, listed here are the chronology of the initiatives that lead to local context. Stein et al. (2008) listed the chronology that signifies the United Nation (UN) General Assembly's progress in the 1980s. The UN International Year of Disabled Persons in 1982, has constituted the International Decade of Disabled Person the following year of 1983 until 1992. Furthermore, the General Assembly in 1982, in efforts to encourage national-level programs to achieve equality, adopted a World Programme of Action Concerning Disabled Persons. Consequently, in 1993, the UN's Standard Rules on the Equalization of Opportunities for Persons with Disabilities was assimilated as a basic technical and economic alliance for policy-making with monitoring mechanism establishment.

American's with Disabilities Act (ADA) was conferred in 1990 as part of the International Decade for Disabled Persons from 1983 to 1992. As a result, it has become a globally recognised legal framework for protecting people with disabilities from discrimination in numerous domains of employment, access and equal opportunities (Kose, 2011; Manley, 1996). Emphasized by Kose (2011), the ADA movement accelerated the Japanese government to introduce some accessibility measures at the national level and find ways to integrate new trends toward accessibility into their policy initiatives by enacting the Japanese with Disability Act in 1993. As for in the United Kingdom (UK), coined by Clarkson et al. (2015), the incorporation of the Disability Discrimination Act (DDA) in 1995 as a rights-based legislative measure focuses on access to services in achieving social inclusion for PwDs.

Discernment in Asian countries has affected advocacy issues at Asia Pacific region under the United Nations Economic and Social Commission of Asia Pacific (UNESCAP) as highlighted by Nur Amirah et al. (2018) where several Asian countries, including Malaysia, have signed the Proclamation of the Asian and Pacific Decade of Disabled Persons for its first decade of 1993-2002. The second decade of 2003 until 2012, the UNCRPD and its Optional Protocol was embraced when developed in 2006. According to Tah et al. (2016), Malaysia has been committed to promoting and protecting the rights of PwDs, which is manifested by enacting the Persons with Disabilities Act in 2008. Following the acceptance of UNCRPD into the Malaysian legal framework, the government began formulating policies and implementing relevant measures to ensure compliance with UNCRPD rules.

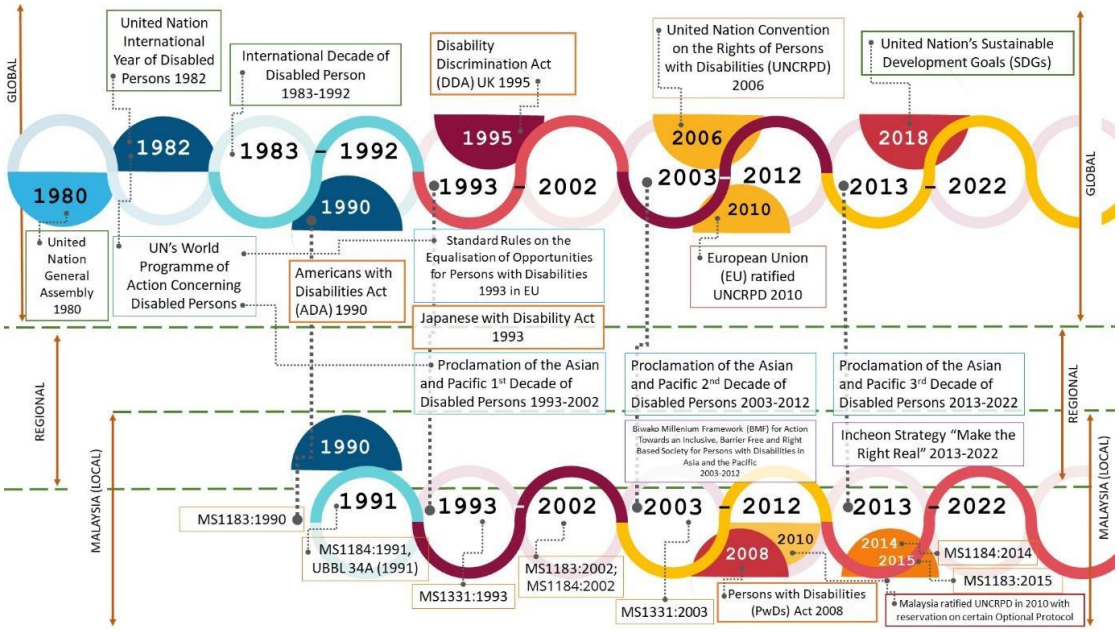


Figure 1 Cross-timeline of the United Nations initiation of international treaties on disability human rights leads to the establishment of legal disability legislative globally, regionally and locally in Malaysia. (Source: N. Amirah A.S., 2020)

UNIVERSAL DESIGN TRENDS AND THE AWARENESS OF INCLUSIVE DEVELOPMENT

According to Harrison (2011), the UNESCAP Decade of the Disabled addressed the problems that many Asian faced between 1993 and 2002. Lack of access to buildings deprived people of their rights to education, work, and social or religious spaces. He stated that pilot projects were being explored in Bangkok, New Delhi, and Beijing, focusing on a 1km2 region of the city and working with local officials, building owners, and other stakeholders having an interest in the area to propose ideas to enhance access in any manner feasible. BIWAKO Millennium Framework for Action Towards an Inclusive, Barrier-Free and Rights-Based Society for Persons with Disabilities in Asia and the Pacific, October 2002, is binding on Malaysia as a member of the United Nations Economic and Social Commission for Asia and the Pacific (UNESCAP).

It was established in 2008 by the KAED Universal Design Unit (KUDU), Kulliyyah of Architecture & Environmental Design, International Islamic University Malaysia (IIUM) to conduct and provide training on accessibility audits for local authorities on various building typologies in Malaysia, including waterfront facilities, heritage buildings, markets, shopping malls, and transportation hubs. Only 25 percent of the case studies in this 2008 pilot study were deemed to be accessible. Collaboration with government agencies and local authorities led to the development of a module for access audits as a basis for evaluating the level of accessibility in built environments. Following this research, government agencies, local authorities, and nongovernmental organisations (NGOs) collaborated to build an access audits module to evaluate the level of accessibility in the built environment.

Societal attitudes towards PwDs have improved in recent years, but there is some hesitation among professionals in the construction industry and building owners. The reluctance to invest in PwDs facilities, probably for additional costing or the

mistaken beliefs of hampering the aesthetic quality for buildings to be more user-friendly. For instance, providing an accessible lift at a two or three-storey building will incur an unnecessary cost to small business. A ramp or handrails could disturb the appearance of a building façade or ruin the aesthetic appeal of a building. Design experts are becoming more aware of the need for buildings to be user-friendly, yet there are still areas of ignorance or reluctant acceptance when it comes to meeting merely the minimum needs of people with disabilities. Seemingly, the situation in Malaysia is presently at this phase, where in the UK happens in the 1990s, but for Malaysia, the current lack of public awareness for PwDs and their difficulties in accessing the built environment hence the oblivious attitude. Harrison et al. (2015) anticipate that attitudes towards disability may continue to improve, but there is no room for complacency. Even though western countries have been designing the accessible built environment, they still have to have a thorough commitment to ensuring the social sustainability of PwDs in inclusion and participation. Legislation to require accessibility is not the same as Universal Design but is a critical reinforcement to achieve an accessible built environment.

The UNESCAP have taken the initiatives to improve the quality of life of the PwDs, and governments have already started preparing the code of practice and standards for providing facilities. However, many ASEAN countries are not able to fulfil those requirements for many other reasons (Asiah et al., 2015). This shortcoming results from the inadequate comprehensive disability law that mandates non-discrimination principles in many other countries in Asia and the Pacific region (Perlin, 2012). Hence, the concerns also affect the enactment of non-discrimination laws in Malaysia.

INTEGRATION OF INCLUSIVE DEVELOPMENT IN ASIAN SOCIAL CONSTRUCT AND TROPICAL BUILT ENVIRONMENT

A sustainable design for accessibility should be considered in all of our physical development in order to make our cities world class. Accessibility in the built environment is increasingly relevant to Malaysia, not only to prepare for the ageing population, PwDs but also the whole population at large. The statistics of PwDs registered under the Department of Social Welfare, Ministry of Women, Family and Community Development, Malaysia (DSM/JKM) on 31st December 2020 has a total of 588,159 people to date and will increase as more PwDs are to register. Nearly 80 percent of people with disabilities, according to this estimate, reside in developing nations. The UNCRPD was established to safeguard and expand the rights and opportunities of the world's estimated 650 million disabled persons. Most of countries, including Malaysia, have ratified the convention and agreed to adopt and enact laws to ensure that people with disabilities have equal access to education, employment, and cultural life; the right to own and inherit property; not be subjected to discrimination in marriage, children, etc.; and not be unwilling subjects in medical experiments.

PwDs, the elderly, as well as a wider variety of abilities or disabilities are the target users of accessible built environments, and numerous investigations have been conducted to determine the best techniques and approaches for creating and administering an accessible built environment. Based on user-centered design theory, inclusive design involves the successful collection of knowledge about the

end-user, which must be represented in a manner that can be accessed by the designer, according to Keates and Clarkson (2003). When the end-user information is translated into a concept, the designer must have the appropriate tools and methodologies at his disposal to test it against the end-needs user's and desires.

As Emory Baldwin also pointed out, too many homes are constructed for the "average" individual, despite the fact that very few people actually fit this description of "average". People come in a wide variety of sizes, shapes, and talents, and they go through a lot of changes in their lifetime. In his view, architects and designers prefer to create houses based on the client's appearance as it is now, and fail to take into account changes in the client's physical abilities and way of life over time. As a result, the requirements of any one individual should be properly met, but the needs of another individual should not be unduly compromised. Special attention should be focused especially on health and safety. In numerous cases, the usage of assistive devices by certain persons helps them to navigate the built world. Everyone's requirements should be considered while designing new surroundings. The layout and structure of an existing building or the external surroundings are likely to impose significant constraints.

Sustainability, according to Amer Hamzah M.Y. (2013), includes serving societal expectations in a way that can go on indefinitely without hurting or diminishing natural resources The ability of future generations to satisfy their own desires without jeopardising current generations' ability to meet their own needs. We may say that universal design has anything to do with sustainability, which is defined as meeting all present and future requirements.

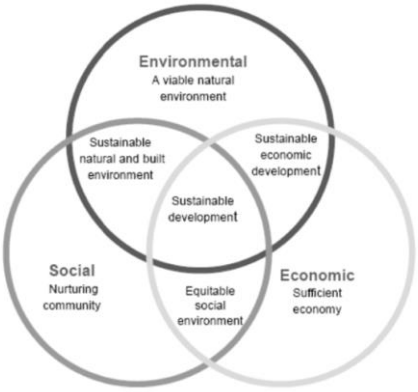


Figure 2: Cross Match of the Sustainable Solution. (Source: Amer Hamzah M.Y.,2013)

FUTURE ANTICIPATION OF UNIVERSAL DESIGN FOR MALAYSIA

In addition, towns and governments began looking at codes to make their settings more accessible, as described by Harrison et al. (2015). Instead of relying on voluntary guidelines, notwithstanding the best intentions of the designers, clients and building owners are now required to include accessibility elements in all new projects. To that end, he noted that the Ron Mace's Seven Principles of Universal Design stipulated that facilities should aim to be usable 'to the greatest possible extent', rather than 'by all', acknowledging that there are limits to providing this inclusion to everyone in all situations. It is vital for designers to be aware of these

limits in order to create better and more integrated designs. In addition, learning more about how we design may help us expand our abilities and become more creative designers.

Comprehensive and integrated environment of barrier-free architecture is difficult to regulate as well as this is required by the law. The most crucial aspects of an accessible environment might not be connected at the interfaces due to they are given to various agencies and are regulated by different laws, which many faced major difficulty to handle. However, public buildings may be accessible and usable by a variety of disabled persons, whereas the road system is under another authority's jurisdiction with its own requirements. Simple narratives about a person going to the clinic will be subject to norms and limitations that vary considerably. The consequence of a well-thought-out design that considers all users equally at the outset rather than as an afterthought is clever, sensitive, engaging, and non-exclusive.

According to Kamarul Syahrul Kamal et al (2004), the more active approach to tropical architecture, however, attempts to harness certain climates elements for energy and increased efficiency. He recommended of the new design to meet the requirement of modern living according the following concepts;

i. Roofs are frequently steeply pitched in order to assist water drainage and to offer a wide vented roof area below which heated air may disperse, keeping the building cold where gaps between wooden slats beneath the roof eaves might enable air to pass through.

ii. Eaves with large overhangs are vital for shielding windows from the sun and rain, providing shade and reducing unwanted glare.

iii. There are several ways to enhance natural ventilation, like leaving gaps between the overlapped roof eaves or cutting out flat patterns above the window.

iv. Maximizing natural ventilation in a building is essential and can be accomplished by a variety of methods, like constructing a house on stilts so that wind speed rises with height or including holes in the walls of tall structures might help promote airflow.

v. While wide windows and roof or wall air vents have a comparable effect, the designs must also keep rain from entering.

vi. Orienting a particular building towards the direction of the prevailing wind is important where the airflow can be increased by arranging houses in random order as opposed to the regular patterns seen in most housing estates which trap air and prevent adequate ventilation.

vii. Design wide open areas within the home and minimise the number of room barriers to stimulate air flow and cooling since the lack of internal walls results in improved cross ventilation. Choosing the right construction materials is also crucial in tropical architecture. In addition to being plentiful, local timber has a low thermal mass, which means that less heat is retained

and transferred into the structure. The heat is radiated into a structure via bricks, concrete, and glass.

Essentially, tropical architecture is based on the principle of adapting to and/or utilising the local tropical environment in order to enhance living circumstances for residents. Heat and rain are kept out, while natural ventilation and sunlight are encouraged. The passive response to tropical architecture has been practiced for centuries and is, today, slowly making a comeback in modern residential design. Therefore, the challenge continues until all problems can be mitigated in order to achieve the status of Inclusive City for Malaysian urban environments.

REFERENCES

Amer Hamzah Mohd. Yunos, (2013) Malaysia's green protocols initiatives, presentation of the 3rd international conference on universal design in the built environment 2013 (icudbe 2013).

Asiah, A. R., Nur Amirah, A. S., & Che Raiskandar, C. R. (2015, 2nd -3rd March 2015). Overview of Universal Design Application and Accessibility in Major Cities of ASEAN Countries. 2nd International Conference on ASEAN Community 2015, Kuala Lumpur.

Clarkson, J. P., & Coleman, R. (2015, 2015/01/01/). History of Inclusive Design in the UK. Applied Ergonomics, 46, 235-247.

Harrison, (2011) international conference on universal design in the built environment 2011 proceeding 1, 3.

Harrison, J., & Dalton, C. (2015). The Familiar and the Strange: The Limits of Universal Design in the European Context. Journal of Universal Design in the Built Environment, 1(1), 49-67.

Kamal, K. S., A.Wahab, L., & Che Ahmad, A. (2004). Climatic Design of the traditional Malay House to Meet The Requirements of Modern Living. The 38th International Conference of Architectural Sceince Association ANZAScA 'Contexts of Architecture'. Launceston, Tasmania.

Kose, s. (2013). Japanese struggle toward inclusive built environment: can it catch up with the speed of ageing and economic changes?, proceedings of the 3rd international conference on universal design in the built environment 2013 (icudbe 2013). Isbn: 978-983-3142-30-9.

Kose, S. (2011). The Impact of Aging on Japanese Accessibility Standards In W. F. E. Preiser & K. H. Smith (Eds.), Universal Design Handbook (2nd ed.). McGraw-Hill Education.

Manley, S. (1996). Walls of exclusion: The role of local authorities in creating barries-free streets. Landscape and Urban Planning, 35, 137-152.

Nur Amirah, A. S., Ismail, S., & Asiah, A. R. (2018). A Review of Universal Design and Accessibility Legislations in Implementation Strategies Among Asian Countries. In Proceeding of The 12th SEATUC Symposium: Engineering Education and Research for Sustainable Development. Yogyakarta, Indonesia.

Perlin, M. (2012). Promoting Social Change in Asia and the Pacific: The Need for a Disability Rights Tribunal to Give Life to the UN Convention on the Rights of Persons with Disabilities. SSRN Electronic Journal.

S. Keates, & J. Clarkson (2003) countering design exclusion. Bridging the gap between usability and accessibility. Universal access in the information society 2.

Stein, M., & Lord, J. E. (2008). Future Prospects for the United Nations Convention on the Rights of Persons with Disabilities. ARNADOTTIR, F3, 17-40.indd.

Tah, I. H. M., & Mokhtar, K. A. (2016). Malaysia's Ratification of the UN Convention on the Rights of Persons with Disabilities (UN CRPD). International Journal of Business, Economics and Law, Vol 11(Issue 4 (Dec)).

Retrieved from http://www.archfoundation.org/2013/06/sustainable-visitable-and-universal-bydesign/#sthash.shgh4kza.dpuf

Retrieved from http://www.informedesign.org/_news/sustain01_06.pdf

Retrieved from World Health Organization report (2011).

UNCRPD. United nation convention on rights of persons with disabilities (2006). Article (2): definition - universal design and article (9): accessibility.