

SUSTAINABLE INCLUSIVE PLAYGROUND EQUIPMENT CRITERIA FOR CHILDREN WITH DISABILITIES”



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Normal Playground



VS

Inclusive Playground



STATE	TOTAL	%
Selangor	2,448	16%
Johor	1,775	12%
Perak	1,327	9%
Kedah	1,322	9%
Kelantan	1,089	7%
W.P. Kuala Lumpur	1,065	7%
Sarawak	1,012	7%
Sabah	972	6%
Pahang	882	6%
Pulau Pinang	880	6%
Terengganu	749	5%
Melaka	697	5%
Negeri Sembilan	691	4%
Perlis	192	1%
W.P. Labuan	47	1%
Selangor	2,448	16%
TOTAL OF CWPD	15,151	100

(Sources: Social Welfare Department, 2020)

INTRODUCTION

- The playground has being prepared for children to play. However, **it does not fit** to children with disabilities to play on that playground.
- In facts, CWD in Malaysia also are having problems in public area especially on the playground (Soltani, Abbas & Awang, 2012).
- **Playground** nowadays should be **designed and manufactured universally** in order to be include children with disabilities (Wolbring & Rybchinski, 2013)
- **Sustainable Development Goals (SDGs) in Agenda 2030** which were introduced to ensure that all people including children with disabilities enjoy the peace and prosperity of public facilities and amenities (Gan, 2020)

DEFINITION OF MAIN TERMS

INCLUSIVE PLAYGROUND

- **Playground** provides space for all children including with disabilities to meet and gather, imaginative play and physical activities.
- **Playground** can also be designed to persuade children to cooperate by developing children's skills in negotiation

(Source : Karin & Paul, 2015; Poppe *et al.*, 2014)

CHILDREN WITH DISABILITIES

- **Impairments** that had be faced by the people with disability in part of Long-term physical, mental, intellectual or sensory and interaction
- Various obstacles that hindered them fully participation in the community
- **Difficulty** encountered by an individual in executing a task

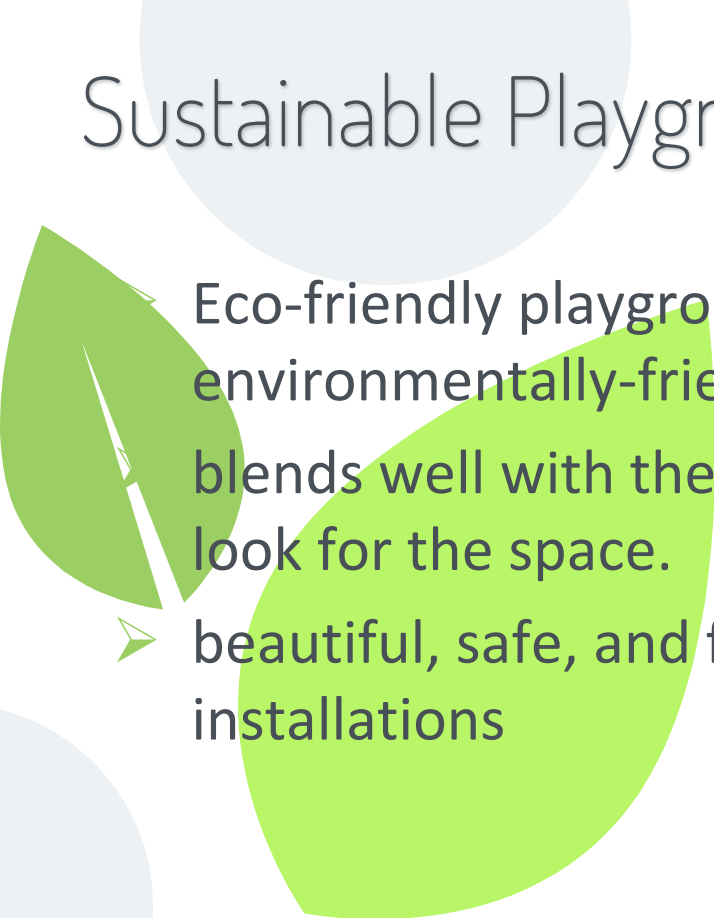
(WHO, 2010; Kaur et al., 2015; Ismail et al., 2015)

A PLACE FOR
PLAY FOR
RECREATIONAL
ACTIVITIES

Inclusive playground design includes systems and components that allow all children to play together in a rich and engaging way. In an inclusive play space, children of different abilities can play together, ensuring no one is left out.

RESTRICTED
ABILITY

Sustainable Playground equipment

- 
- A decorative graphic on the left side of the slide features two stylized leaves, one in a medium green and the other in a bright lime green, overlapping each other. Behind the leaves are two large, light grey circles. The text of the list items is positioned to the right of the leaves, with small green arrowheads pointing towards the text.
- Eco-friendly playground equipment and construct environmentally-friendly
 - blends well with the greenery to create a seamless look for the space.
 - beautiful, safe, and functional, and eco-friendly installations

INCLUSIVE PLAYGROUND IN MALAYSIA

— PENANG



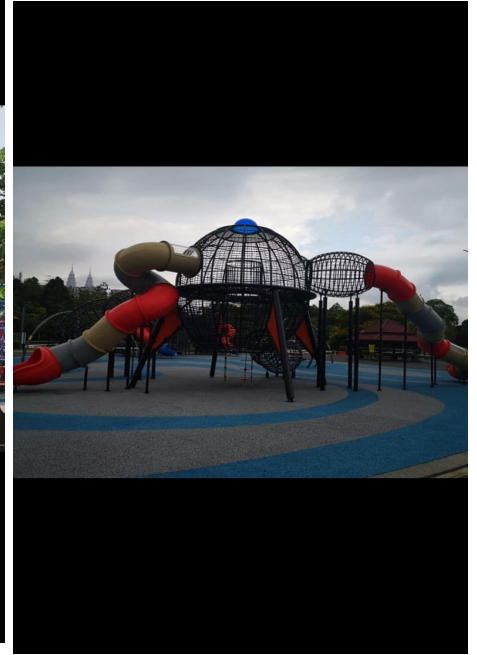
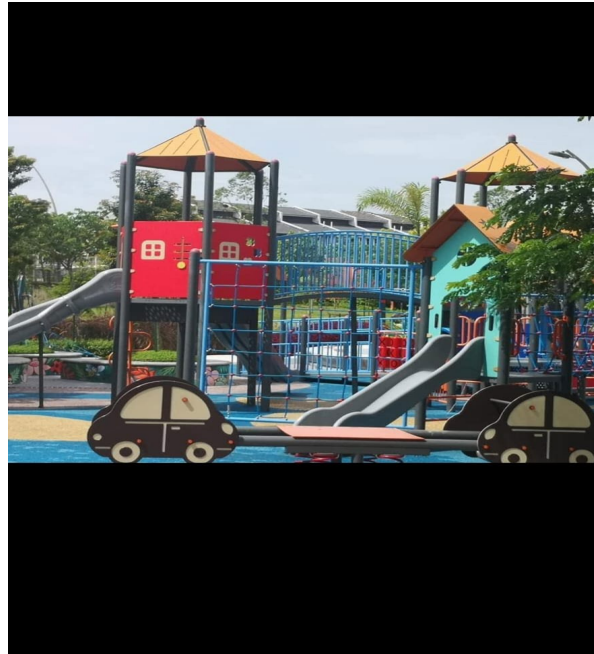
INCLUSIVE PLAYGROUND IN MALAYSIA

● PETALING JAYA



INCLUSIVE PLAYGROUND IN MALAYSIA

— ELMINA & TITIWANGSA



Children with disabilities

Children with disabilities are likely to be among the lowest and poorest group of people in society (Gan , 2020)

7 general types of disabilities:

(Social Welfare Department, 2020)

1. Physical disabilities,
2. Learning disabilities,
3. Blindness,
4. Mental disabilities,
5. Deafness,
6. Speech disorder
7. Multiple disabilities

Barriers of playground equipment for CWPD

1. Inaccessibility to equipment
2. Helpless features
3. Too high of equipment
4. Insufficient space
5. Immobility

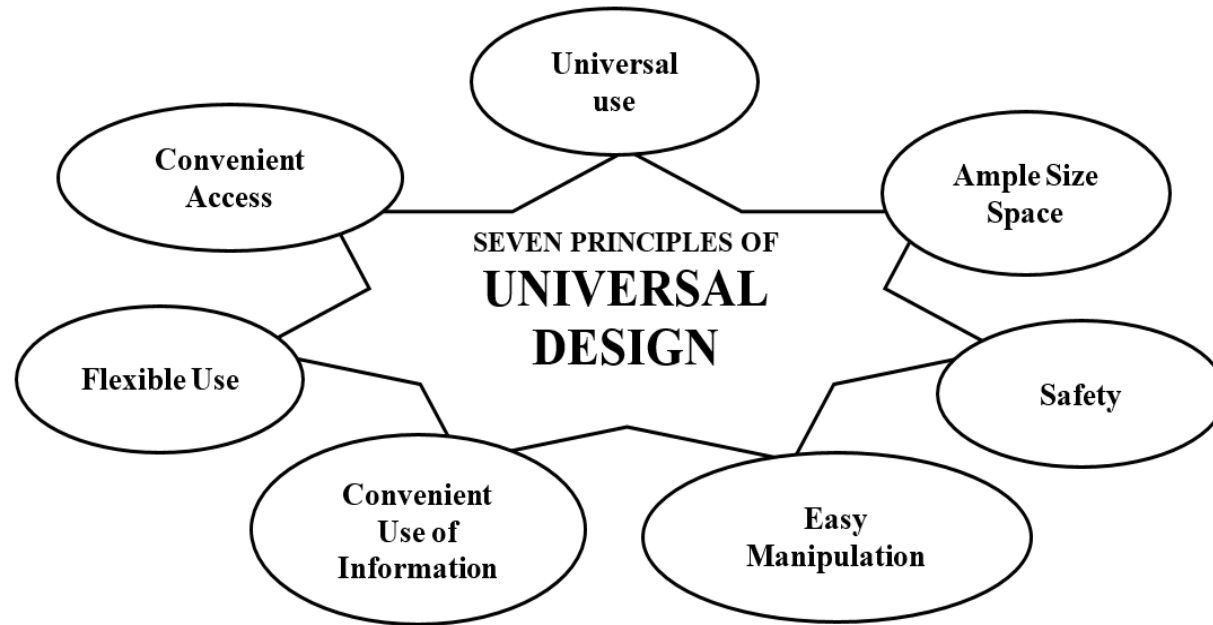
Playground for children of disabilities

- Implementation of Inclusive Playground in Malaysia is **still new and recently develop**.
- **MS 966 2017 : Playground equipment safety performance**

Overseas' guidelines (USA, Australia And Singapore)

(Accessible Play Areas (US Access board, 2005) & Inclusive Play Design Guide (Playworld, 2015))

1. Accessibility to equipment
2. Helpful features
3. Lower height of equipment
4. Sufficient space
5. Mobility





●○ Universal Use

*the product should be beneficial and usable for people with diverse abilities.
The product should provide similar means of use for all users.*

Convenient Access

*the design should be clear and easily understood by all users.
The design is simple and easily understood regardless of the user's
experiences, knowledge, language skills or current concentration level*

Safety

*the design of product should minimize the risk of hazard and accidents by
users*

● Ample Size

Space has shown the appropriate size and space that should be provided and sufficient for user in terms of accessibility.

Easy Manipulation““

the design of the product that can be used effectively and comfortably by the user with minimum fatigue or trouble

Convenient Use of Information

there is a need for a design that should be able to deliver the information to the user effectively within the capacity of the senses

Flexible Use

the various design should be prepared to meet and able to accommodate diverse option of individual capability whether they are normal user or left-handed user

7 Principles of Inclusive Playground

Be fair. Play environments are designed to allow everyone to participate equally.

Be included. Everyone is included, regardless of diverse abilities.

Be smart. The play environment is easy to understand.

- Be independent. All children can play independently and at their own level.



● Be safe. Playgrounds meet current safety standards, while remaining challenging.


Be active. The environment supports physical activities.

Be comfortable. The playground is usable for people with all needs, including sensory, size, and mobility needs.










No.	Equipment	Detailed list of proposed criteria of inclusive playground equipment
1	Slide	<ul style="list-style-type: none"> • The ramp should be 1:16 maximum • A deck with transfer platform and the transfer steps and transfer support at elevated routes. • The wheelchair parking • The maneuvering space for the wheelchair user • A slide that carries two people side-by-side
2	See-saws	<ul style="list-style-type: none"> • The backrest, footrest and hand support for the seat • A longer and deeper seat for parents
3	Spring rider	<ul style="list-style-type: none"> • The backrest, footrest and hand support for the seat • A longer and deeper seat for parents
4	Swing	<ul style="list-style-type: none"> • Wheelchair parking • Accessible swing seat complete with backrest and safety belt • Accessible tools for wheelchair user
5	Monkey bar	<ul style="list-style-type: none"> • The height that can be reached by wheel-chair user • Monkey bar should provide with safety belts
6	Tube	<ul style="list-style-type: none"> • Tunnel to attempt challenge at certain levels
7	Surfacing floor	<ul style="list-style-type: none"> • Rubber safety unitary surfacing floor

Adapted from U.S Access Board (2005) & Playworld (2015)



How to Create Eco-Friendly and Sustainable Playgrounds

Use Recycled Materials

Invest in Quality Materials

Get Regular Maintenance

- Use Responsibly Sourced Materials

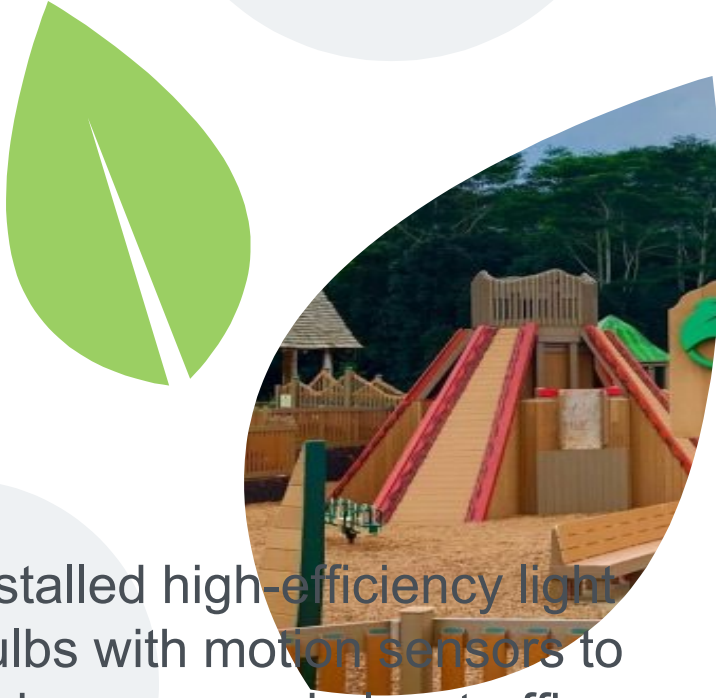


How to Create Eco-Friendly and Sustainable Playgrounds

playground design, placing nature-based play and equipment made from sustainably sourced and even recycled materials on the ‘must have’ list.”

- Sustainability can include a focus on eco-friendly playground equipment, surfacing options, and materials. Because both sustainable and recycled materials are popular materials for playground equipment, this promises to be a growing trend. These products often use high density polyethylene, or HDPE for playground equipment.

The eco-playground is built almost entirely from recycled plastic and locally sourced non-toxic natural building materials.



installed high-efficiency light bulbs with motion sensors to reduce energy in low traffic areas



Cork can be used as a safe, stable and sustainable surface, due to its main characteristics: lower surface temperature, impact absorption, odorless, drainage capacity, lightweight, fire-retardant and hypoallergenic.

The background of the slide is white, decorated with several stylized green shapes. There are three large, light green leaf-like shapes and several smaller green circles of different shades (light and dark green) scattered around the text.

The playground industry in Europe has defined children's safety as one of the top priorities. To reduce the risk of severe injuries, EN1176 & EN1177 has been introduced to the market. EN1176 is the European Standard for play equipment and surfacing. It regulates criterias within the playing area. One of these requirements is the need for safety surfacing below playground equipment.

MATERIALS FOR PLAYGROUND

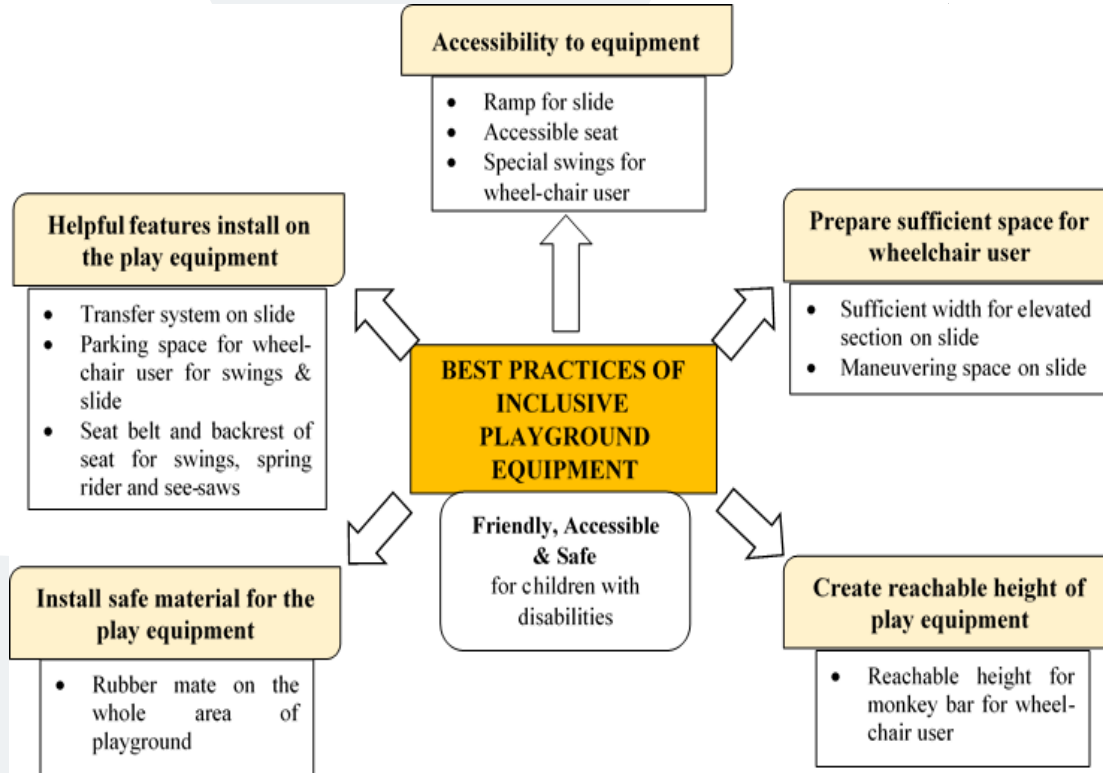
- Tactile and sensory engaging materials should be balanced with materials that are easy to navigate for mobility-disabled children.
- Ground cover materials, including the surfaces of playground equipment and its surroundings, should be accessible to wheelchair users. Low-glare materials should be used throughout playgrounds, easing communication for children who use sign language and those with low vision.
- Steel, instead of plastic slides, can reduce static, which can be a concern for those with cochlear implants. Consider heat gain and cold retention properties of materials for those with temperature sensitivities.

Accessible equipment:

Standard playground equipment isn't accessible to all children.

Supportive and wheelchair accessible swings expand who can use this equipment.

- Playground structures should have multiple options for transferring onto elevated elements, including paths wide enough for wheelchair users to turn around.



BEST PRACTICE CRITERIA

There are ten (10) criteria of inclusive design that can applied on play equipment and are being summarized into **five (5) categories** as shown in figure.


Best practice criteria that can be adapted and guide to create inclusive design on the equipment of the playground from their neighborhood area.

This criteria should become their main agenda for **local authority and playground provider** and this practice should be followed during the process of planning and providing facilities into the society



Ten (10) criteria of inclusive design that can applied on play equipment

No	Inclusive criteria of playground equipment	Playground equipment
1	The spring rider should provide accessible seat complete with a backrest and safety features.	Spring Rider
2	The swings should provide accessible seat complete with a backrest and safety features.	Swings
3	The entrance of the current slide should provide 'transfer platform' and 'transfer steps'	Slide
4	The current size of ramps for slide should be 1:12 size ramps with metal guiderails	Slide
5	The see-saw should provide accessible seat complete with a backrest and safety belt	See-saws
6	The entrance of the current slide should provide parking space for wheelchair users	Slide
7	The surfacing floor of the playground should use rubber type material	Surfacing floor
8	The swings should provide special features for wheelchair users to play on	Swings
9	The platform of the slide should provide sufficient space to facilitate children with disabilities to move and change directions	Slide
10	The monkey bar should provide better accessibility for wheelchair users.	Monkey bar





CONCLUSIONS

Children with disabilities have rights to use and enjoy the public facilities and amenities. To ensure these provisions are fulfilled, the guidelines for inventory and design of the playground equipment should be enhanced and improved to cater to everyone in order for them to use facilities properly, accessibly, inclusively and safely.

Thank you.