AT2030
Workshop Report

Wheelchair Provision in Nepal: Biratnagar, Koshi Province

Provincial Report

Prepared by
Prepared by The GDI Hub

Cluster 5: Integrate

Country
Nepal

Date
June 2025

Funded by

UK International Development
Partnership | Progress | Prosperity

Led by

Global Disability Innovation Hub

In partnership with

Design Lab

UNIVERSITY OF LIMERICK
OLLSCOIL LUIMNIGH

Center for Disabled Children Assistance
Kathmandu, Nepal
Estd 2006

AT2030

Wheelchair Provision in Nepal: Biratnagar, Koshi Province, Nepal.

An AT2030 Report www.AT2030.org

Suggested citation: Thapa, R., Oldfrey, B., Thapa, A., Holloway, C., Shrestha, P., & Gowran, R. (2025). *Wheelchair provision in Nepal: Biratnagar, Koshi Province*. AT2030 Integrate, Local Systems Strengthening. Prepared by the Global Disability Innovation Hub and partners for the UK Foreign, Commonwealth and Development Office.

Funded by

UK International Development
Partnership | Progress | Prosperity

Led by

Global Disability Innovation Hub

In partnership with

Design Lab

UNIVERSITY OF LIMERICK
OLLSCOIL LUIMNIGH

Center for Disabled Children Assistance
Kathmandu, Nepal
Estd. 2006

AT2030

Acknowledgements

We are deeply thankful to all stakeholders and collaborators for their meaningful engagement and input, and especially to the research participants whose openness and commitment enriched this study. Particular gratitude is due to the team at the Centre for Disabled Children Assistance (CDCA) - Mr. Dendi Sherpa, Mr. Ashish Adhikari, and Mr. Sunil Pariyar, Infinity Lab for their collaborative support throughout the project. This report aspires to reflect and uphold the voices and aspirations of persons with disabilities and their service providers, contributing to the vision of a sustainable and inclusive wheelchair provision system in Nepal.

This research has ethical approval from University College London (UCL) and permission from the Nepal Health Research Council (NHRC).

Funded by

UK International Development
Partnership | Progress | Prosperity

Led by

Global Disability Innovation Hub

In partnership with

Design Lab

UNIVERSITY OF LIMERICK
OLLSCOIL LUIMNIGH

Center for Disabled Children Assistance
Kathmandu, Nepal

AT2030

Wheelchair Provision in Nepal: Biratnagar, Koshi Province, Nepal.

An AT2030 Report www.AT2030.org

Contents

List of figures

List of Tables

Introduction

Figure 1. A tricycle parked at the workshop while users and service providers took part in discussion.

Wheelchairs as an essential mobility device for people with disabilities are well recognized whereas their postural function is often overlooked. *Gowran (2012)*[1] in the 'Sustainable solutions for wheelchair and seating assistive technology provision' argues that *"using the terms wheelchair and seating together strengthen their use as a primary and essential*

[1] Gowran RJ. Guest Editorial, Irish Journal of Occupational Therapy, Special Edition Wheelchair and Seating Provision. 2012; 39(2): p. 2.

assistive technology grouping which cannot be replaced by the assistance of another human being." Wheelchair and seating assistive technology (WSAT) together play a pivotal role in supporting a person's physical and mental well-being, independence, and meaningful participation in society.

Wheelchair and seating assistive technology (WSAT) is both an intrinsic and extrinsic enabler, being defined by *Gowran (2012)* as:

'An enabler both extrinsically and intrinsically for people with short-term and permanent posture and mobility impairments of body functions and structures to actively participate across the life span in everyday living. The type and complexity of the wheelchair and seating technology provided will depend on the limitations and restrictions caused to individuals' posture and mobility to personally participate within their desired environment and context.'

The World Health Organization (WHO) defines an appropriate wheelchair as one that is individually fitted, responsive to the user's physical, environmental, and lifestyle needs, and is safe, durable, and locally maintainable. Its provision must be embedded within a comprehensive service system that includes assessment, fitting, training, and follow-up care. Despite its significance, WHO highlights that equitable access to and standardized provision of appropriate wheelchairs remains a global challenge. Wheelchair provision encompasses the

full process of design, production, supply, and service delivery, and should adhere to the principles and protocols outlined in the *WHO Wheelchair Provision Guidelines (2023)*[2].

In Nepal, where services are concentrated in urban centers and inconsistent across provinces, it urgently requires a country-specific strategy for sustainable wheelchair provision due to its unique geographic and socio-political context. Despite global guidelines, evidence suggests that wheelchair service delivery remains inefficient, with limited national legislation or structured support systems in place *(Gowran et al., 2021)*[3]. For example, from the *'Wheelchair provision within Romania and the Philippines'* comparative study, *Gowran et al. (2019)* identified contrasting yet equally challenging service landscapes across these country contexts. Romania operates within a centralized, medicalized system marked by bureaucratic inefficiencies, limited user participation, and a lack of trained personnel. In contrast, the Philippines relies on a decentralized, NGO-driven model, resulting in fragmented services, poor coordination, and major access issues in remote areas. Despite these contextual differences, both countries face common barriers such as inadequate policy frameworks,

[2] Wheelchair provision guidelines. (2023). Geneva: World Health Organization; Available at: https://www.who.int/publications/i/item/9789240074521

[3] Gowran, R.J., Bray, N., Goldberg, M., Rushton, P., Barhouche Abou Saab, M., Constantine, D., Ghosh, R. and Pearlman, J. (2021). Understanding the Global Challenges to Accessing Appropriate Wheelchairs: Position Paper. *International Journal of Environmental Research and Public Health*, [online] 18(7), p.3338. doi: https://doi.org/10.3390/ijerph18073338.

limited data systems, shortage of qualified professionals, and lack of repair services and context-appropriate wheelchairs *(Gowran et al., 2019)*[4].

Studies from diverse settings such as Ireland, Romania and The Philippines by *Gowran et. al (2017, 2019, 2021)*[5] demonstrate that tailored strategic planning - developed in collaboration with governments and stakeholders - is essential for building effective, equitable, and sustainable wheelchair services. Aligning national efforts with WHO's Global Standards and Assistive Products Specifications (APS) global guidebook can help ensure quality and contextual relevance.[6] *Gowran et al.* highlights that sustainable wheelchair service provision requires global commitment and context-specific strategies that reflect users' needs across their life course. These researchers claim that despite growing demand, access remains limited due to inconsistent regulation, insufficient funding, inadequate policy frameworks, and a shortage of trained personnel. To address these challenges, researchers suggest that

[4] Gowran (2019): Developing country-specific wheelchair service provision strategic plans for Romania and the Philippines, Disability and Rehabilitation: Assistive Technology, Available at: https://doi.org/10.1080/17483107.2018.1539131.

[5] Gowran, R.J., Casey, J., & Daly, J.B. (2017). Utilising a Sustainable Community of Practice Model to build best practice in Wheelchair provision on the Island of Ireland. Available at: https://pure.ul.ie/en/publications/utilising-a-sustainable-community-of-practice-model-to-build-best.

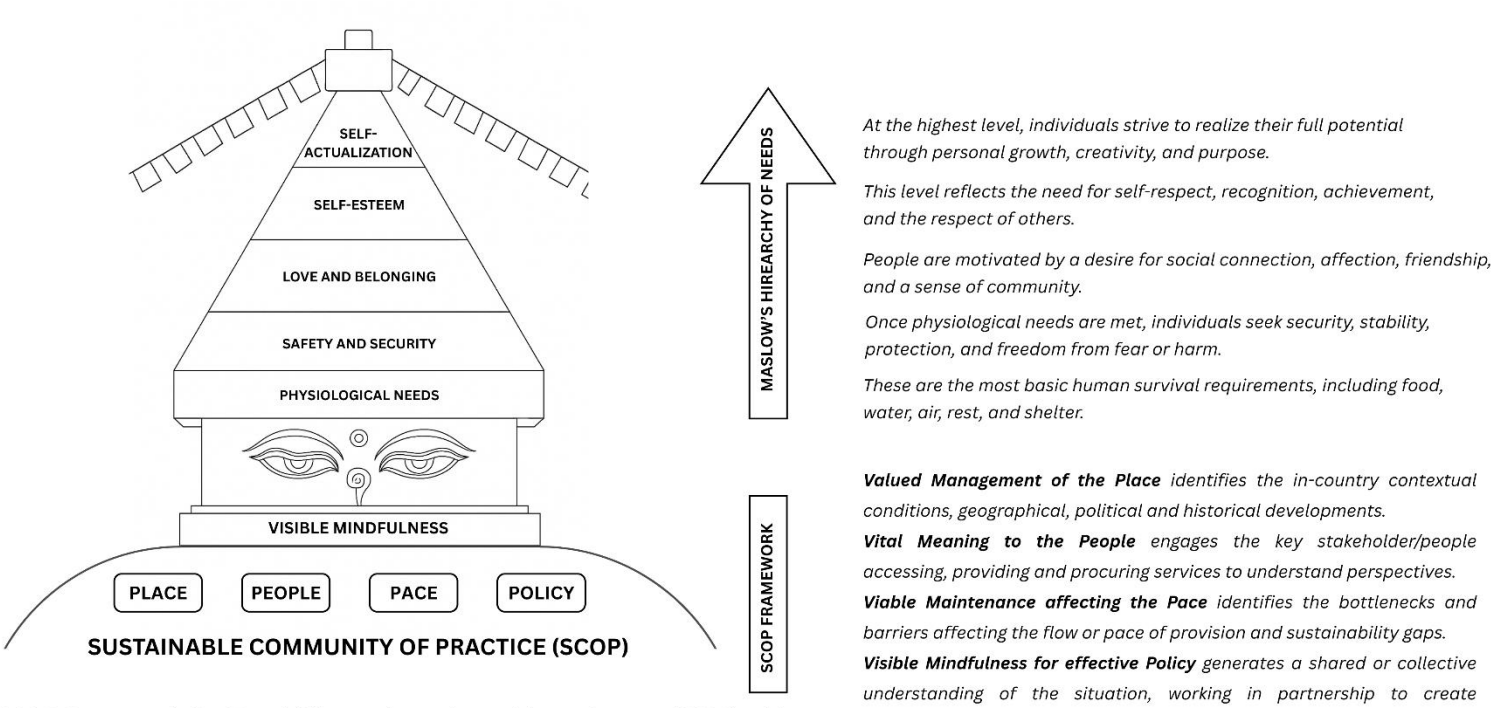
[6] Assistive product specifications and how to use them. (2021). World Health Organization. Available at: https://www.who.int/publications/i/item/9789240020283. [Accessed 10 Jun. 2025].

countries must develop inclusive, evidence-based, and integrated systems supported by competent professionals and diverse, appropriate products *(Gowran et al., 2021).*

Applying the Sustainable Community of Practice (SCOP) model *(Gowran et al., 2017)* to view wheelchair provision in Nepal, this study seeks to understand the landscape of overall wheelchair product and service provision, deep diving into its provincial situation.

This report focuses on **Koshi Province.** The SCOP model has four interconnected dimensions which provide a foundation for countries to evaluate their current situation and build context specific platforms to support the development of appropriate wheelchair provision as a prerequisite to meet the lifestyle needs of all citizens requiring wheelchair services at any time in life.

The SCOP model four dimensions (see figure 2 below):



SCOP Framework for Nepal (Illustration adapted from Gowran (2012) with permission)

Figure 2. Model for Building a Sustainable Wheelchair Community of Practice (SCOP) where Place, People, Pace and Policy remains the foundation for human needs (Gowran, 2012).

For overall background information on the Situational Analysis of Manual Wheelchair Provision methodology and process, please refer to this report.

Valued Management of the Place (context):

Koshi Province

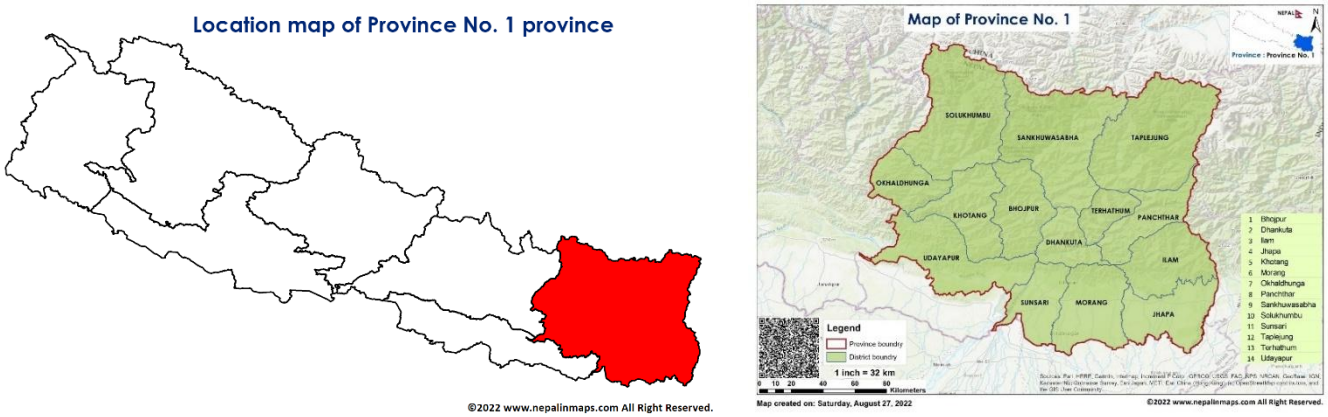


Figure 3. Koshi Province in the map of Nepal (Source: Nepalinmaps)

This dimension presents Koshi Province identifying the contextual conditions and infrastructure from a geographical, political and historical perspective.

Geography, Culture, and Population

Koshi Province, located in eastern Nepal, encompasses an area of 25,905 km² - approximately 17.5 % of the country's total landmass, characterized by a three-tiered diverse physiography: the Himalayan zone in the north, the Middle Hills in the centre, and the Terai plains in the south. The province is bordered by the Tibet Autonomous Region of China to the north, the Indian states of Sikkim and West Bengal to the east, Bihar to the south, and Bagmati and Madhesh Provinces to the west. Elevation ranges from Nepal's lowest point at Kechana Kawal (70 m) to its highest summit, Mount Everest (8 848.86 m).

According to the 2021 National Population and Housing Census (NPHC, 2021)[7], Koshi Province has a population of nearly 5 million, representing 17 % of Nepal's total population, with a density of 192 persons/km². Urban residents constitute 62.4 % of the populace - concentrated in sub-metropolitan municipalities such as Biratnagar, Itahari, and Dharan while 37.6 % live in rural municipalities in the higher Hills and Himalayas.

Ethnically and culturally, Koshi Province exhibits substantial diversity with the principal groups such as Chhetri, Brahmin, Rai and Limbu. Indigenous Kirati communities play a significant role in local traditions. Religiously, Hinduism, Kirati, Buddhism, Islam, and Prakriti faiths prevail with harmony in this region. Apart from the Nepali language, other local languages such as Maithili, Limbu, Tharu, Tamang, Magar etc., are widely spoken.

Biratnagar, the provincial capital and Nepal's industrial hub serves as a key nexus for commerce and cultural exchange, embodying the confluence of Madhesi and Kirati heritages along the eastern Terai corridor.

[7] National Population and Housing Census 2021 (National Report). (2023). [online] Ramshahpath,Thapathali, Kathmandu, Nepal: National Statistics Office. Available at: https://censusnepal.cbs.gov.np/results/files/result-folder/National%20Report_English.pdf [Accessed 10 Jun. 2025].

Disability Rates and Trends

According to the 2021 National Population and Housing Census, 2.4 % of Koshi Province's population lives with some form of disability - higher than the national average of 2.2 %. The national survey shows that male population have higher rate (53.9%) of disability than amongst female population (46.1%). Among the types of disability recorded in Koshi Province, physical disabilities are most prevalent, accounting for 44.4 % of all reported cases, followed by low vision impairments (16.4 %), hard-of-hearing (9.5 %) and multiple disabilities (9.3 %).

However, Nepal Demographic and Health Survey (NDHS, 2022)[8] and the WHO Rapid Assistive Technology Assessment (rATA)[9] survey reported 8.5% (N=3,297) and 7.2% (N=1,890) respectively experienced "a lot of difficulty" or "cannot do at all" in daily activities, indicating over three times the census prevalence and approaching the global average of 16 % disability rate. Both surveys further highlight an increasing trend of disability amongst higher age groups with the highest reported amongst participants aged over 65 years nationally. The rATA survey showed 40.5 % of population above 65 of age have a disability, underscoring the

[8] Ministry of Health and Population [Nepal], New ERA, and ICF. 2023. *Nepal Demographic and Health Survey 2022. Kathmandu*, Nepal: Ministry of Health and Population [Nepal]. Available at: https://microdata.worldbank.org/index.php/catalog/5910/related-materials.

[9] Paudel et al. (2023). Measuring access to Assistive Technology in Nepal: A Country Report. Kathmandu: Epidemiology and Disease Control Division, Department of Health Services, Ministry of Health and Population, Nepal Health Research Council and World Health Organization, Nepal. Available at: https://edcd.gov.np/uploads/resource/66014a6626c87.pdf

growing disability burden in older age groups. Also, a significant higher disability is seen amongst the population with lower economic condition and lower literacy.

Although the urban areas in Koshi Province such as Biratnagar, Itahari and Dharan may have relatively better access to disability and rehabilitation services, rural areas still experience significant gaps in services, including a lack of accessible transportation and healthcare infrastructure. *'The Situation Assessment of Rehabilitation in Nepal'* report highlighted highly uneven distribution of rehabilitation professionals across different provinces of Nepal. For example, the concentration of Physiotherapists (N=1,200), who are the key rehabilitation personnel in the country is at least 75% in Bagmati Province, primarily within urban centers like Kathmandu whereas Koshi Province have around 8.5% of the total physiotherapists. This is around 1 physiotherapist per 43,478 people in the province. (EDCD, 2022).[10]

[10] EDCD. (2022). Situation Assessment of Rehabilitation in Nepal. [online] Available at: https://edcd.gov.np/resource-detail/situation-assessment-of-rehabilitation-in-nepal.

Economic Activity

Figure 4. Farmer in rural Nepal preparing land for cultivation with a power tiller, illustrating the gradual shift toward mechanized farming in the Himalayan foothills.

Agriculture remains the dominant economic activity, with around 62.7% of the population engaged in agriculture, forestry and fishing industry (collectively an Agriculture industry). However, the province is also seeing increasing industrialization, especially in the southern districts like Morang and Jhapa where trade, manufacturing, and services contribute to local economies. Employment opportunities for individuals with disabilities are also scarce. In fact, during the national census survey, 3.9% of the total unemployed population of this province reported 'disability/illness' as the reason for not being economically active. If we consider the aged population, people with family care responsibilities and disability/illnesses, this figure is around 23.8% *(NHPC 2021 Provincial Report Koshi Province, 2023)*.[11]

[11] National Population and Housing Census 2021 Provincial Report (KOSHI PROVINCE). (2023). [online] Ramshahpath,Thapathali, Kathmandu, Nepal : National Statistics Office. Available at: https://censusnepal.cbs.gov.np/results/files/result-folder/province/Koshi_Province_census_report.pdf

Wheelchair Provision Landscape

Koshi Province's wheelchair service infrastructure remains nascent and unevenly distributed. According to the 2022 Situation Assessment of Rehabilitation in Nepal, only 8.5 % of the country's physiotherapists and key assistive-technology professionals are based in Koshi, equating to roughly one physiotherapist per 43,478 inhabitants - well below World Health Organization recommendations for basic rehabilitation coverage (EDCD 2022). Service provision is largely confined to Biratnagar, where the provincial hospital and a handful of NGO-operated clinics offer manual wheelchair fitting, repair and basic user training; the vast majority of hill and mountain districts lack any formal wheelchair distribution or maintenance programme (EDCD 2022).

Government investment in rehabilitation services remains minimal: rehabilitation accounts for just 0.2 % of national health spending, with Koshi Province receiving an estimated 5 % share of this budget, the remainder being covered by external partners and NGOs (MoHP 2023). Consequently, wheelchair users in rural and peri-urban areas rely heavily on intermittent outreach camps or must travel long distances to access assistive-technology services, often incurring substantial out-of-pocket costs.

The 2018 Priority Assistive Products List (PAPL), jointly developed by the Ministry of Health and Population and WHO, designates manual wheelchairs as essential products requiring a standardized supply chain, trained personnel and multi-level referral mechanisms (MoHP & WHO 2018). However, Koshi Province lacks province-wide quality-control guidelines and

centralized procurement, resulting in variable wheelchair quality and limited spare-parts availability.

Efforts to integrate assistive-technology indicators into the provincial Health Management Information System have been initiated but are not yet operational, impeding routine monitoring of wheelchair distribution, usage and maintenance (EDCD 2022). While WHO's Training in Assistive Products (TAP) programme has been introduced through sporadic NGO-led workshops, comprehensive capacity-building at district health facilities remains ad hoc.

The existing data validates the critical need for a more inclusive and well-resourced rehabilitation infrastructure across Nepal. Key priorities should include the expansion of rehabilitation services within public health facilities, increased allocation of financial resources toward assistive technologies, and enhanced rehabilitation training across diverse professional domains. The strategic direction for Nepal's health sector emphasizes equitable access and improved quality of services as fundamental to achieving universal health coverage, yet current rehabilitation provisions do not sufficiently reflect these priorities. Hence, it is important to understand the current situation of wheelchair provision in Nepal before carrying out any actions in this sector to ensure product and service sustainability now and in the future.

Vital meaning to the People

This dimension utilizes the *Soft Systems Approach (SSA)*[12] by identifying and engaging with key stakeholders i.e. the people accessing, providing and procuring wheelchair services to understand perspectives.

Figure 5. Prof. Rosemary J Gowran presenting the SCOP framework and using SSA 'Rich Picture' methodology during an inclusive participatory workshop in Nepal.

Participants Selection

Wheelchair service providers in Nepal are either heavily centralized or scattered and hence hard to reach in remote areas of the country.

Stakeholder involvement was conducted in two stages:

Stage 1: Stakeholder identification and individual interviews (details provided in separate report)

In stage 1 participants were recruited first following purposive sampling and then through snowball sampling to identify stakeholders. Some of these stakeholders were *Hospital for*

[12] Checkland, P., Scholes, J., 1999. Soft Systems Methodology in Action. Wiley, Chichester, UK.

rehabilitation of children with disabilities (HRDC), Spinal Injury Rehabilitation Centre (SIRC), Gorkha Welfare Trust (GWT), International Nepal Fellowship (INF), United Mission Nepal (UMN), etc. for an individual interview (N=14). Individuals and institutions interviewed during stage one were consulted for provincial participants' identification. Some of these institutions included: *Centre for Disabled Children Assistance (CDCA); Kathmandu University Design Lab in Kathmandu; Infinity Lab at Chitwan, Karuna Foundation Nepal (KFN) in Koshi Province; Independent Living Centre (CIL) in Pokhara and Spinal Cord Injury Network Nepal* for Spinal Injury wheelchair user identification. These institutions have active presence in the disability sector, primarily in the wheelchair distribution and repairs in Nepal. Participants were informed through phone calls to wheelchair users and wheelchair suppliers, and by sending a formal invitation letter to the DPOs/NGOs and government offices.

Key themes were identified following analysis of individual interviews and presented as part of the introductory session during workshops in *stage 2.*

Stage 2: Provincial Participatory workshops with Rich Pictures: Koshi Province

Stakeholders were invited to participate in a one-day workshop in Biratnagar. The purpose of the workshop was to engage participants in reflection and collaborative discussion about wheelchair provision in the province, to identify service flow, bottlenecks, and systemic enablers, through facilitated discussion and *'Rich Pictures'.*

Participants: There was a diverse and inclusive participation of 28 people in Biratnagar, Koshi Province *(See table 1)* with representation from Wheelchair User groups, the Local Government, Service Provider institutions such as hospitals, OPDs, NGOs, rehabilitation centers and suppliers. Among these, 32% were female and 8 people out of 28 participants stated they had a disability. The 4 wheelchair users who attended the workshop reported no occupations and two wheelchair users were accompanied by their family members. These two carers were also allowed for participation in the workshop but were not counted in the table below. There was significant participation of the rehabilitation workforce (n=17) in the workshop. This is because most of them were the Physiotherapists from Karuna Foundation Nepal representing different districts.

Table 1. Workshop participants summary – Biratnagar, Koshi Province

Participation	Female		Male		
	Identifies as having a disability		Identifies as having a disability		Grand Total
Sector	**No**	**Yes**	**No**	**Yes**	
Local Government	**1**		**2**		**3**
Officer	1		1		2
Policy Maker			1		1
Service Provider	**6**		**11**	**4**	**21**
Rehabilitation Provider	5		9	3	17
Supplier	1		2		3
Wheelchair Technician				1	1
User		**2**		**2**	**4**
User		2		1	3
Wheelchair User				1	1
Grand Total	**7**	**2**	**13**	**6**	**28**

Workshop Delivery

Facilitators: The workshop was facilitated by researchers from University of Limerick, Ireland (RJG) the Global Disability Innovation Hub, UK (RCT) and Kathmandu University (AT). The sessions were conducted in both English and Nepali to enhance inclusivity and comprehension among participants.

Venue: An accessible venue (Hotel Swagatam) with ramp access to its hall and toilets was chosen for the workshop in Biratnagar, the capital of Koshi Province. The venue had a ramp access (although steep slope) to its hall and had managed a portable ramp (locally made) for access to its dining area. This was the first workshop out of the four and provided good insights regarding the accessibility consideration for venue selection which played instrumental in the following workshops.

Workshop: The workshop ran from 9am to 3pm (6 hours) with 1 hour of lunch break in between. The detailed itinerary of the workshop is outlined in *table 2* below. During the workshop, participants were divided into four small mixed stakeholder groups. including policymakers, suppliers, representatives from non-governmental and organizations of the person with disability (NGOs/OPDs), and wheelchair users, to ensure a broader representation of perspectives.

Table 2. Structured itinerary of the Biratnagar-based workshop aimed at understanding the current landscape of manual wheelchair provision in Nepal.

Time	Agenda
08:00 – 09:00 AM	Breakfast and Check-in
09:00 – 10:00 AM	Registration, Welcome, Introductions, Workshop Orientation
10:00 – 10:30 AM	Presentation of Preliminary Findings from the Interview Process and Observations (Introducing Key Concepts)
10:30 – 12:00 PM	Wheelchair Service Understanding (4 Questions) – Group Discussions (30 mins each)
11:10 – 11:30 AM	High Tea during Discussions
12:00 – 01:00 PM	Lunch Provided
01:00 – 02:00 PM	The 'Rich Picture' Activity – Group Work to Illustrate Wheelchair Service Experiences
02:00 – 02:30 PM	Reflection and Discussion – Group Presentations on Rich Pictures
02:30 – 02:45 PM	Plan of Action – Key Priorities and Next Steps for Consensus Building
02:45 – 03:00 PM	CDCA Presentation – Short Introduction
03:00 – 03:10 PM	Design Lab, Kathmandu University – Short Introduction
03:10 – 03:30 PM	Close and High Tea with Networking

The workshop consisted of two main sessions:

Session 1:

Participants were divided into small mixed groups on round tables and provided with flipcharts and materials, and engaged in discussions structured around four reflective questions to capture an understanding of wheelchair provision locally.

Figure 6. The WHO '5P'People-centred assistive technology model: People, Products, Provision, Personnel and Policy extracted from WHO GReAT report (UNICEF, 2022)

Prior to the discussion participants were introduced key concepts from the SCOP model (*figure 2)* and the WHO's '5P' people-centred model *(figure 6)* presented in the *Global Report on Assistive Technology (GReAT) (UNICEF,2022)*[13].

Session 1 discussion questions focused on:

- Current Wheelchair Services Landscape
- Stakeholder Identification and Their Roles

[13] Global report on assistive technology. Geneva: World Health Organization and the United Nations Children's Fund (UNICEF), 2022. Licence: CC BY-NC-SA 3.0 IGO.

- Barriers Affecting Service Flow
- Stakeholder Sentiments and Perceptions
- Each group nominated a spokesperson to present key reflections to the plenary. Participants had an opportunity to discuss after each presentation.

Session 2: Rich Picture Creation

Following the morning session discussion, participants engaged in creating rich pictures using tools for collage including coloured paper, pens, glue and scissors. The *'Rich Picture'* is a participatory activity where stakeholders produce a visual representing the current state of wheelchair provision in their region. Adapting this concept from the SSA, *Gowran et al. (2014)*[14] proposes the use of creative materials to create images that depict key stakeholder perspectives, identifying issues and service challenges, and interactions and linkages between keys actors.

The objective of the rich picture is to facilitate open dialogue and shared understanding, promoting a holistic view of the challenges and opportunities in the wheelchair service

[14]Gowran RJ, McKay EA. & O'Regan B. Sustainable solutions for wheelchair and seating assistive technology provision: Presenting a cosmopolitan narrative with rich pictures. Technology and Disability. 2014;26(2-3):137-152. doi:10.3233/TAD-140408

landscape, locally and nationally. This exercise is essential in grounding future action plans in lived realities and visual systems thinking.

Each group subsequently presented their findings to the larger workshop assembly. These presentations were recorded, transcribed, and analyzed using *Braun & Clarke's (2006)* thematic analysis approach[15]. This method allowed for the systematic identification of themes, providing a nuanced understanding of the wheelchair provision landscape in Koshi Province. Findings and observations from the workshop are outlined in the sections below. The insights from this analysis contribute to actionable recommendations to improve wheelchair access and support systems in the region.

[15] Braun, V., & Clarke, V. (2006). Using thematic analysis in psychology. *Qualitative Research in Psychology*, *3*(2), 77–101. https://doi.org/10.1191/1478088706qp063oa

Viable Maintenance Affecting the Pace

This dimension depicts the current situation of wheelchair provision in the Koshi province, identifying the bottlenecks and barriers affecting the flow or pace of provision and sustainability gaps.

This section summarizes the findings from workshop discussion based on the four key questions and Rich Pictures and presents emerging themes.

Current wheelchair services landscape

Participants in the workshop expressed a generally positive perception of wheelchair services in the recent years in eastern Nepal. However, several critical issues were identified. There exists a clear disparity between the high demand for wheelchairs and their limited availability, primarily due to financial constraints and market access. Wheelchairs are predominantly procured from suppliers in Biratnagar and Kathmandu with some customization, yet there is widespread acknowledgment that not all users' needs are adequately met through this process. The overall service was referred as being fragmented and charity-based, with the bulk of services concentrated in Biratnagar (urban centric) and minimal formal structures elsewhere. Local government and service provider participants shared that budget constraints severely limit both quantity and quality. A policy maker shared:

"In our wards, I myself have been to each household for Community based rehabilitation (CBR) data collection and I have found high demand for wheelchairs. But we do not have enough budget to meet those demand. Hence, it is difficult."

Most local governments procure a single model in mass rather than conduct person-specific product selection, and participants expressed that "not enough has been done to increase awareness of wheelchair related services and to build capacity of human resource in this field".

"Our rural municipality/local government distributed few standard wheelchairs which were appropriate and quality wheelchair, but it cost a lot of money. Since we can get higher number of wheelchairs of poor quality for the same amount of money, distributions are based on number and budget, but their quality is poor."

Repair services emerged as a significant concern, with participants noting it being urban centric and of poor quality, which adversely affects the durability and usability of wheelchairs mainly in rural areas. A wheelchair user and a repair technician shared from his lived experience:

"Many users face challenges in repair and maintenance as they do not know where wheelchairs are repaired and where spare parts are available."

This forces many users to abandon broken chairs at home until sporadic NGO camps offer temporary fixes. Quality assurance and standard service remains a critical issue, as many

wheelchairs fail to meet the specific needs of users, indicating pitfalls in the overall service delivery.

Stakeholder identification and roles

Key stakeholders identified include a diverse array of entities crucial to wheelchair service provision in the Koshi Province *(see figure 7).* These include individuals with disabilities and their families, local and provincial government bodies, numerous Non-Governmental Organizations (NGOs), and individual donors. Key organizations such as CBR Biratnagar, HRDC, Gorkha Welfare Trust (GWT), Rotary Clubs, Karuna Foundation Nepal (KFN) and local suppliers play pivotal roles in facilitating and enhancing wheelchair services in Koshi Province.

Primary stakeholders include persons with disabilities and their families, who not only request wheelchairs but often “bear maintenance burdens” when devices fail - notably *“their mother or guardian…push[es] her around houses to get fresh air”* after distribution. Government involvement spans policy formulation, budget allocation, and infrastructure development, reflecting its critical role in shaping the landscape of wheelchair accessibility, yet public-tender processes frequently award contracts to suppliers lacking technical expertise (“experienced supplier with no knowledge on wheelchairs”), resulting in inappropriate products. Rehabilitation technicians: prosthetists & orthotists, occupational therapists, physiotherapists - are limited in number and confined to urban centers; participants noted these professionals “should also be included in the service process” through capacity-building initiatives. Finally, community and

educational institutions remain largely untapped; schools, in particular, could promote wheelchair awareness and posture training but are seldom engaged. These suggest that a multi-sectoral coalition is essential but currently under-mobilized in the Koshi Province.

Figure 7 presents the multi-stakeholder and their roles in Koshi province and Nepal.

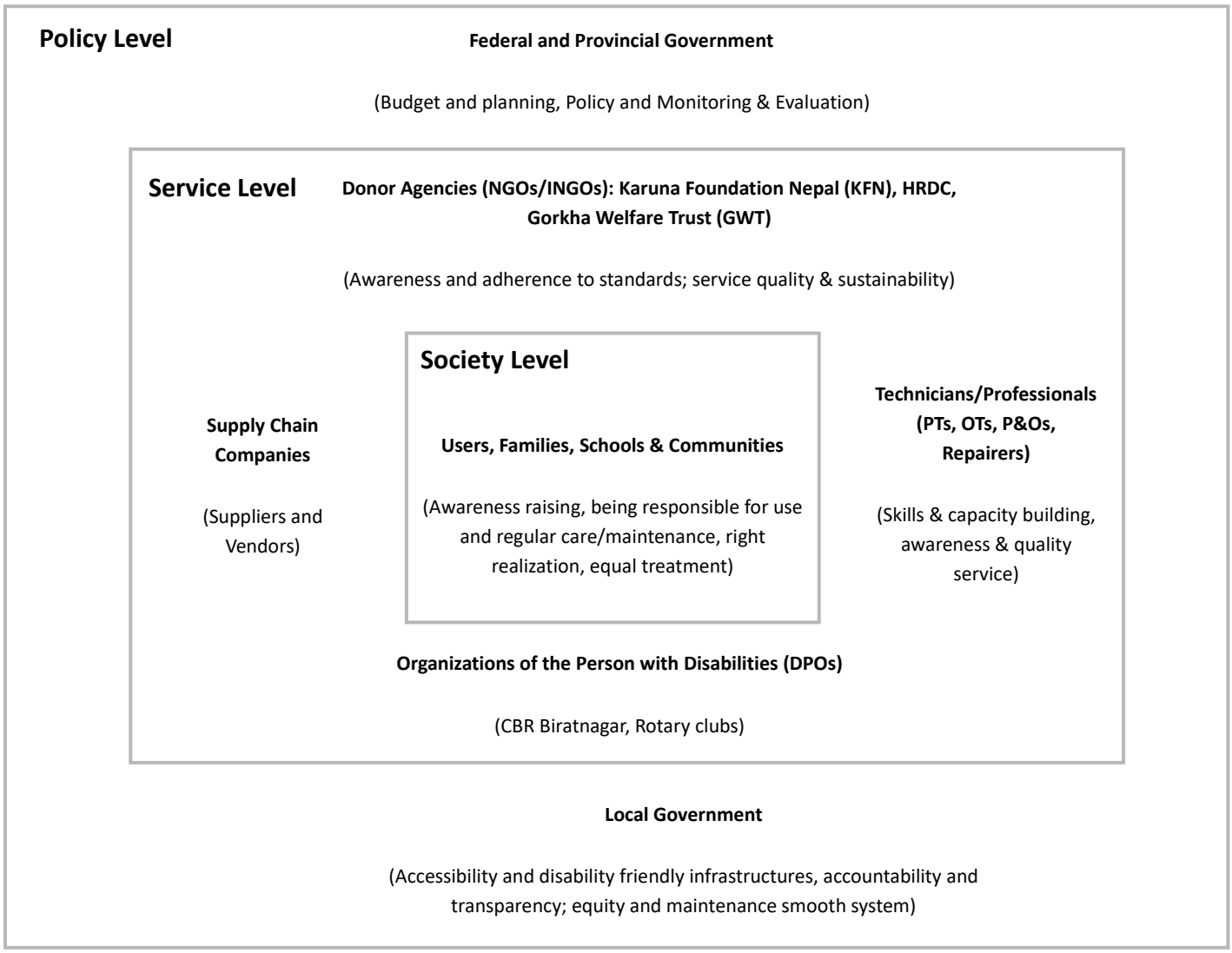


Figure 7. Wheelchair sector stakeholder diagram of Koshi Province.

Barriers affecting service flow

Several significant barriers hinder the smooth delivery of wheelchair services in eastern Nepal. Communication gaps persist between wheelchair service providers and end-users, exacerbated by inefficiencies in the procurement process, and inadequate assessment mechanisms and monitoring thereafter. Policy and resource gaps arise from a procurement focus on quantity over quality which raises concerns, with many inappropriate wheelchairs being donated rather than tailored to individual user requirements. As participants presented:

"Wheelchairs are distributed without considering use environment…no proper assessment is done" and "lengthy procurement process of local government" further delays delivery.

Technical challenges and knowledge constraints, including a shortage of skilled labour for assembly and repair, and insufficient repair facilities, affect both users and providers: many *"do not know where wheelchairs are repaired"* and technicians themselves lack information on servicing advanced components like *"electric-joystick controls".*

Environmental and infrastructural hurdles: gravel roads, stairs at public facilities, improvised bamboo bridges seen in the rich pictures, render many public and private spaces inaccessible, effectively blocking service access for rural users. Lastly, coordination and data deficits prevail: the absence of a centralized database of assistive-technology suppliers and user needs leads to mismatches between wheelchair types and individual requirements, while *"there is a huge gap in coordination between users and service providers"* across all levels.

Stakeholder sentiments and perceptions

Participants voiced a spectrum of frustration and guarded optimism. Many described current services as “not satisfactory” and lamented that *“the needy people whose voice has not been heard are still marginalized”.*

Figure 8. A dissatisfied wheelchair user drawn in of the rich pictures by workshop participants.

Concerns about the ‘quality’ and ‘appropriateness’ of the distributed wheelchairs were frequently expressed, reflecting ongoing dissatisfaction among users. A user shared:

“I developed physical health problems…then I stopped using that wheelchair as well and stocked it”.

Despite some noted improvements in recent years, there remains a consensus that much more needs to be done to effectively meet the diverse and specific needs of wheelchair users. A technician shared:

“Wheelchair sector is on the way towards improvement but incomplete.”

This signals a hope for incremental progress through targeted training and policy reform. Across groups, there was a clear call for change: *"supply should be as per users' need,"* regular maintenance services, inclusive policy implementation, and community engagement to transform the landscape into one that is both equitable and responsive to the lived experiences of wheelchair users.

Based on workshop discussions and reviewing the Rich Pictures produced, the *WHO's 5P framework* was used to capture the key themes under the following headings: *People, Products, Provision, Personnel and Policy.*

People

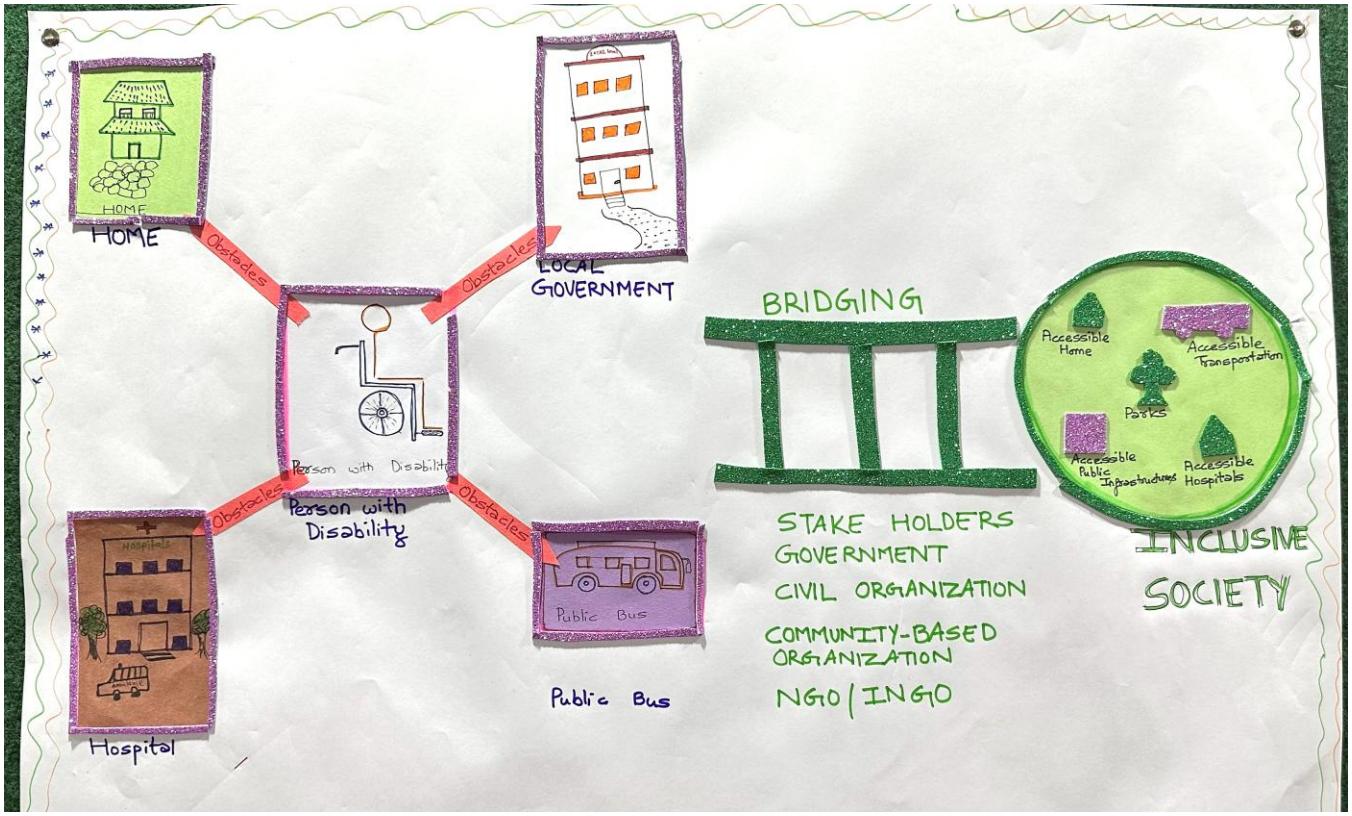


Figure 9. Rich picture 1 discussing 'Chain of Mobility'.

This rich picture, titled the “Chain of Mobility,” illustrates the everyday barriers faced by wheelchair users in Koshi Province. At its center is a wheelchair user navigating inaccessible environments - homes with rocky paths, government offices and hospitals with stairs, and completely unusable public transport. As the presenter remarked, *“He can’t go through the main entrance”* and *“how will he use his wheelchair on rocks?”* The drawing critiques the absence of accessible infrastructure across basic services while emphasizing that stakeholders: government, NGOs, DPOs, and communities must act as a “bridge” to address

these gaps. The group envisions an inclusive society marked by accessible homes, parks, transport, and health services. This image encapsulates both current exclusion and a hopeful roadmap for change grounded in the rights and needs of persons with disabilities, which could only be achieved by working together. As stated,

"We are working to fulfill the fundamental needs of users by creating a bridge between stakeholders…..with proper coordination and collaboration, we can solve these problems."

Following themes further expands on wider issues faced by wheelchair users and in general people involved in wheelchair provision both locally and nationally.

Lack of user statistics and database

A critical issue raised during the workshop was the absence of a centralized database of wheelchair users and service providers, which severely undermines planning and equitable distribution. The absence of accurate data not only makes it difficult to identify wheelchair users and their specific needs but also complicates the efforts of service providers and government agencies in delivering services equitably. Without proper records, some users receive multiple wheelchairs, while others are neglected entirely. Participants noted that

"There is no database/list of AT/wheelchair service providers, and it is difficult to know who they are and where they are."

This data gap limits the ability of local governments and NGOs to assess needs, track distribution, and monitor service outcomes. As a result, wheelchair provision is often based on

ad hoc decisions rather than population-based planning, contributing to both under-coverage and duplication. Another participant added

“We lack appropriate data of users and distribution. The situation is that some users receive up to 4-5 wheelchairs while some users receive no wheelchair at all.”

This discrepancy creates significant inequalities in resource allocation, leaving some users underserved. The suggestion for a *"one-door system"* to streamline the distribution of wheelchairs was received which highlights the urgency of this issue.

Users face challenges in Everyday life

Participants shared lived experiences showing how wheelchair users struggle with mobility and autonomy in daily life, due to inaccessible infrastructure at homes and workplaces to public spaces and transportation. One user reflected,

“I received another wheelchair… but a bit bigger size and I face difficulties in transferring into public transportation.”

Others spoke of physical strain and abandonment of devices: *“Then I stopped using that wheelchair… and stocked it.”* Rich pictures further depicted daily mobility blocked by *unpaved roads, stairs, and poor toilet access,* revealing how basic needs are unmet in the communities. Participants highlighted that many buildings, including government offices, schools, and hospitals, remain inaccessible due to a lack of ramps, elevators, or proper wheelchair

accommodations. This exclusion prevents wheelchair users from accessing vital services and opportunities, and often face stigma from service providers. Another participant echoed this sentiment, noting that

"Wheelchair users have difficulties getting on and off public transportations, and the behaviour of service personnel is negative towards wheelchair users."

Reliance on charity due to poverty, discrimination and exclusion

Poverty, coupled with social exclusion and discrimination, forces many wheelchair users to rely on charitable donations to access mobility devices. Unfortunately, most of the wheelchairs provided through charitable efforts are medical wheelchairs that do not meet the specific needs of the users. These donations are often made without proper assessments, resulting in users receiving inappropriate or ill-fitting equipment, which can lead to discomfort, accidents, and, in some cases, worsened health conditions. This over-reliance on charity perpetuates a cycle of dependency, with few alternative options available for users to obtain suitable wheelchairs. Participants voiced frustration, stating,

"In Nepal, our distribution system is based on imported charitable wheelchairs, and users have no other alternatives than to store it at the corner of the house."

Lack of training and awareness

Another key theme discussed throughout the workshop was the lack of training and awareness among wheelchair users regarding their rights and the proper use and maintenance of their

wheelchairs. Even when users receive a wheelchair, they often lack the necessary knowledge to maintain it or access repair services, leading to early abandonment or the development of health complications like pressure sores. Many users are unaware of the available repair centers, or they do not know how to find spare parts for their wheelchairs. This lack of awareness further compounds the challenges they face. This sentiment was echoed by a wheelchair user participant who added,

"Wheelchair users like me are unaware of what kind of wheelchair is required for us."

Similarly, a wheelchair technician noted,

"Users are receiving wheelchairs, but they are not well aware of training and maintenance." He described asking users, "You receive wheelchairs from different sources but are you aware of pressure sores as a spinal injury patient?" – and finding most were not.

Without basic training in wheelchair posture, pressure relief, or repair, users are vulnerable to complications and reduced mobility. The lack of awareness also limits advocacy capacity, making it harder for users to demand better services or customized provision. Participants stressed that such training *"can benefit them a lot,"* even when wheelchairs are not fully appropriate.

Product

Figure 10. Rich picture 2 draws attention to repair facilities and accessible infrastructure.

This rich picture presents the lived challenges of a wheelchair user attempting to reach local government services from home. The journey is obstructed by multiple physical and systemic barriers. A prominent feature is the long flight of stairs at the government office, rendering access impossible. Midway, the user must cross a bamboo bridge over a spring, symbolizing improvised infrastructure that fails accessibility standards. As the caster wheel on the wheelchair breaks down, the drawing highlights a critical service gap - the nearest repair center is in Kathmandu, far from the user's location. Highlighting the layers of challenges wheelchair users face in life, the presenter questioned:

"Even though they manage to cross the spring, they will have transportation challenges to reach Kathmandu for repairs. What will they do?"

This visual metaphor underscores the inaccessibility of essential services, even when users carry their documentation and intentions in good faith. As one participant aptly concluded,

"Here, the picture speaks in itself," capturing the emotional and structural dilemmas users face in navigating basic public systems.

Discrepancies in Supply and Demand

A recurrent theme across all groups was the mismatch between the high demand for wheelchairs and limited supply, primarily due to budget constraints and ad hoc procurement practices. This is further impacted by the lack of local production and high cost of importing quality wheelchairs. Local governments, constrained by limited budgets, struggle to meet the needs of wheelchair users in their communities. Despite the critical importance of wheelchairs for mobility and independence, the scarcity of resources leaves many users without the devices they need. A local government representative shared their experience:

"In our 7 wards, I myself have been to each household for Community-based rehabilitation (CBR) data collection and I have found heavy demand for wheelchairs. But, we do not have enough budget to meet those demands."

He further added, *"Demand for wheelchair is more but due to budget limitations, limited wheelchairs were brought."* The procurement process, influenced by quantity over quality, further undermines this issue. He shared:

"We can get higher number of wheelchairs of poor quality for the same amount of money… hence, we are just satisfied for the reason that users have been able to receive wheelchairs."

This illustrates how the limited supply, driven by financial constraints, makes it difficult for local governments to fulfill the high demand for wheelchairs.

Limited product availability

Multiple reflections highlighted a scarcity of quality, appropriate wheelchairs in the local market. While some wheelchairs are available from suppliers in regional centers like Biratnagar and Kathmandu, the quality of these products is often poor, and the variety is extremely limited. Only basic medical wheelchairs are widely available, leaving unmet needs for specialized wheelchairs, such as sports or electric models. A rehabilitation practitioner shared,

“The scarcity of appropriate wheelchairs is so dire that the service providers have a compulsion to offer users an inappropriate wheelchair because quality wheelchairs are not available in the market.”

These wheelchairs are often inappropriate for the specific needs of users with conditions like spinal injuries or cerebral palsy. A wheelchair technician highlighted this issue:

“There is a lack of quality wheelchair product/services. We haven’t been providing products as per needs/cases. For example, we have been distributing the same kind of wheelchairs for spinal injury cases and cerebral palsy cases.”

Additionally, accessories such as cushions and spare parts are rarely available locally, severely limiting functionality and comfort.

"Wheelchair types are different for spinal injury users, cerebral palsy users, sports person and for mobility but there are no options in the market."

This one-size-fits-all approach, driven by the limited availability of appropriate wheelchairs, often results in harm to users rather than helping them achieve greater independence.

Random distribution of charitable wheelchairs

Another theme is the uncoordinated and charity-based nature of distribution, which disregards individual assessments and long-term functionality. The lack of proper assessment, measurement, and training before distribution means that many wheelchairs are inappropriate for the users who receive them. A participant recounted,

"Now we know that wheelchairs should be provided only after proper assessment and measurement, no assessments were conducted for those users."

Local governments, constrained by budgets, also prioritize distributing more low-quality wheelchairs instead of fewer high-quality ones. A local government representative shared: *"Our rural municipality/local government distributed few standard wheelchairs which were appropriate and quality wheelchairs, but it cost a lot of money. Since we can get higher numbers of wheelchairs of poor quality for the same amount of money, distributions are based on number and budget, but their quality is poor."*

Another participant added, *“They invite people for wheelchair distribution and provide a 20” size wheelchair to a child. What benefit does it do to them?”*

This theme underscores how budgetary constraints and lack of regulation result in inappropriate distributions, with users receiving products that do not meet their needs.

Lack of customization and unmatched needs

The failure to match wheelchair design with the specific functional and contextual needs of users is a major concern. Wheelchairs are often distributed without proper assessment or adjustment, leading to significant discomfort and health problems for users. Additionally, the wheelchairs provided lack essential accessories, such as cushions, which make them more comfortable and usable. A participant shared,

“Cushions, which is a very important wheelchair accessory, are not available”

This absence compromises health outcomes, particularly for users with spinal cord injuries who are at risk of pressure sores. A female wheelchair user shared her experience:

“I received another wheelchair from [an NGO] which was smaller than the size I needed, and I developed physical health problems/issues.”

Another participant noted, *“Even those who receive wheelchairs, even though they are customized to users, they are not durable, and the quality of distributed wheelchairs is not*

good." This theme highlights how the mismatch between user needs and available wheelchairs results in harm, often forcing users to abandon their wheelchairs altogether.

Poor durability, lack of spare parts and repair services

Many of the wheelchairs distributed in Nepal are prone to frequent breakdowns due to poor durability and a lack of local repair services. The unavailability of spare parts, combined with the financial inability of users to afford repairs, leads to widespread abandonment of wheelchairs. Even minor damages, such as a broken footrest or damaged bearings, can render a wheelchair unusable, and users often have no choice but to store the wheelchair at home. The quality and longevity of distributed wheelchairs were repeatedly criticized. Participants noted frequent breakdowns:

"20–23% of wheelchairs have already been damaged with missing nuts and bolts".
"We wish that a wheelchair lasts at least for 2 years… but parts like footrests, armrests and bearings are damaged".

The absence of spare parts significantly limits repair, forcing users to abandon devices. These quotes from wheelchair technicians explains the shortage of spare parts and its impact:

"Whatever wheelchairs are brought in from Japan or Germany, their spare parts are not available in Nepal. Even a small bearing costs NPR 300-3500 ($30) and most users' poverty means they cannot repair it. Such wheelchairs are used once and abandoned after a minor breakdown."

“Even I as a technician do not know where electric wheelchair remote/joystick control can be repaired”

Similarly, a user confirmed these challenges by sharing her wheelchair breakdown experience:

“It got broken during handling and I haven’t been able to repair and use it as its spare parts are not available”.

This theme emphasizes the need for durable products and the importance of accessible repair services to ensure the longevity of wheelchairs.

Provision

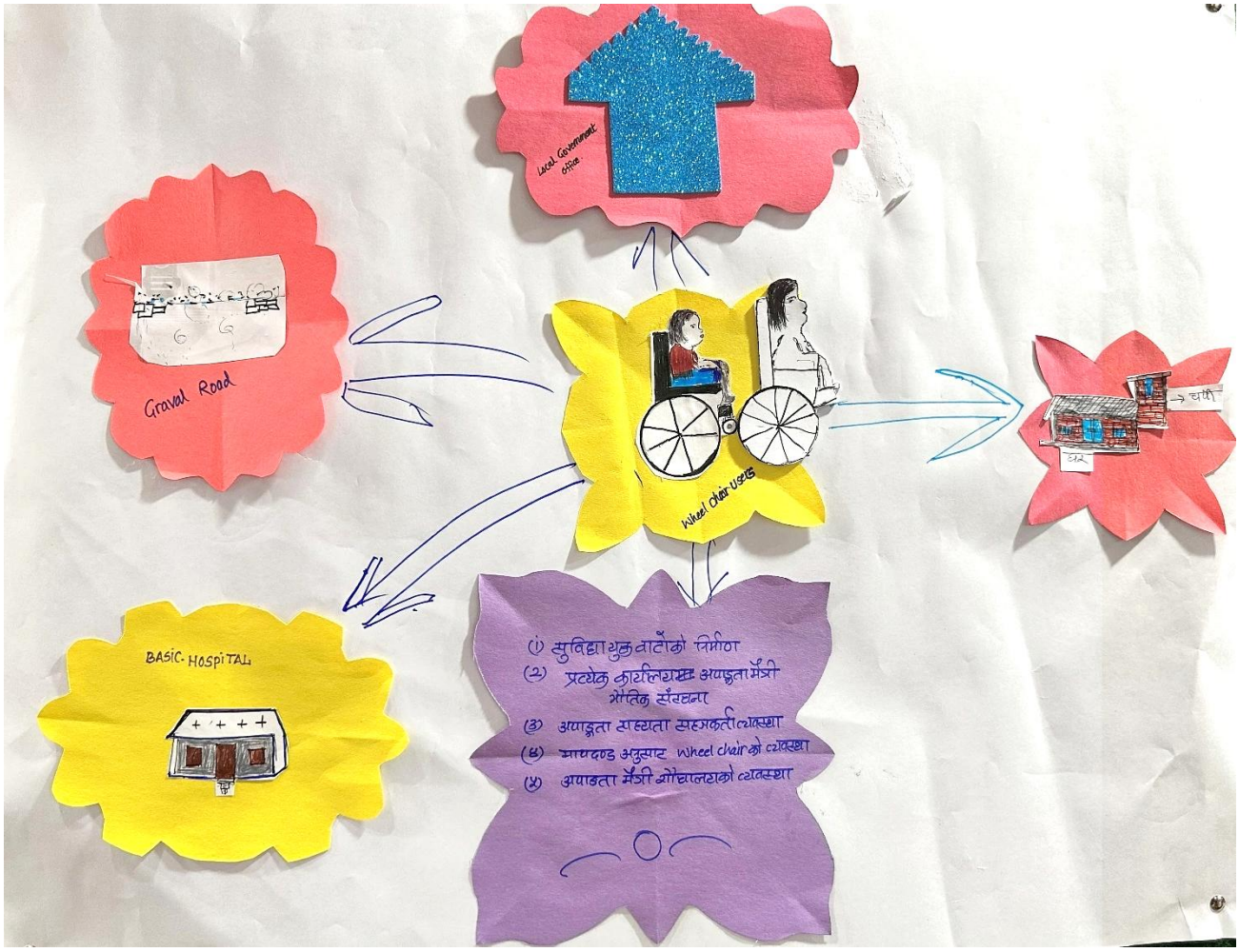


Figure 11. Rich picture 3 showing wheelchair users at the centre of service provision.

This rich picture illustrates the everyday challenges faced by wheelchair users - both children and older adults - as they attempt to navigate basic public services and home environments in Koshi Province. The image places two users at the center, surrounded by inaccessible infrastructure: *steep stairs at the local government office and health post, unpaved gravel roads, and homes and toilets without ramps.* The presenter remarked:

"The office can only be accessed by regular stairs and wheelchair can't go up. Only we, who are abled people can go upstairs."

This underscores the systemic exclusion faced by persons with disabilities. The group emphasized that such inaccessibility also limits dignity in personal care, asking pointedly,

"The house and toilet (at the right of the user) also lacks ramp access. How will those guys use bathrooms/toilet?"

To address these barriers, the group proposed five actionable solutions: *(i) constructing wheelchair-friendly roads, (ii) mandating accessible office buildings, (iii) creating disability help desks, (iv) enforcing wheelchair distribution standards, and (v) ensuring accessible toilets.* Citing a recent case, they discussed efforts by Dhalpalthan Rural Municipality and KARUNA Foundation to build a toilet that - despite improvements, still lacked tactile paving, and was rectified later to make it fully accessible. This illustrates that accessibility must be comprehensive, not symbolic, and rooted in lived user experience.

Absence of standard system (for assessment, procurement and distribution)

The absence of a standard, systematic approach to wheelchair provision was a critical concern raised by participants. Wheelchairs are distributed in an ad-hoc manner, often based on personal connections or charity-driven motives, rather than through a formalized system that ensures fairness, quality, and accessibility for all users. This results in an uneven distribution of

resources, with users receiving wheelchairs that do not match their specific needs. Participants shared,

"There is no proper system for distribution. There is no coordination between various institutions/stakeholders within the same project area."

"Wheelchair access and availability is not smooth and systematic. It is dependent on closeness to system/bureaucracy, charity mindset."

Multiple groups noted that provision is often carried out without adequate assessment or user involvement, which violates best practice protocols.

"Now we know that wheelchairs should be provided only after proper assessment and measurement. But at the time of distribution, no assessments were conducted for those users."
"Wheelchair availability and users' needs do not match."

Similarly, workshop participants widely criticized the public procurement system for prioritizing quantity over quality. This led to widespread dissatisfaction among stakeholders and users alike.

"We can get a higher number of wheelchairs of poor quality for the same amount of money… hence, we are just satisfied for the reason that users have been able to receive wheelchairs"
"Procurement is done through public tendering and is often bid by an inexperienced supplier with no knowledge on wheelchairs"

Such practices undermine service quality and lead to the distribution of wheelchairs that do not suit the terrain, clinical condition, or preferences of the users.

Domination of charitable distribution model is unsustainable

The current wheelchair provision system in Nepal is largely dominated by a charitable distribution model, where NGOs, community groups, and individual donors provide wheelchairs at no cost to users. However, this approach is unsustainable as these charitable interventions are often short-term and project-based, with no long-term support or follow-up services once the project ends. The focus on quantity over quality in wheelchair distribution means that users often receive substandard products that do not meet their needs. Following participant's quotes explains this issue:

"Wheelchairs are distributed on a project basis… there is no sustainable system for continuous service."

"Donor agencies leave the project in limbo as they phase out. Donors/charitable institutions do distributions and do no follow-up."

"Our DPO received a few wheelchairs through NGOs… but we don't know when we'll get more or if it will happen again."

This lack of institutionalization limits the ability to plan long-term services and integrate provision into local health systems. It also leaves wheelchair users in uncertainty, with no assurance of follow-up support or future upgrades.

Personnel

Inadequate qualified personnel for wheelchair services

One of the most pressing challenges highlighted during the workshop is the severe shortage of skilled personnel necessary for delivering effective wheelchair services throughout the continuum of care – including assessment, selection, customization, fitting, repair, and follow-up. This personnel gap spans both clinical and technical domains, significantly compromising service quality and user satisfaction. Key roles, such as physiotherapists, occupational therapists, prosthetist-orthotists and wheelchair technicians, are either absent or not adequately trained in wheelchair-specific service delivery at the local level. Groups reported,

“Due to lack of proper measurement, assessment and adjustment related knowledge, problems arise to wheelchair users.”
“We have inadequate skilled/trained human resources who can well assess, modify, fit and train wheelchairs.”

In addition to clinical shortcomings, participants raised concerns about the lack of repair and maintenance expertise. As one technician from CBR Biratnagar explained,

“Many users face challenges in repair and maintenance… Even I as a technician do not know where electric wheelchair remote/joystick control can be repaired.”

This points to a systemic absence of technical training and decentralized repair services, particularly for advanced or powered wheelchairs. Without accessible and skilled repair personnel, users are often left with non-functional devices, deepening their exclusion and dependence. Strengthening personnel capacity is essential not only for improving individual mobility outcomes but also for building a sustainable and equitable wheelchair service system in the province.

Limited awareness and role clarity amongst existing workforces

The workshop discussions revealed a significant gap in awareness, role clarity, and technical competency of personnel involved in wheelchair service systems - particularly among local government staff, procurement units, and coordination actors. This theme spans three interlinked areas: inadequate technical oversight during procurement, poor internal clarity on responsibilities, and weak intersectoral collaboration.

Several accounts demonstrated that wheelchair procurement is frequently conducted by officials lacking appropriate expertise. For instance, a participant from local government recalled,

“Our mayor stamped for the order of 2 wheelchairs, but no one knew any specifications or number of wheelchairs. No assessments were conducted for those users.”

This practice of non-specialist procurement highlights how superficial, quantity-driven decision-making often overrides user-centered provision processes. The absence of professional input

compromises device suitability and undermines public expenditure. As another participant shared,

"Local government have some budget allocation for wheelchair distribution, [but] the procurement is done through a public tendering process which is often bid by an inexperienced supplier with no knowledge on wheelchairs."

These accounts reflect a concerning lack of technical guidance, quality assurance, and accountability in the system. Personnel involved in planning and implementation often operate without the necessary orientation or training in wheelchair assessment, procurement standards, or post-distribution monitoring.

Coordination gaps between stakeholders

Participants repeatedly emphasized the importance of multisectoral collaboration and the role of personnel in bridging the gap between policy, users, and service providers. However, it was also noted that:

"there is a lack of collaboration between government, NGO and service providers. There is a gap between wheelchair users and service providers."

This absence of structured coordination stems partly from insufficiently trained personnel who are unable to effectively mediate across sectors, establish referral pathways, or manage long-

term service continuity. Without well-trained personnel to lead coordination and communication between sectors, fragmentation in service delivery persists.

These interconnected issues point to an urgent need for capacity building and systemic role clarification across all levels of the wheelchair service workforce. Without targeted training, institutional role definition, and cross-sector engagement, service delivery will remain fragmented, inefficient, and ultimately exclusionary for wheelchair users.

Policy:

This rich picture presents wheelchair service provision as a tree of change, with roots symbolizing existing problems, trunks representing key stakeholders, leaves as solutions and actions, and the canopy as the ultimate goal: *"need-based wheelchairs for all."* As the presenter explained,

"If these problems in the roots are not addressed, we can't harvest colorful flowers/fruits."

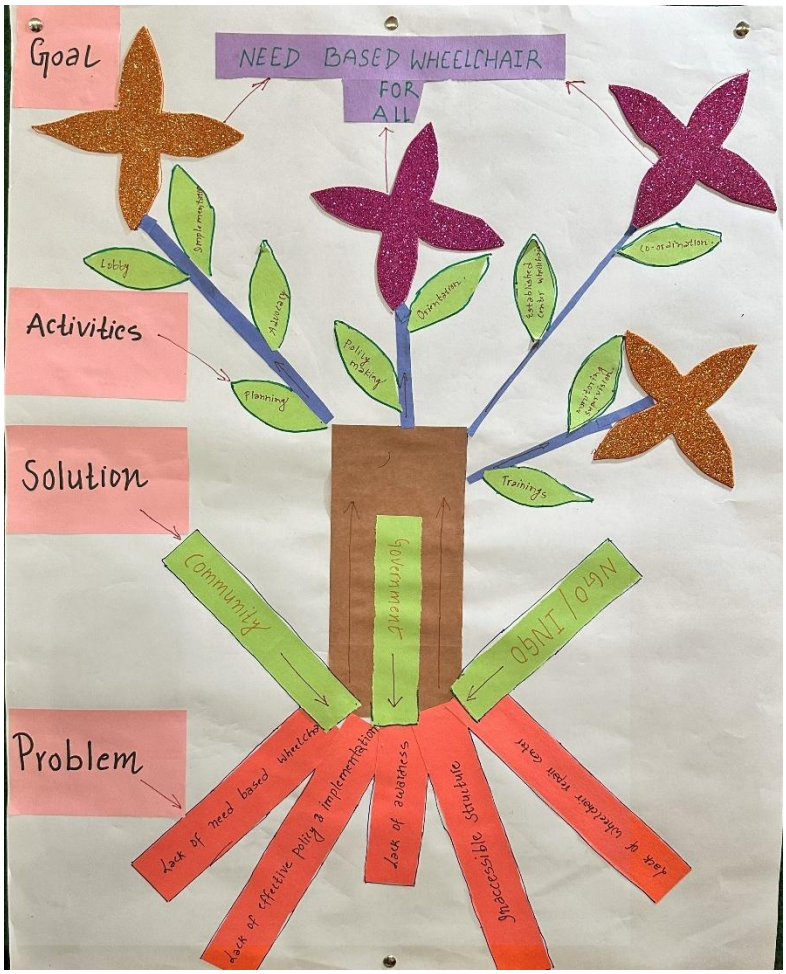


Figure 12. Rich picture 4 presents a 'tree of change' diagram to achieve 'need based wheelchair for all.'

The roots depict fundamental issues: *lack of appropriate wheelchairs, weak policy implementation, poor awareness among users, inaccessible infrastructure, and a shortage of repair centers.*

The trunk identifies three primary stakeholders: *community/society, government, and NGOs/INGOs* - who must collectively *"feed [water] the tree"* through *awareness, policy-making, and service provision.*

The leaves and branches detail practical activities including *training, advocacy, policy drafting, and regular monitoring.* The group emphasized:

"Planning itself is not enough… we need implementation."

This symbolic representation offers a holistic view of systemic gaps and the collaborative actions required. It advocates a rights-based and coordinated approach to achieving inclusive and appropriate wheelchair provision across Koshi Province and nationally.

Progressive but not satisfactory

Nepal has ratified progressive policies such as the UN Convention on the Rights of Persons with Disabilities (UNCRPD), the Nepal Constitution 2015, and Universal Health Coverage (UHC) to guarantee wheelchair access to potential users. However, despite the presence of these guiding policies, the gap between policy formulation and its practical implementation has led to widespread dissatisfaction among stakeholders. Participants conveyed that although there have been incremental improvements in wheelchair services, they remain inadequate. One participant captured this sentiment succinctly:

"Wheelchair service provision has improved but not satisfactory."

Participants further highlighted the persisting marginalization of certain groups despite service improvements:

"Although the policies are there, their implementation has resulted in mass dissatisfaction."

"The needy people whose voice has not been heard are still marginalized and cannot get services"

Additionally, participants expressed cautious optimism, describing the current wheelchair sector as "on the way towards improvement but incomplete". This reflects the broader issue where well-intended policies are not translated into effective action, leading to unmet needs and dissatisfaction among wheelchair users.

Complex and inefficient systems

The complexity and inefficiency of wheelchair provision processes were extensively documented. Participants frequently identified problematic procedural and administrative barriers such as lengthy documentation, inefficient procurement practices, and convoluted service flow. This result in delayed service delivery and low-quality products. While government bodies at the local, provincial, and federal levels are responsible for policymaking and budget allocation, the lack of coordination between these levels has caused significant delays in service provision. Slow bureaucratic processes and lengthy procurement cycles further impede timely wheelchair distribution. One participant remarked on the bureaucratic complexity affecting service delivery:

"Lengthy procurement process of local government."

Further complications arose from inappropriate procurement practices, often due to inadequate expertise or superficial decision-making. As one participant explained,

"Our mayor stamped for the order of 2 wheelchairs, but no one knew any specifications or number of wheelchairs. No assessments were conducted for those users."

This inefficiency leads to poor product quality, waste of public funds, and unmet user needs. These statements emphasize a system burdened by procedural inefficiencies and lacking clear, streamlined processes to ensure effective, timely, and need-based provision.

Lack of priority and policy ownership

Policy gaps and weak coordination emerged strongly, highlighting how wheelchair provision lacks institutional prioritization and cohesive collaboration across stakeholders. As one team summarized:

"There is a policy gap and access is not equal."

Budget allocation for disability-related projects, including wheelchair services, is not a priority at any level of government. This lack of prioritization translates into insufficient funding for wheelchair programs, resulting in the distribution of low-quality products that fail to meet users' needs. The focus on quantity over quality, driven by budgetary constraints, compromises the effectiveness of wheelchair services. A policymaker reflected on this issue, stating,

"I have found heavy demand for wheelchairs. But, we do not have enough budget to meet those demands. Hence, it is difficult."

Another participant added,

"The import of charitable/donated wheelchairs is expensive, tedious, lengthy, and difficult. We felt that this is not under government priority."

The lack of sufficient financial resources, coupled with a low priority given to wheelchair-related initiatives, perpetuates the gaps in service provision, leaving many users without access to the assistive devices they need.

Data and awareness

A critical issue affecting wheelchair service delivery is the lack of reliable data on wheelchair users and their needs. Without accurate data, the government cannot allocate sufficient resources or plan effectively to address the demands of disabled individuals. In addition to the data gap, there is limited awareness among policymakers and service providers about appropriate wheelchair provision guidelines and the specific needs of users. This lack of awareness extends to vendors, government personnel, and even family members of wheelchair users, resulting in the distribution of inappropriate products. One participant highlighted,

"There is no accurate data/database/statistics about wheelchair users and demand/need." *Another added, "Lack of awareness on appropriate wheelchair and distribution procedures amongst donor agencies results in users receiving what is made available by donors."*

The lack of awareness among decision-makers, especially within key ministries such as the Ministry of Women, Children, and Senior Citizens (MoWCSC) and the Ministry of Health and Population (MoHP), exacerbates the problem. As one participant stated,

"There is a need to sensitize information to these ministries."

Moreover, the lack of a *"one-door policy"* or a central institution to manage wheelchair services results in fragmented service delivery. Another participant noted, *"There is no focal institution or one door policy for wheelchair services,"* underscoring the need for streamlined systems to improve service provision.

Lack of monitoring, evaluation and coordination

A recurring theme in the workshop was the lack of monitoring, evaluation, and coordination among stakeholders involved in wheelchair provision. Without a centralized database or coordinated system, it becomes difficult to track the distribution and impact of wheelchairs. This lack of oversight leads to poor regulation of the quality of products and services provided, and many wheelchairs are distributed without proper assessment or follow-up. These participants noted:

"Monitoring and evaluation of distributed (often charitable) wheelchairs are not conducted well, and there have been compromises in quality and distributions."

"No proper wheelchair assessment is done…lack of regulation and monitoring at local level on distributed wheelchairs"

"Distribution is charity based... Monitoring and evaluation of distributed (often charitable) wheelchairs are not conducted well"

Another participant emphasized the need for government involvement, stating, *"There is a need for government to enact a one-door/unified approach for effective distribution."* Stakeholders repeatedly cited coordination deficits between government, NGOs, and service providers, contributing directly to fragmented services:

"There is a lack of collaboration between government, NGO and service providers. There is a gap between wheelchair users and service providers."

Rich pictures visually depicted the role stakeholders should ideally play as bridges facilitating accessible mobility but highlighted the existing reality of weak coordination. The lack of coordination between various NGOs, INGOs, government bodies, and suppliers further exacerbates the inefficiencies in the system, leaving many users without the necessary support.

The texts below highlights Nepal's progressive policy on AT sector.

In recent years, Nepal has taken several progressive policy steps to strengthen rehabilitation and assistive technology (AT) services, reflecting growing national commitment to inclusive health systems. The *Situation Assessment of Rehabilitation in Nepal (EDCD, 2022)*[16] marked a pivotal moment by systematically documenting the state of rehabilitation services across the country, identifying key gaps in infrastructure, workforce, and service integration. Complementing this, Nepal has developed its own *National Priority Assistive Products List (PAPL, 2018)*[17] in alignment with WHO's global initiative, aiming to streamline procurement and ensure the availability of essential assistive products tailored to the country's needs.

Furthermore, the introduction of *National Standards for Assistive Technology (NSAT 2022)*[18] is a significant advancement toward ensuring quality, safety, and appropriateness of AT provision. Further reinforcing national capacity, Nepal has implemented the WHO's *Training in Assistive Products (TAP)*[19] - a modular online curriculum now available in Nepali - to equip primary healthcare and community workers with essential skills in identifying, prescribing, fitting, and following up on assistive devices.

These measures collectively represent a strategic shift towards evidence-based, people-centered rehabilitation services and highlight Nepal's alignment with global disability and health agendas.

References:

[16] EDCD. (2022). Situation Assessment of Rehabilitation in Nepal. [online] Available at: https://edcd.gov.np/resource-detail/situation-assessment-of-rehabilitation-in-nepal

[17] Priority Assistive Product List of Nepal (PAPL). (2018). [online] Teku, Kathmandu, Nepal : Government of Nepal Ministry of Health & Population. Available at: https://cdn.who.int/media/docs/default-source/assistive-technology-2/priority-assistive-products-list/nepal_nationalpriorityassistiveproductlist22ef6d46ef7a4079a5d2e279010a27fd.pdf?sfvrsn=9b669404_7

[18] NSAT. (2022). National Standard on Assistive Technology (2078). [online] Available at: https://www.edcd.gov.np/resource-detail/national-standard-on-assistive-technology-2078.

[19] www.who.int. (n.d.). Training in Assistive Products. [online] Available at: https://www.who.int/teams/health-product-policy-and-standards/assistive-and-medical-technology/assistive-technology/training-in-products.

Visible Mindfulness for Effective Policy

Figure 13. Rich picture 5 depicts people's aspiration for disability-friendly public infrastructures.

This rich picture, created by a group, reinforces a shared aspiration for inclusive infrastructure across *schools, hospitals, and public institutions.* At the center is a wheelchair user with a sad face, alongside an arrow pointing at the school with stairs - symbolizing the daily exclusion from essential services due to inaccessible design. The group emphasized, *“schools and roads*

are not disability friendly… we are envisioning it to be inclusive and accessible." Sticky notes on the image call for urgent reforms:

"Access to ramp and lift should be made mandatory" and "Schools, hospitals & public institutions should be made disability friendly."

The group powerfully concluded that if society understands and acts on these issues of *'lack of disability-friendly infrastructures', "disability won't feel harder, and it will be a little easier for us."* Their drawing articulates a collective hope for structural transformation, anchored in dignity, equity, and universal access.

Discussion and Recommendations

This dimension generates a shared or collective understanding of the situation, working in partnership to create actionable sustainability policy. The insights gathered from the wheelchair provision workshop in Biratnagar, Koshi Province stresses the urgent need for a systemic, inclusive, and sustainable transformation of wheelchair services in Nepal. Participants highlighted numerous structural barriers - ranging from poor infrastructure and inaccessible services to lack of data, limited repair networks, lack of coordination amongst stakeholders and lack of prioritization in policy decisions. However, the workshop also illuminated clear aspirations for change. This section translates those aspirations into actionable recommendations, aligning them with the best global practices.

Establishing a Centralized, Real-time Wheelchair Data System

A consistent theme was the lack of real-time, disaggregated data on wheelchair users and device distribution. This leads to inefficient resource allocation, duplication, or neglect and hinder effective coordination between stakeholders. Participants consistently expressed aspirations for improved coordination among various stakeholders involved in wheelchair service provision, including local governments, NGOs, INGOs, and disabled persons' organizations (DPOs). A team highlighted:

“There is no accurate data/database/statistics about wheelchair users and demand/need.”

"Lack of collaboration between government, NGO and service providers. There is a gap between wheelchair users and service providers."

Recommendation:

- Create a centralized digital database of wheelchair users, integrated into national health and social protection systems.
- Link with municipal registries and disability ID systems to monitor need and coverage.
- Pilot a QR-coded user card system, similar to the COVID-19 vaccine registry, to track repairs, services received, and device history.

Shifting from ‘one model fit-for-all’ wheelchair to ‘customized’ wheelchair provision considering product’s life-cycle

Participants strongly emphasized the need to shift away from generic, medical-model wheelchairs to customized solutions tailored to individual requirements and geographic contexts. Participants also emphasized the importance of repair services after distribution and noted scarcity of spare parts as a major challenge for effective repairs. These narratives illustrate this clearly:

"Even government and different institutions provide us medical wheelchair which we cannot even properly use at home. Hence, it is necessary to provide wheelchairs based on users need".

“Many users face challenges in repair and maintenance as they do not know where wheelchairs are repaired and where spare parts are available.”

Recommendation:

- Establish a provincial and local wheelchair customization & repair center through collaborative efforts involving local government, NGOs, and technical specialists.
- Conduct systematic, standardized assessments of individual user needs following wheelchair provision guidelines prior to wheelchair distribution.
- Initiate mobile maintenance and repair services to reach users in remote areas regularly.

- Ensure availability and affordability of essential spare parts and accessories through local suppliers or standardized import processes.
- Encourage low-cost innovation using available local materials, especially for frequently damaged parts such as caster wheels, foot plates, arm rest and seats.

Awareness, training, and user empowerment

There was a consistent aspiration among participants for enhanced user awareness and empowerment through training and education. Participants also expressed significant concerns regarding shortages of qualified personnel able to perform accurate assessments, fittings, repairs, and customizations. The following statements justify the need for training to both users and service providers.

"Not enough has been done to build capacity of human resources in this field [wheelchair assessment and customization]."

"Users are receiving wheelchairs, but they are not well aware of training and maintenance"

Recommendation:

- Develop structured vocational training programs and certifications through partnerships with technical institutions and universities.

- Integrate mandatory training sessions on wheelchair use, maintenance, and safety for all recipients at the point of distribution.

- Promote ongoing awareness campaigns within communities to educate users and caregivers about disability rights, wheelchair care, and available services.

Ensuring Accessibility of Public Infrastructure

Accessibility barriers within public and private infrastructure were recurrently highlighted as significant concerns. Rich pictures vividly illustrate barriers such as stairs in government offices, hospitals, schools, and inaccessible roads, emphasizing an aspiration for more universally accessible environments. Participants clearly recommended, *"Every office building should have disability friendly infrastructure,"* and stressed the need for accessible public toilets and transportation services.

Nepal's *National Building Code (NBC 206: 2015)*[20] introduces a structured framework for accessibility in public and private infrastructure through clear design requirements tailored to building size and usage. It outlines categories of accessibility with specific requirements for ramps, toilets, entrances, and lifts. Despite this progressive regulatory effort, the practical implementation remains limited due to weak enforcement and insufficient awareness among local authorities and builders. Strengthening monitoring and capacity-building mechanisms is crucial to translating these standards into tangible improvements in accessibility.

Recommendations:

- Enforce mandatory inclusion of universal design standards in all new public infrastructure projects.
- Implement retrofit programs to modify existing buildings and facilities, adding ramps, elevators, tactile surfaces, and other essential accessibility features.
- Develop a public accessibility audit system, including wheelchair user participation.

The highlighted box below gives an overview of *National Building Code (NBC 206-2015): Architectural Design Requirements and its practical implications*[21].

Nepal's commitment to universal design is enshrined in its *National Building Code (NBC 206-2015): Architectural Design Requirements*, which mandates progressive accessibility standards for public and semi-public buildings. Under the NBC:
Buildings are categorized into three accessibility levels (Minimally, Partially, and Fully Accessible), each with clear, measurable criteria for ramps, entrances, toilets, lifts, and other access features.

- **Category 1 (plinth <100 m²)** requires at least one accessible entrance, reception area, and toilet located on the ground floor, with ramps having a gentle slope (1:8 for ≤450 mm rise, and 1:12 above) and minimum width of 1 m.
- **Category 2 (100–500 m²)** adds standards for handrails, non-slippery surfaces, and fully compliant lifts when provided, ensuring at least one accessible primary entrance and washroom per building.
- **Category 3 (>500 m²)** mandates full accessibility throughout, including lift access to all floors, accessible toilets with sufficient clearance, and clear signage using international symbols.

Additional NBC provisions include minimum door clearances (≥800 mm), turning spaces (1.8 m diameter), accessible parking, and detailed dimensions for elements like ATMs, counters, and telephones. Despite these provisions, research shows significant gaps in implementation across government offices, schools, health facilities, and hotels - highlighting a persistent “policy–practice” divide.

These building regulation standards represent a significant legislative step towards inclusivity in Nepal’s built environment. However, the effectiveness of this framework depends critically on enforcement, monitoring, and capacity-building at provincial and municipal levels to ensure that accessibility transitions from legal text to lived experience.

Reference:

[20] Nepal National Building Code (NBC 206: 2015). Architectural Design Requirements. (2015). Available at: https://www.moud.gov.np/storage/listies/July2019/NBC_206_2015_ARCHITECTURAL_DESIGN_REQUIREMENTS.pdf.

[21] Preparation Of Design Guidelines For Disable Friendly Building Design In Government Office Buildings For All Types Of Disabilities In Nepal. (n.d.). Available at: https://giwmscdnone.gov.np/media/pdf_upload/2._PREPARATION_OF_DESIGN_GUIDELINES_FOR_DISABLE_FRIENDLY_BUILDING_DESIGN_IN_GOVERNMENT_OFFICE_BUILDINGS_FOR_ALL_TYPES_OF_DISABILITIES_IN_NEPAL.docx.pdf

Way Forward – Consensus Workshop

The above recommendations should inform strategic development provincially and nationally. Participants across the four provinces will be invited to participate in a consensus workshop to see if themes generated represent the views of participants and that recommendations are articulated to support the development of a strategy. As a way forward participants will work together to propose a plan to build sustainable wheelchair provision service delivery systems, based on the findings, which are clearly defined and modeled to feasibly take action to improve the situation and address the real world challenge, i.e. wheelchair provision. Through consensus-based development of a 'root definition' - a structured articulation of what needs to change and why *(Checkland, 1999)*. This collaborative process allows stakeholders to co-create a conceptual model for improving wheelchair services that is rooted in local realities and aspirations. As reflected in the previous research *by Gowran et al. (2019)*, stakeholder engagement through SSA fosters a 'community of practice', where mutual understanding, knowledge exchange, and long-term commitment are essential to sustainable system transformation.

Participants will also have the opportunity to review a proposed 'Richest Picture' which represents wheelchair provision, its importance and challenges, presented in a form of traditional Nepali 'Thanka Art'. The art can be done through wheelchair user Thanka artists who were the participants of the workshop itself (See *figure 14 below).*

Figure 15. Male (left) and Female (right) artists who also participated in the workshop as a wheelchair user showcasing traditional Nepali Thanka Art BIA foundation at BIA, Jorpati, Kathmandu.

Conclusion

The wheelchair provision landscape in Koshi Province reflects a complex interplay of progress and persistent challenges. While recent years have seen incremental improvements in awareness and service delivery, the system remains fragmented, urban-centric, and heavily reliant on charity-based models. The workshop discussions in Biratnagar revealed critical gaps in accessibility, customization, repair services, stakeholder coordination, and policy enforcement. These deficiencies disproportionately affect rural users, who often face compounded barriers due to poor infrastructure, limited technical support, and inadequate product suitability.

Stakeholders across sectors voiced a shared aspiration for a more inclusive, responsive, and sustainable wheelchair service ecosystem. The recommendations emerging from the workshop emphasize the need for a centralized data system, customized wheelchair provision, enhanced technical training, and robust infrastructure development aligned with Nepal's National Building Code. The emphasis on user empowerment, vocational training, and community engagement underscores a shift toward rights-based service delivery that prioritizes dignity, autonomy, and long-term usability. To transition from fragmented provision to sustainable, rights-based wheelchair services, it is critical to adopt a participatory planning approach that not only reflects the complexity of the system but also fosters stakeholder ownership at all levels.

The Sustainable Community of Practice Model (SCOP-M) and the application of the Soft Systems Approach (SSA), in this study, offers a structured yet flexible approach for facilitating systemic change. By engaging stakeholders in reflective inquiry, the methodology enables identification of shared concerns and system inefficiencies, followed by consensus-based development.

To realize these goals, provincial and national authorities should establish inclusive dialogue forums with a multisectoral coalition involving government bodies, NGOs, technical experts, and user communities to collectively review the findings of this study and define a shared vision for change through a consensus workshop. The transformation of wheelchair services in Koshi Province will depend not only on policy reform but also on the practical implementation of standards, sustained investment in human resources, and the creation of accessible environments. This report provides a strategic framework for such transformation, aligning local realities with global best practices in assistive technology provision.

By situating wheelchair provision as a basic human rights issue and aligning future strategies with the *United Nations (2015)* Sustainable Development Goals (SDGs), especially SDG 3 (Good Health and Well-being), SDG 10 (Reduced Inequalities), and SDG 11 (Sustainable Cities and Communities)[22], Nepal can position itself as a regional leader in inclusive assistive technology systems. The way forward demands political will, inclusive governance, and continuous engagement with those who understand and are directly affected by the wheelchair

provision system. Only through such integrated and inclusive processes can sustainable, equitable, and appropriate wheelchair services be realized.

Reference:

[22] United Nations (2015). *The 17 Sustainable Development Goals*. [online] United Nations. Available at: https://sdgs.un.org/goals.