

**T**he wheelchair is one of the most commonly used assistive devices for enhancing personal mobility, which is a precondition for enjoying human rights and living in dignity. Wheelchairs assist people with disabilities to become productive members of their communities.

About 10% of the global population, i.e. about 650 million people, have disabilities (1). Studies indicate that, of these, some 10% require a wheelchair. In 2003, it was estimated that 20 million of those requiring a wheelchair for mobility did not have one. There are indications that only a minority of those in need of wheelchairs have access to them, and of these very few have access to an appropriate wheelchair (2).

## Rights to wheelchair

The UN Standard Rules (1994) Rule 4; Convention on the Rights of Persons with Disabilities (CRPD 2006) Article 20 (personal mobility) and Article 26 (habilitation & rehabilitation) request Member States to support the development, production, distribution and servicing of assistive devices and equipment and the dissemination of knowledge about them. It is to be noted that to make optimum use of a wheelchair, an accessible/barrier-free environment is equally important.

## Benefits of wheelchairs

Providing appropriate wheelchairs not only enhances mobility but begins a process of opening up a world of education, work and social life. In addition to providing mobility, an appropriate wheelchair benefits the physical health and quality of life of the users by helping in reducing common problems such as pressure sores, progression of deformities and improve respiration and digestion.

### *Freedom: Life story of Sharmin from Bangladesh*

Sharmin, now 18 years old has moderate cerebral palsy. For years she lived a life virtually restricted to the boundaries of her home. She did not have friends, did not participate in games or go to school. When her parents went out they locked her inside fearing for her safety.

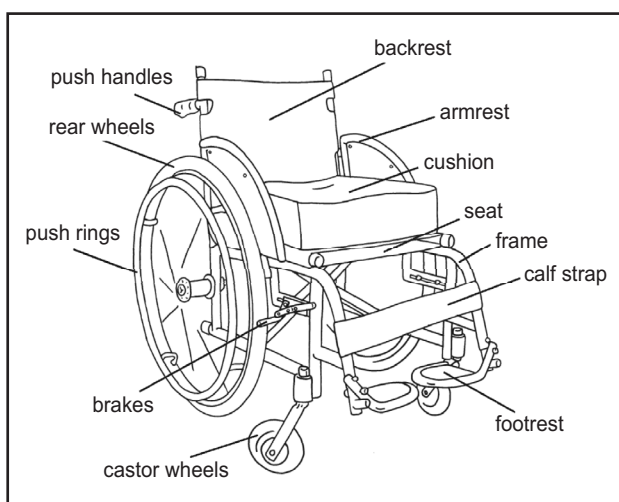
In 2007, Sharmin and her family were severely affected by Cyclone Sidr. During the rehabilitation process following Sidr, she received a wheelchair. It was a day of liberation and happiness for Sharmin. This was the first time she went out of her home with dignity. She is now able to earn by selling goods from a shop and by recharging mobiles of her neighbours from the electricity generated from a solar panel. She says, *'If I had the wheelchair at a younger age, I could have studied as other children do'*



## Features of a wheelchair

A wheelchair is a chair with wheels to help people move around. It is used by individuals who have impairments that limit their ability to walk. It typically consists of a seat supported on two large wheels attached towards the back of the seat and two small wheels (castors) in front near the feet, a good braking system, footrests and a cushion. There are often small additional features to prevent toppling or to assist in mounting curbs. The user moves by pushing with his/her hands circular bars on the outside of the large wheels, known as the hand-rim or push rings.

Out of the estimated 650 million people with disabilities in the world, 400 million live in the Asian and Pacific region and over 40% of them live in poverty(3). Data on the number of people with disabilities, especially those that require mobility devices such as wheelchairs, are not available. Many forms of disability/impairments are difficult to capture in statistics without having a robust support system, so there is a trend of under-reporting.



## Types of wheelchairs

Based on variations in the basic design, there are many types of wheelchairs, with being highly customized to suit individual needs.

- Manual wheelchairs are mostly propelled by the user. Other features such as foot/leg rests, front caster outriggers, adjustable backrests and controls can be added to the basic model. The seat size (width and depth), seat-to-floor height, seat angle (also called seat dump or squeeze) relative to the

## What is an appropriate wheelchair?

According to the World Health Organization, a wheelchair is appropriate when it:

- meets the user's needs and environmental conditions;
- provides proper fit and postural support;
- is safe and durable;
- is available in the country; and
- can be obtained, maintained and services sustained in the country at an affordable cost.

horizontal plane can be modified. Users who have specialized needs may opt for a custom-built wheelchair.

- Attendant-propelled chairs are designed to be propelled by an attendant using the handles, and thus the back wheels are often rimless and smaller. These chairs are often used as 'transfer chairs' possibly within a hospital or airport to move a mobility-impaired person when a better alternative or a user's standard chair is unavailable.
- A rigid frame wheelchair is usually a non-folding type with a base of support on which the person sits. In some models, the backrest of the chair can be folded down, and the wheels have a quick release mechanism to enable easy transportation and storage.
- A folding frame wheelchair is one whose frame is collapsible sideways by the use of an "X" mechanism in the frame. This mechanism is lockable, and the wheelchair folds on release of two locking levers on the chair (4).
- A motorized wheelchair, power chair, electric wheelchair or electric-powered wheelchair is propelled by means of an electric motor rather than manual power. Motorized wheelchairs are useful for those unable to propel a manual wheelchair or who may need to use a wheelchair for distances or over terrain which would be fatiguing in a manual wheelchair. They may also be used by people with cardiovascular and fatigue-based conditions.

## Stakeholders in wheelchair service delivery

Stakeholders directly involved in the planning, implementation and participation in service delivery include:

- users and their families or caregivers;
- government authorities, including ministries responsible for health, social welfare and education and other relevant departments and local authorities;
- existing health and rehabilitation services (including referral networks) managed by governmental, private, nongovernmental, international nongovernmental or disabled people’s organizations;
- supporting organizations providing technical input or funding; and
- rehabilitation personnel including trained wheelchair service personnel.

### What is a wheelchair service?

The provision of an appropriate wheelchair that meets the user’s physical, functional and environmental needs as much as possible requires an approach that responds to individual needs (5). An effective way of meeting the individual needs of users is to promote the provision of wheelchairs through wheelchair services.

### Two-tier service approach in wheelchair service delivery

- Wheelchair service delivery may be conducted either from a centre, usually based in a city/district headquarters or at the community level. Wheelchair services provide the framework for assessment, training, support and referral to other services.
- Wheelchair services could also play a dual role, providing wheelchairs directly to the users and supporting basic services in the community through partnerships with community-level programmes and organizations.

A wheelchair service centre or department can also be established within existing rehabilitation services. They would therefore already have much of the infrastructure required. Examples of rehabilitation services well suited to the integration of a wheelchair service include prosthetics and orthotics services and spinal injury centres.

### Characteristics and key functions of different types of wheelchair service:

	Characteristics	Key functions
Centre-based wheelchair service	<p><b>Facilities</b> (possibly shared with existing health or rehabilitation services): clinical and user training facilities; workshop facilities.</p> <p><b>Staff:</b> dedicated wheelchair service centre personnel trained to meet the needs of all users.</p>	<ul style="list-style-type: none"> <li>• Wheelchair service delivery for all users.</li> <li>• Linking with community-based wheelchair services and referral networks.</li> <li>• Training, support and supervision of community-based wheelchair services and personnel.</li> <li>• Linking with education, employment and other key development sectors.</li> </ul>
Community-based wheelchair services	<p><b>Facilities</b> (shared with other community health and rehabilitation programmes): access to clinic, user training facilities basic workshop facilities.</p> <p><b>Staff:</b> community health and rehabilitation workers trained in basic wheelchair service delivery, supervised and supported by wheelchair service centre personnel.</p>	<ul style="list-style-type: none"> <li>• Identification of users with complex needs, and referral to wheelchair service centre.</li> <li>• Where appropriate, support of users with more complex needs for follow-up, maintenance and repair in the community.</li> <li>• Support of accessibility, including adaptation of user’s environment such as wider doors and ramps.</li> </ul>

## General considerations in wheelchair designing

Wheelchairs should be designed to enable users to lead a more active life and to participate in as many activities as possible without affecting their health and safety. They should be strong, durable and appropriate for the environment in which they will be used.

## Resources required for wheelchair service delivery

- a national consensus on wheelchair service provision with the support of government and setting up national standards for wheelchair service provision following the WHO guidelines;
- access to different types and sizes of wheelchairs to meet the varied needs of individual users;
- support the training of ideal human resources through national institutes, NGOs and other technical schools;
- facilities (which may be shared with existing rehabilitation or health services) including clinical facilities providing sufficient space for assessment, basic user training and storage of wheelchairs, and workshop facilities, particularly where modifications to wheelchairs are offered or postural support is provided;
- materials for wheelchair modifications and spare components; and
- funding to support wheelchair service delivery (products and services)(6).

## References

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6. *Guidelines on the provision of Manual Wheelchairs in less resourced settings*, World Health Organization 2008

## Acknowledgement

This fact sheet cites the “Guidelines on the provision of Manual Wheelchairs in less resourced settings” published by World Health Organization, Headquarters, Geneva, Switzerland. For more detailed and technical information please refer to the manual available at: <http://www.who.int/disabilities/publications/technology/wheelchairguidelines/en/index.html>

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