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Workshop Report

Wheelchair Provision in Nepal: Butwal, Lumbini Province

Provincial Report

Prepared by
Prepared by The GDI Hub

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UNIVERSITY OF LIMERICK
OLLSCOIL LUIMNIGH

Center for Disabled Children Assistance
Kathmandu, Nepal

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Introduction

Figure 1. A wheelchair user preparing to leave the workshop parking his wheelchair at the back of the scooter.

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*

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

terms wheelchair and seating together strengthen their use as a primary and essential 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 (2022)*[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 [Accessed 22 Oct. 2023].

[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.

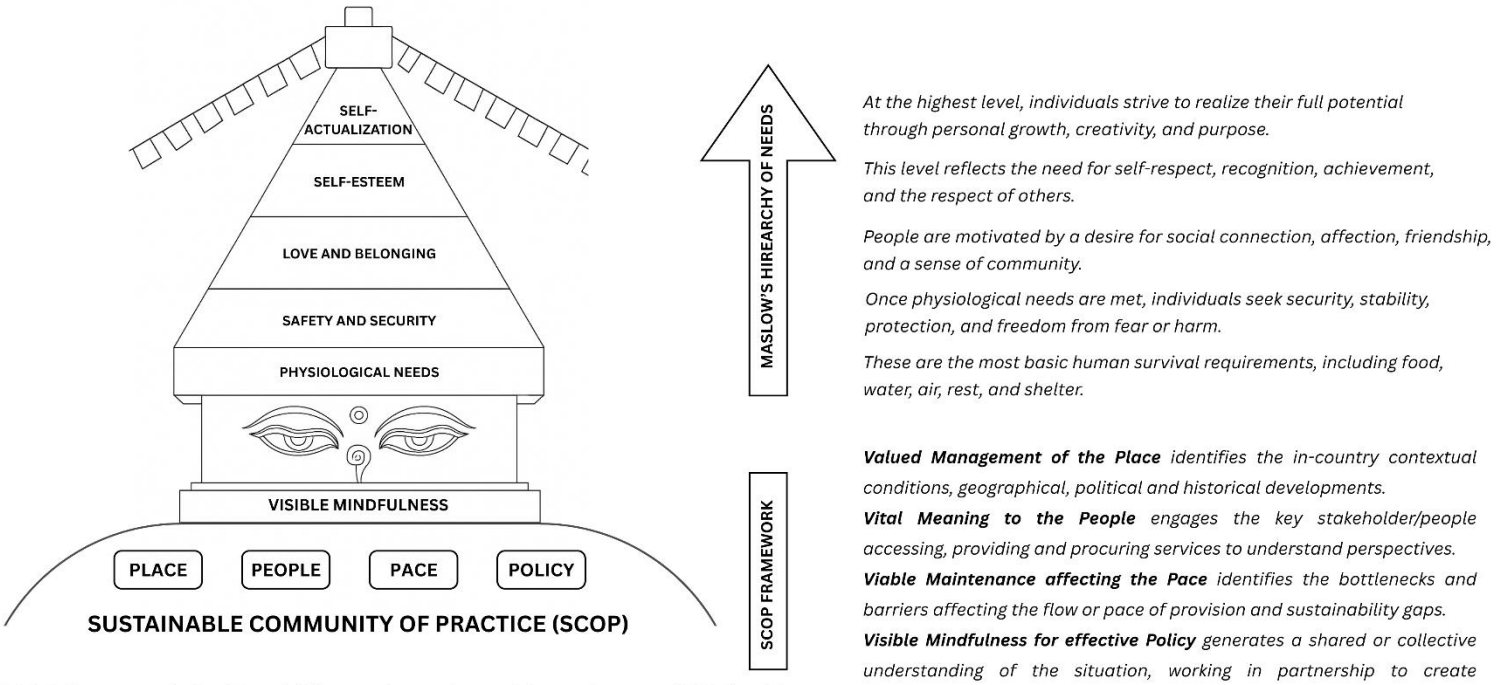
[6] Assistive product specifications and how to use them. (2021). World Health Organization. Available at: https://www.who.int/publications/i/item/9789240020283. [Accessed 10 Jun. 2025].

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 **Lumbini 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):

Lumbini Province

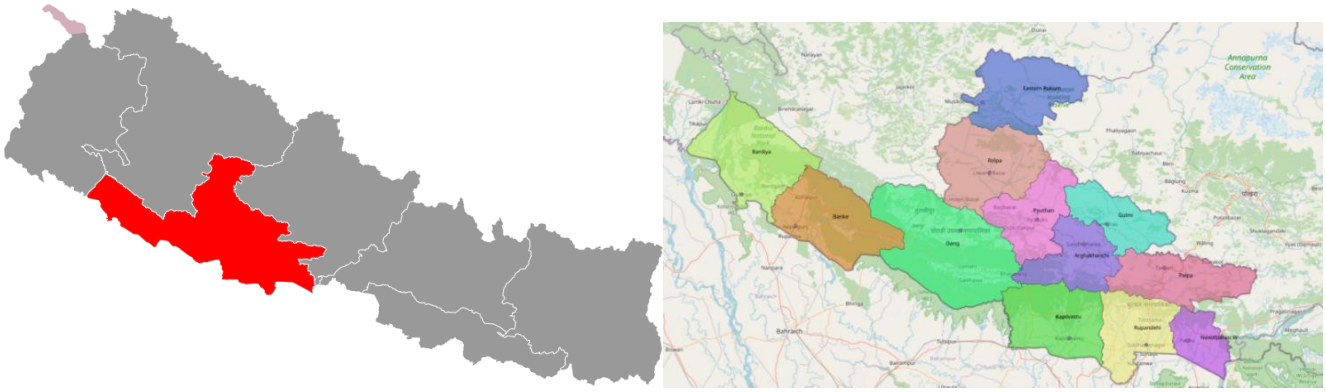


Figure 3. Lumbini Province in the map of Nepal (Source: Nepalinmaps)

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

Geography, Culture, and Population

Lumbini Province, situated in western Nepal, covers an area of approximately 22,288 km², about 15.1 % of the nation's landmass and features a classic three-tier physiography: broadly comprised of Mountains (3.1 %), Middle Hills (69.3 %), and the Terai plains (27.6 %). The province shares international borders with India's Uttar Pradesh and Bihar to the south, and internal borders with Gandaki Province to the east and north, Karnali Province to the north and

west, and Sudurpashchim Province to the west. Elevation ranges from around 90 m in the Terai to 7,246 m in Eastern Rukum.

According to the 2021 National Population and Housing Census (NPHC, 2021)[7], Lumbini Province had a population of approximately 5.12 million, representing 17.56 % of Nepal's total population, with an overall density of about 230 persons/km². Urbanization is substantial, with major urban centres such as Butwal, Siddharthanagar (Rupandehi), Nepalgunj (Banke), and Ghorahi–Tulsipur (Dang) accounting for a significant share of provincial population (55.2%); the remainder resides in rural municipalities (44.8%) across the hills and highlands.

Ethnically and culturally, the province exhibits marked diversity: Khas groups such as Brahmin and Chhetri comprise the majority of its population, followed by Magars. In the Terai, Tharu communities represent widely, and Madheshi groups are prominent in eastern Terai districts. The province is also home to other indigenous groups throughout its varied terrain. Religiously, Hinduism is the dominant faith, followed by other minority groups: Islam, Buddhism, and Christianity. Lumbini itself is the birthplace of the Buddha and a focal point of Buddhist pilgrimage and inter-religious harmony.

[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].

Linguistically, Nepali prevails across the hills, while in the plains Awadhi, Bhojpuri,Tharu and Maithili are widely spoken.

The provincial capital, Deukhuri (in Dang), along with urban centers such as Butwal and Siddharthanagar, functions as a major economic and cultural hub, integrating pilgrimage tourism (centered on Lumbini, a UNESCO World Heritage Site), industrial activity, cross-border trade, and multi-ethnic heritage along the southern Terai corridor.

Disability Rates and Trends

According to the 2021 National Population and Housing Census, 2.4 % of Lumbini 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 (53.3%) of disability than amongst female population (45.7%). Among the types of disability recorded in Lumbini Province, physical disabilities are most prevalent, accounting for 37.6 % of all reported cases, followed by low vision impairments (17.5 %), multiple disabilities (8.4 %) and hard-of-hearing (8 %). However, Nepal Demographic and Health Survey (NDHS, 2022)[8] and the WHO Rapid

[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.

Assistive Technology Assessment (rATA)[9] survey reported 6.8% (N=1,937) and 8.5% (N=1,748) 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 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 districts in Lumbini Province such as Nawalparasi, Kapilbastu, Rupendehi and Dang 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 Lumbini Province have around 7.5% of the total

[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

physiotherapists. This is around 1 physiotherapist per 58,824 people in the province. (EDCD, 2022).[10]

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 60.3% 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 Kapilbastu and Nawalparasi 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, 2.5% 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

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

disability/illnesses, this figure is around 21.2% *(NHPC 2021 Provincial Report Lumbini Province, 2023)*.[11]

Wheelchair Provision Landscape

Lumbini Province's wheelchair service infrastructure remains nascent and unevenly distributed. According to the 2022 Situation Assessment of Rehabilitation in Nepal, only 7.5 % of the country's physiotherapists and key assistive-technology professionals are based in Lumbini, equating to roughly one physiotherapist per 58,824 inhabitants - well below World Health Organization recommendations for basic rehabilitation coverage (EDCD 2022). Service provision is largely confined to Butwal and Bhairahawa, 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 programs.

Government investment in rehabilitation services remains minimal: rehabilitation accounts for just 0.2 % of national health spending, with Lumbini 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

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

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, Lumbini 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.

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

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 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 Lumbini Province; Independent Living Centre (CIL) in ko 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: Lumbini Province

Stakeholders were invited to participate in a one-day workshop in Butwal. 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 30 people in Butwal, Lumbini 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, 50% were female and 10 people out of 30 participants stated they had a disability. The 8 users listed in *table 1* represent 6 wheelchair users and 2 carer family members. There was significant participation of the rehabilitation workforce in the workshop.

Table 1. Workshop participants summary – Butwal, Lumbini Province

Participation	Female		Male		Grand Total
	Identifies as having a disability		Identifies as having a disability		
Sector	**No**	**Yes**	**No**	**Yes**	
Local Government	**2**		**3**		**5**
Officer	1		3		4
Policy Maker	1				1
Provincial Government			**1**		**1**
Policy Maker			1		1
Service Provider	**9**	**2**	**2**	**3**	**16**
Policy Maker		1			1
Rehabilitation Provider	9	1	2	3	15
Users	**1**	**1**	**2**	**4**	**8**
Carer			2		2
User	1	1		4	6
Grand Total	**12**	**3**	**8**	**7**	**30**

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: Hotel Hidden Palace was chosen as the venue for the workshop at Butwal. The venue had an event hall and dining facility at the ground level, but entrances and toilets had steps which would limit wheelchair users from moving around. To address these issues, a local carpenter was called, and portable ramps *(figure 6)* were made using local material. Even with these adjustments, toilets were not fully accessible as they had narrow entrances to fit in wider wheelchairs. To address this, one room was spared at the first floor which had a wider entrance and could be accessed through a lift.

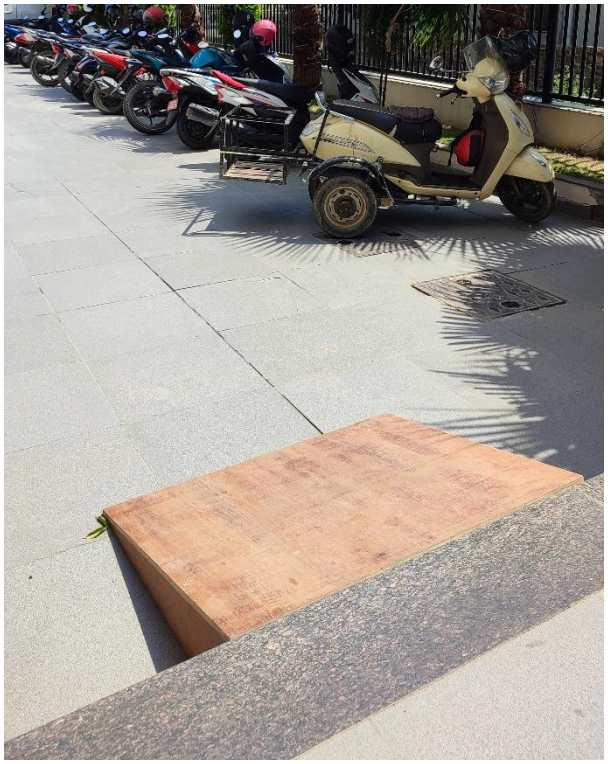


Figure 6. Improvised wooden ramp for workshop venue accessibility.

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 organizations 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 Butwal-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.

Prior to the discussion participants were introduced key concepts from the SCOP model (*figure 2)* and the WHO's '5P' people-centred model *(figure 7)* presented in the

Figure 7. The WHO '5P'People-centred assistive technology model: People, Products, Provision, Personnel and Policy extracted from WHO GReAT report (UNICEF, 2022)

Global Report on Assistive Technology (GReAT) (UNICEF,2022)[13].

Session 1 discussion questions focused on:

- Current Wheelchair Services Landscape
- Stakeholder Identification and Their Roles
- 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.*

[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.

(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 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 Lumbini 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.

[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. https://doi.org/10.3233/TAD-140408

[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 Lumbini 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

The current wheelchair service landscape in Lumbini Province is marked by significant structural inadequacies, characterized by fragmented and insufficient services. The participants unanimously identified a fundamental lack of user-centric practices, notably the absence of individual assessments and customization of wheelchairs. As noted,

"distributed wheelchair is not disability friendly," and "wheelchairs are dysfunctional, not sustainable, low quality, they are not customized as per the user."

Moreover, the existing services lack systematic approaches and are described as *"ad hoc"* rather than based on needs assessments, suggesting randomness in wheelchair distribution processes.

There is also a severe lack of wheelchair maintenance services. Workshop participants highlighted the pervasive issue of unavailability of spare parts and high cost, stating,

"though it can be repaired, parts or components are not available."

"wheelchairs are not available at an affordable cost."

Infrastructure inadequacies compound these challenges; existing physical spaces and public transportation are largely inaccessible, described by participants as *"not disabled friendly,"* significantly restricting mobility and participation for wheelchair users.

Stakeholder identification and roles

A diverse range of stakeholders were identified as central to the wheelchair service ecosystem *(See figure 8)*. These stakeholders include various government levels *(Federal, Provincial, and Local),* public representatives, NGOs, INGOs, Disabled People's Organizations (DPOs), healthcare institutions, guardians/caregivers, and skilled technicians.

Local governments were recognized as critical for direct service provision, user identification, and budget allocation. Participants emphasized the local government's role, stating they must *"prioritize allocation of budget"* and *"identify the needs of people with disability,"* highlighting the local government's frontline position in data collection and budgetary prioritization.

Federal and provincial governments, especially Ministry of Social Development and Provincial Health Directorate were seen as responsible for broader policy formulation and budgetary support. Additionally, NGOs, INGOs, local OPDs and educational institutions were cited as essential for providing technical expertise and supplementary resources at service level. However, participants also underlined the critical need for cooperation, asserting,

"there must be cooperation and coordination between the stakeholders,"

signifying a current gap in stakeholder interactions and integrated actions.

Families and caregivers were acknowledged for their supportive roles, particularly in providing immediate care and assisting in navigating administrative processes for obtaining disability identity cards. However, the broader systemic involvement of these stakeholders remains relatively unstructured and ad hoc.

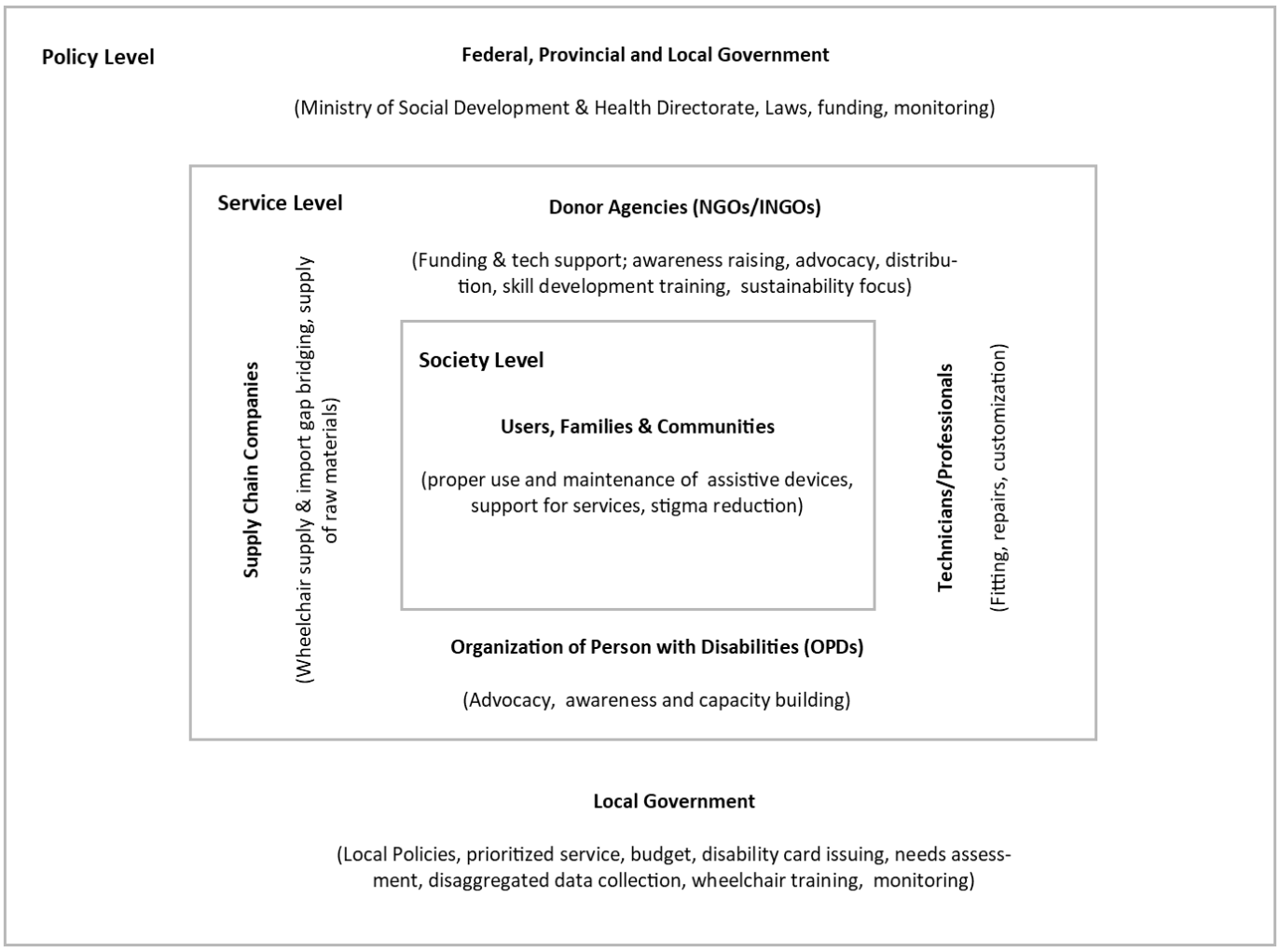


Figure 8. Framework illustrating the multi-stakeholder architecture in Lumbini Province's wheelchair provision ecosystem, identifying roles across policy, service delivery, rehabilitation, and end-user engagement.

Barriers affecting service flow

Numerous barriers significantly inhibit wheelchair service delivery in Lumbini Province. Economic hardships emerged prominently, with poverty directly affecting wheelchair procurement, where participants mentioned,

"users cannot purchase even when required due to financial situation."

Geographic complexities also contribute heavily to service disruptions, creating isolation and limiting the availability of assistive technologies in remote regions.

Systemic barriers such as inadequate and inaccessible infrastructures further exacerbate service flow difficulties. The lack of *suitable ramps, inaccessible roads, transportation, and facilities* illustrate systemic neglect, as exemplified by participants who visualized these challenges through rich pictures, showing scenarios such as *"steep ramps," "long stairs," and inaccessible transportation,* capturing vivid real-life struggles of wheelchair users.

Furthermore, a profound information gap was identified among service users, caregivers, and service providers, creating misunderstandings and inefficiencies. Participants stressed *"lack of information dissemination and collaboration,"* which hampers effective communication and thus undermines service quality. The absence of skilled personnel for repair and maintenance services further magnifies these issues, severely limiting ongoing wheelchair usability and sustainability.

Stakeholder sentiments and perceptions

Stakeholder sentiments about wheelchair service provision were largely critical, albeit mixed with cautious optimism. Predominantly, stakeholders expressed feelings of disappointment and frustration, characterizing services as *"disappointing," "mismanaged," and "unachievable."* This reflects widespread dissatisfaction with the existing system, primarily stemming from inadequacies in services, management, and infrastructure.

Figure 9. Presence of stairs at public infrastructures perceived as major dissatisfaction by the participants.

Despite general negative perceptions, stakeholders acknowledged gradual improvements in awareness and preliminary efforts towards reform, describing the current status as *"improving"* yet still largely *"unmanaged."* There was consensus on the need for enhanced coordination and more structured, inclusive, and sustainable practices, as voiced in the statement,

"service providers should collaborate with the users and encourage them."

Participants expressed aspirations for an ideal scenario where accessibility is prioritized and comprehensively integrated into community infrastructure. Rich picture visualizations contrasted current realities with desired conditions, exemplified by statements such as *"we want schools to be accessible"* and *"interactive programs/discussions going on"* in inclusive settings. This reflects stakeholder recognition of the significant gaps between current realities and desired accessibility standards.

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 10. Rich picture 1 depicting infrastructural challenges for wheelchair users.

This rich picture *(figure 10)*, presented by Jitgadi Samuha [group], highlights key accessibility challenges faced by people with disabilities in Lumbini Province. It vividly portrays a wheelchair user who navigates an *"uneven road"* only to encounter a *"very steep ramp"* at the ward office, rendering it inaccessible. The school depicted has stairs but *"no ramp access,"* underscoring

systematic neglect in educational infrastructure. Such conditions force the user to wait *"alone at the bottom of the ramp, looking upwards,"* symbolizing isolation and dependence due to inadequate facilities.

“A wheelchair user has no caretaker at home, so he has come on his own to the ward office. He is somehow propelling through the uneven road and reaches the ward office but faces a very steep ramp. He imagines that he would get inside the office if the ramp was less steep. He is now expecting someone’s assistance to get him into the office and waits alone at the bottom of the ramp, looking upwards.”

The narration emphasizes how essential services - like obtaining a *"disability identity card"* - remain unreachable without caregiver assistance or improved infrastructure, reflecting profound stakeholder challenges in providing dignified, independent access to public services.

The section below presents themes highlighting issues and challenges faced by wheelchair users and service providers.

Poverty Amongst Users and Their Families

Poverty is a significant barrier to accessing wheelchair services, as participants consistently emphasized the financial challenges faced by users and their families. These economic constraints hinder their ability to purchase or repair mobility devices, leaving many dependent on external support (charity). As noted in the workshop,

"Poverty amongst users and their families makes purchasing wheelchairs difficult".

"Wheelchairs are not available at an affordable cost".

This issue is fuelled by the inability to allocate funds for essential maintenance, as highlighted by the observation that

"Users cannot purchase even when required due to financial situation".

There is a provision for social allowance by the government, but users stated that such allowance is not adequate. Such financial challenges not only restrict access to mobility aids but also perpetuate cycles of exclusion and marginalization, further entrenching poverty among wheelchair users and their families.

Lack of Inclusion

The exclusion of people with disabilities from policy-making and service design was a prominent concern raised by participants. Participants expressed clear dissatisfaction with the extent of representation and participation of disabled individuals, emphasizing that

"not all wheelchair users are included at the local level,"

pointing to systemic exclusion from essential service processes and policy formulation activities. This lack of inclusion results in poorly designed services that fail to address the actual needs of wheelchair users. A specific instance from the workshop stated,

"Lack of inclusion of the disabled persons in programs related to formulating policies on disability".

This systemic neglect extends beyond policy-making to everyday interactions with public institutions. For example, it was expressed that

"Wheelchair users should be prioritized in government offices when seeking services".

This exclusion is illustrated vividly in a rich picture presentation where a wheelchair user, who *"has no caretaker at home,"* struggles alone to access basic government services, waiting helplessly at *"the bottom of a very steep ramp."* Participants stressed the need for meaningful inclusion, suggesting that genuine integration of disabled persons into policy development and service delivery processes is essential for equitable service provision.

Lack of Data/Information and Awareness

A lack of information and awareness among wheelchair users and service providers is a recurring theme, often reported as a challenge. Service providers and authorities are not aware of the exact data of wheelchair uses and stakeholders in the sector. Many users are

unaware of the procedures for accessing wheelchairs or the availability of services. As one group in the workshop noted, there is

"Lack of information about the procedures to purchase the wheelchair".

"lack of concern amongst stakeholders and lack of awareness amongst users regarding appropriate wheelchairs".

Furthermore, the deficiency in disseminating crucial information about available services and procedures emerged consistently, with participants emphasizing *"lack of information dissemination and collaboration amongst service providers."*

Rich picture presentations also illuminated these informational barriers, depicting users uncertain about how to navigate systems due to insufficient guidance, symbolically represented as wheelchair users asking, *"how do I get there?"* highlighting confusion caused by poor awareness of available services and accessibility features.

Stigma Around Disability

Stigma surrounding disability emerged as another theme, impacting the mobility, self-esteem, and independence of wheelchair users. Participants reported that

"The social perception is negative towards disabled users",

which limits opportunities and perpetuates exclusion. This societal stigma also affects families, as observed in the statement that *"Social context and stigma around disability"* prevent families from supporting the mobility and independence of persons with disabilities.

The rich pictures vividly depict the consequences of stigma. For instance, a wheelchair user is portrayed struggling alone to access a ward office, reflecting societal neglect and highlighting the isolation faced by people with disabilities. This scenario underscores how stigma not only restricts social interactions but also causes dependence and exclusion. Addressing these deeply ingrained biases requires comprehensive efforts to promote awareness, challenge stereotypes, and foster inclusive attitudes within communities.

Product

Figure 11. Rich picture 2 portraying a contrasting picture before and after environmental modification for accessibility.

This rich picture *(figure 11)* by the 'Disability-friendly group' contrasts the existing reality with an ideal solution concerning wheelchair accessibility and product suitability in Lumbini Province. The current situation (left) vividly highlights product issues, with a wheelchair user facing significant dilemmas due to inadequate wheelchair design and inaccessible infrastructure - *"it*

has stairs," "road is rough/bumpy," and public transportation lacks essential adaptations. These barriers illustrate severe product deficiencies, including the wheelchair's unsuitability for rough terrains and the absence of necessary supportive infrastructure. Wheelchair users often find themselves in dilemma:

“How do I get there? It has stairs and there is no one to assist. Road is rough/bumpy. Transportation is not disabled friendly. How do I get there?”

Conversely, the ideal scenario (right) showcases accessible environments such as *"lift access"* at the ward office and *"full ramp access"* to community spaces, enabling wheelchair users to independently participate in *"interactive program/discussion."* The group shared the difference that an appropriate assistive device and accessible infrastructure brings on users life:

“In this improved picture, people with disability have an opportunity to express their feelings/opinions due to improved accessibility.”

The scenario underscores that appropriate wheelchair products combined with supportive infrastructures significantly enhance opportunities for inclusion, enabling people with disabilities to *"express their feelings/opinions"* effectively.

Unavailability of Appropriate Wheelchairs

A significant concern repeatedly highlighted by workshop participants was the persistent lack of appropriate wheelchairs tailored to individual user needs and environmental conditions. Participants explicitly noted,

"wheelchairs that suit the physical/geographic condition are lacking,"

reflecting the crucial mismatch between user needs and the available products. This issue was further emphasized through direct statements such as, *"unavailability of appropriate wheelchair/equipment," and "lack of assistive technology availability,"* indicating that existing supplies fail to adequately address diverse user requirements.

The consequences of this inadequacy are severe, as participants vividly described wheelchair users left immobile or restricted due to products unsuited to local terrains and lifestyles through rich pictures.

High Cost of Wheelchairs

The affordability of wheelchairs was frequently noted as a critical obstacle, exacerbating limited access to assistive technologies. Participants explicitly remarked that

"wheelchairs are not available at an affordable cost,"

emphasizing how financial barriers severely restrict product accessibility for users, particularly those already facing economic hardships. Another presentation highlighted that

"Users cannot purchase even when required due to financial situation".

These statements reflect the economic barriers faced by wheelchair users and their families, particularly in low-income settings. The intersection of poverty and unaffordability highlights a stark reality where essential assistive devices remain out of reach for many users due to prohibitive costs.

Distribution of Low-Quality Assistive Devices

The quality of distributed wheelchairs consistently emerged as a significant issue, negatively affecting usability and sustainability. Participants were unequivocal, stating,

"where there is access to wheelchairs, they are dysfunctional, not sustainable, low quality,"

directly highlighting the poor standards prevalent in available products. Additional workshop insights reinforced this concern by stating explicitly, *"low quality of distributed assistive devices,"* further emphasizing dissatisfaction and frustration among users. The persistence of low-quality products is seen as undermining user confidence and directly contributing to the inadequacy of wheelchair services in the region.

Unmatched Needs Due to Lack of Assessment and Measurement

A recurring theme was the lack of proper assessment and measurement processes prior to wheelchair distribution. One group shared that

"There is no assessment and measurement of wheelchair for users",

leading to mismatches between users' needs and the devices provided. Other comments captured this explicitly:

"Distribution is not according to needs (random distribution)",

"not customized as per the requirements of individual,"

underscoring the failure to incorporate necessary customization practices in the procurement and provision processes. This neglect frequently leads to discomfort, reduced functionality, and, ultimately, user abandonment of assistive devices. Addressing this issue requires the implementation of thorough assessment protocols to ensure that users receive wheelchairs tailored to their individual needs, enhancing both usability and satisfaction.

Difficulties in Repairs

Participants identified significant barriers related to wheelchair maintenance and repairs, emphasizing severe challenges associated with damaged wheelchairs and unavailable spare parts. It was explicitly noted that

"It is difficult to repair the damaged wheelchairs due to parts unavailability and lack of maintenance centers,"

highlighting systemic neglect in support services. Another noted the

"Unavailability of resources for repair and maintenance further hinders usability".

These findings highlight the need to establish localized repair centres, ensure the availability of spare parts, and train technicians to support the long-term usability of wheelchairs.

Provision

Demand-Supply Discrepancies

A central theme under provision is the significant mismatch between the demand for wheelchairs and the supply available through government and non-government channels. Participants frequently voiced concerns about unmet needs, noting a

"lack of fulfillment of wheelchairs according to demand and need."

This mismatch results from limited stock, insufficient procurement planning, and the absence of data-driven service delivery. As one group pointed out,

"the services are not provided on a need basis rather ad hoc,"

reflecting a reactive rather than proactive approach to assistive technology provision. This lack of alignment between need and supply has led to service gaps, especially in geographically marginalized communities.

Lack of Access to Product, Information, and Institutions

Barriers to accessing products, information, and institutions were highlighted as significant obstacles for wheelchair users. Participants reported that

"Users do not have access to the organizations and distributors",

"Lack of information about procedures to purchase wheelchairs and about available services",

which restricts their ability to obtain necessary devices and services.

Additionally, the information gap was emphasized, with repeated references to *the "lack of information/media/knowledge"* surrounding wheelchair procurement procedures, available services, and eligibility criteria. One rich picture narrative described a wheelchair user who, lacking support and information, struggles to reach a government office alone, only to find it inaccessible due to a steep ramp - symbolizing both physical and informational exclusion.

Random Distribution Without Customization

Another critical issue highlighted was the absence of personalized service delivery. Wheelchairs are often distributed without user-specific assessments or customization, which undermines their usability and effectiveness. As stated by several groups,

"distribution is not according to needs (random distribution)," and

"distribution of wheelchairs without measurement and assessment" is common.

These practices result in mismatched equipment that fails to meet users' functional requirements. One team poignantly noted that wheelchairs provided are *"not customized as per the requirements of individuals,"* highlighting the disregard for user diversity, physical conditions, and lifestyle needs in the distribution process.

Absence of System and Mismanagement

The provision landscape is also marred by an absence of systematic service delivery and evident mismanagement. Participants described the system as "unmanaged" and "mismanaged," indicating fragmented implementation, lack of oversight, and weak institutional responsibility. Several quotes pointed to the absence of standardized procedures, stating the system is "not organized," and that distribution and service delivery are conducted "ad hoc."

"There is no systematic assessment or measurement of wheelchairs for users",

"Mismanagement leads to delays and inefficiencies in service delivery".

This organizational dysfunction affects not only procurement and distribution but also record-keeping, follow-up, and repair mechanisms. The lack of monitoring and evaluation systems further entrenches inefficiencies and reduces accountability.

Complex Procurement Processes

Complex and bureaucratic procurement processes were identified as significant barriers to timely wheelchair distribution. One group highlighted that *"Procurement processes are complex, causing delays in wheelchair distribution"*, signifying systems failure to maintain an effective supply chain of assistive devices. Simplifying these processes through streamlined regulations and user-friendly procedures is crucial to improving service efficiency and accessibility.

Personnel

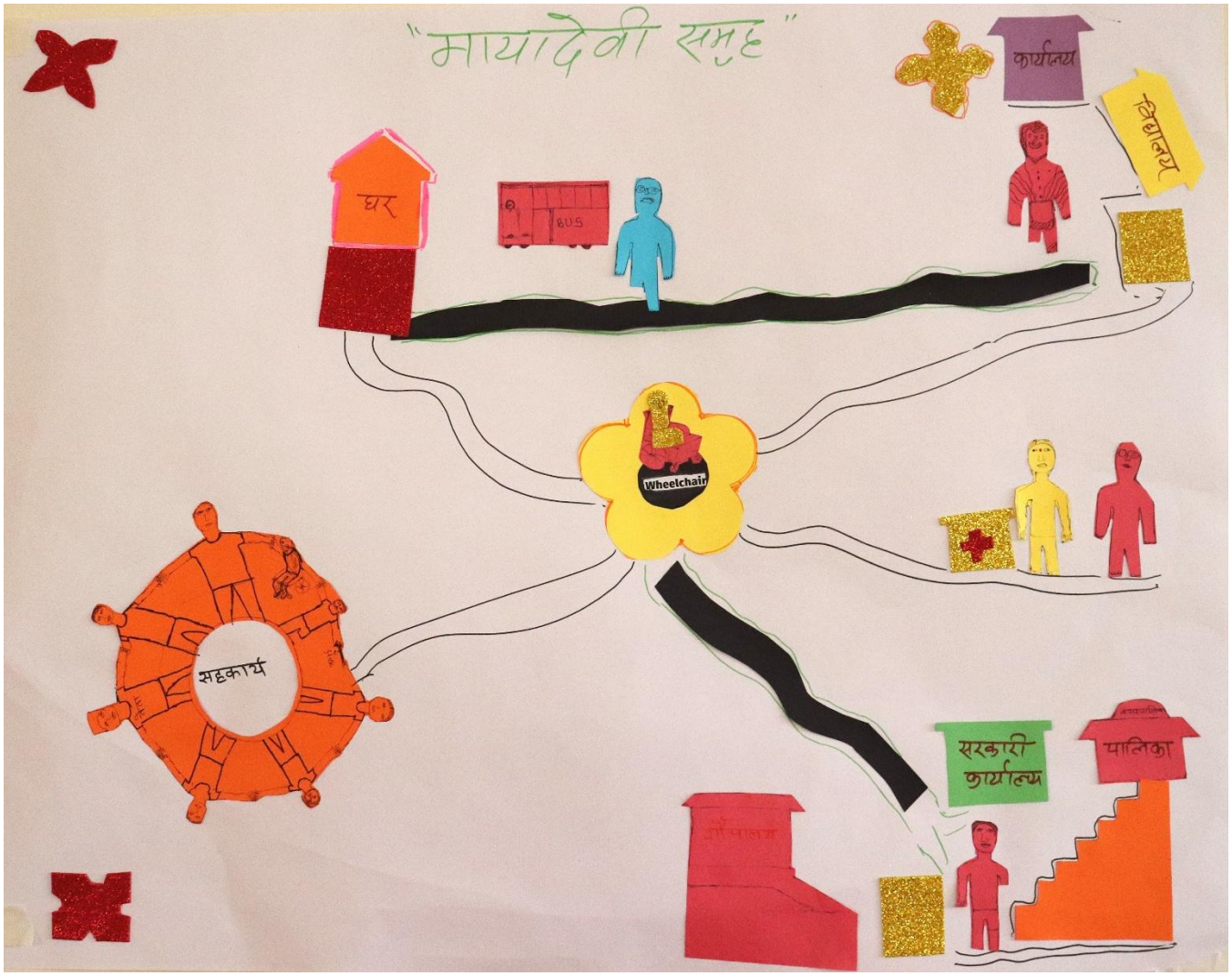


Figure 12. Rich picture 3 showing the importance of collaboration between multiple stakeholders for uplifting wheelchair users' life.

This rich picture *(figure 12)*, presented by Mayadevi Samuha [group], highlights critical personnel-related issues impacting wheelchair users in Lumbini Province. It emphasizes stakeholder roles, notably a visible absence of personnel support and skilled assistance, symbolized by inaccessible facilities such as *"long steep stairs"* at municipality buildings and a

"bus with no ramp access." Central to this depiction is the underlying need for stakeholder cooperation, underscored by the illustration of people holding hands in a circle. The group explicitly advocates that *"if each of us (the stakeholders) cooperate,"* it will foster a *"positive change in attitude and thinking"* toward disability. The group shared:

"….if each of us (the stakeholders) cooperate, it brings about positive change in attitude and thinking towards wheelchair users."

Such collaboration among stakeholders - including skilled technicians, supportive personnel, and policymakers - is essential to eliminate existing barriers and ensure inclusive and accessible environments for wheelchair users.

Lack of Skilled Professionals for Repair and Maintenance

One prominent theme under personnel was the critical shortage of skilled professionals capable of adequately providing wheelchair maintenance and repair services. Participants expressed clear concerns about the systemic absence of qualified individuals, noting explicitly the *"lack of skilled manpower for repair and wheelchair services."* This shortage not only undermines the usability and sustainability of provided wheelchairs but also amplifies user frustration and dependency. Further workshop discussions emphasized that even when wheelchairs can theoretically be repaired, the lack of professionals and appropriate resources severely hampers practical solutions. A participant specifically highlighted, *"lack of equipment/resources to repair"* alongside the personnel deficit, indicating that even basic

maintenance services remain inaccessible, leaving users reliant on dysfunctional or poorly maintained equipment.

Lack of Concerns Amongst Stakeholders

A notable issue raised during the workshop was stakeholders' perceived lack of genuine concern and sensitivity towards wheelchair service provision and disability needs. Participants explicitly stated a

"lack of concern of stakeholders and lack of awareness amongst users regarding appropriate wheelchairs,"

highlighting a significant disconnect between stakeholder responsibilities and practical engagement with user needs. Another critical observation was that

"stakeholders advocate at local levels, but they are not truly aware of issues,"

reflecting superficial involvement rather than deep-rooted concern and proactive support. Such attitudes among stakeholders not only limit the effectiveness of existing services but also perpetuate neglect and marginalization of wheelchair users within community and policy frameworks.

Communication and Coordination Gaps

Another significant theme identified under personnel was the evident communication and coordination gaps among various stakeholders involved in wheelchair service delivery. Workshop participants consistently emphasized the importance and necessity of robust coordination, explicitly stating,

"there must be cooperation and coordination between stakeholders."

However, significant deficits in practical coordination were noted, exemplified by the comment that

"Communication gaps between users and distributors make it difficult to access wheelchairs."

Rich picture presentations further supported this, illustrating the detrimental impacts of these gaps through visual metaphors - such as stakeholders holding hands symbolizing a desired but unrealized collaborative dynamic. Participants strongly advocated for improved communication systems, as coordination failures lead directly to inefficiencies, duplication, and neglect, further isolating wheelchair users and limiting their access to essential services.

Creating centralized information hubs or a database and enhancing inter-stakeholder collaboration can mitigate these issues and streamline service delivery.

Policy:

This rich picture *(figure 13)* presented by a group vividly symbolizes the critical significance of structured and supportive policy frameworks for wheelchair service provision in Lumbini Province, visually depicted through a tree analogy. At the roots, foundational stakeholders such as the *"Central/federal government," "Provincial government," and "Local government,"* along with NGOs, INGOs, community wards, municipalities, families, and caretakers, are identified as essential participants bearing major responsibilities. This reflects the fundamental need for broad stakeholder involvement to effectively ground disability policies.

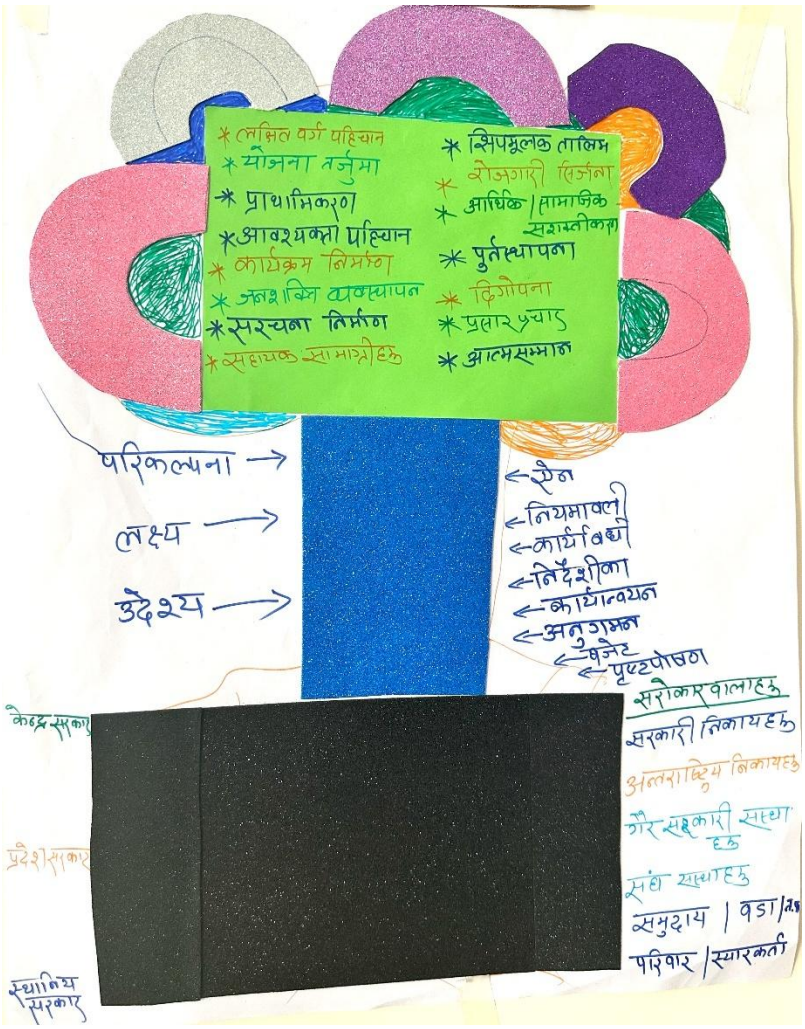


Figure 13. Rich picture 4 presents a 'tree of change' diagram to achieve 'need based wheelchair for all.'

The tree's trunk represents the policy core, emphasizing critical components such as *"regulations, acts, procedures, guidelines,"* alongside specialized agencies for implementation and monitoring. Crucially, the group highlights the necessity of securing an *"adequate budget"*

to transform policy goals into tangible outcomes, reinforcing the notion that without proper financial allocation, policies remain theoretical rather than practical.

The canopy illustrates the comprehensive impacts resulting from effective policy execution. It includes vital activities such as *"target group identification," "prioritization," "project implementation," "manpower/human resource management," "infrastructure development," and "assistive technologies/devices distribution."* Additionally, social and economic dimensions such as *"employment generation," "economic and social empowerment," "rehabilitation," "sustainability," and "self-respect/independence"* are underscored, signifying policies' holistic potential to enhance quality of life and social inclusion.

In summary, the rich picture articulates clearly that effective wheelchair provision demands a robust, clearly defined policy framework, substantial resource allocation, active stakeholder engagement, and continuous reflection and assessment to ensure meaningful, inclusive outcomes for people with disabilities.

Policy Implementation Gaps

A recurring concern among participants was the gap between policy formulation and its actual implementation. Although laws and guidelines exist on paper, they often remain unexecuted or poorly enforced. One group remarked that

"though there are policies to build disabled friendly physical infrastructures, they are not implemented,"

capturing the frustration with institutional inaction. This disconnect is further reinforced in the tree metaphor presented during the rich picture session, which emphasized the importance of *"regulations, acts, procedures, guidelines, agencies for implementation and monitoring."* Yet, the absence of real-world change reflects that such frameworks are ineffectively operationalized. These gaps have practical consequences, as users continue to face inaccessible buildings, unreliable service delivery, and a lack of support structures despite policy commitments.

Lack of Prioritization

Participants also voiced concern that disability, assistive technologies, and wheelchair services are not prioritized within government agendas. One statement explicitly noted that the

“Wheelchair sector is at low preference by government,"

suggesting that other development sectors often eclipse disability-related needs. Despite the recognition of wheelchair services in national and local policies, they are frequently sidelined in planning, budgeting, and resource allocation. This neglect is evident in participant feedback stating *"lack of prioritization of disability issues"* and

"Stakeholders advocate at the local levels, but they are not truly aware of issues,"

which point to a tokenistic approach to disability rights without strategic follow-through.

Lack of Social Care/Assistance

The lack of structured social support for wheelchair users and their families emerged as another policy weakness. Participants highlighted that even basic services are often hard to obtain:

"Users cannot access public transportation," "social allowance is inadequate," and "family and users cannot easily access the information."

These examples point to the absence of a coordinated social care framework that can provide routine assistance, ensure access to rehabilitation and daily services, and support independent living. The disability card system and its link to accessing social security allowances were also critiqued in rich picture presentations, where users were shown struggling to reach local offices without support, symbolizing deeper gaps in policy-driven social protection mechanisms.

Inadequate Budget Allocation

Insufficient financial commitment was universally acknowledged as a core limitation in policy implementation. Multiple teams reported that

"Budget allocation in the disability sector is not adequate from the public sector" and observed a "lack of adequate budget allocation" for wheelchair-related services.

The root-trunk-canopy structure of the tree metaphor further emphasized this concern, stating, *“for all this, we need an adequate budget,”* clearly linking financial inputs to policy success. Without earmarked funding, even the best-formulated policies fail to translate into meaningful impact. Budget constraints restrict not only the procurement of quality wheelchairs but also training of personnel, establishment of repair centers, and expansion of user support systems.

Reforming but Incomplete

A more nuanced theme was the perception that while some reforms are underway, they are incomplete, fragmented, or lack institutional backing. One group described the policy environment as “reforming” yet “mismanaged,” indicating partial progress without sustained outcomes. Participants recognized that some aspects of service delivery are “improving,” and there is a “positive response,” but this is offset by “unmanaged” systems and a lack of documentation or follow-through.

Following phrases suggest that existing efforts need to be accelerated and expanded.

"Policies are being formulated but lack comprehensive implementation".

"The condition of wheelchair service process is improving, but reforms are slow and ineffective",

These views suggest that while policy reforms may have been initiated - such as in planning for disability-friendly infrastructure or inclusive education, they remain disconnected from frontline realities and require stronger mechanisms for monitoring, feedback, and adaptation.

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.

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[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.

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Visible Mindfulness for Effective Policy

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 Butwal, Lumbini 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.

Improved Accessibility through Inclusive Infrastructure

A prevailing aspiration was to create a barrier-free environment enabling independent mobility and social participation of wheelchair users. Participants highlighted systemic inaccessibility in public facilities, education, transport, and administrative offices. As one team observed,

“the ramps being installed are not accessible or disability friendly,”

while another described public institutions like schools and ward offices with "long steep stairs" and no alternatives for wheelchair users.

A rich picture depicted a wheelchair user "*waiting alone at the bottom of the ramp, looking upwards,"* symbolizing both physical and systemic exclusion. This was further linked to poor access to education: *"Children who use crutches cannot attend school."*

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 building codes to ensure all public infrastructure includes universal design principles.
- Retrofit existing schools, health posts, ward offices, and transportation systems with accessible features (e.g., ramps, tactile paths, lifts).
- Institute regular accessibility audits with DPO participation and publish compliance reports.
- Include accessibility compliance as a pre-condition in public procurement for infrastructure projects.

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

Strengthened Stakeholder Coordination and Accountability

Stakeholders at multiple levels: federal, provincial, local governments, NGOs, OPDs, and families were recognized as crucial actors, yet fragmented efforts and role ambiguity remain a challenge. A participant noted that *"Stakeholders advocate at the local levels, but they are not truly aware of issues,"* while another stressed that disruption in service is due to *"lack of dissemination of information by the government or organization."* The rich picture showing people forming a circle to represent cooperation emphasized the aspiration for more synchronized action:

"If each of us [stakeholders] cooperate, all the problems shown (of inaccessibility) will be resolved."

Recommendations:

- Create a centralized digital database of wheelchair users, integrated into national health and social protection systems.
- Establish a provincial-level coordination mechanism on assistive technology led by the Social Development Ministry, including DPOs and service providers.
- Develop and publish a clear stakeholder responsibility map from assessment to after-sale service.
- Create a public information portal with service maps, eligibility guidelines, and reporting dashboards.

Affordable, Need-Based and Customized Wheelchair Distribution

Participants voiced concerns about arbitrary wheelchair distributions that overlook user needs. Quotes such as *"wheelchairs are distributed without assessment and measurement"* and *"not customized as per the requirements of individual"* were frequent. Moreover, the cost barrier was evident: *"Wheelchairs are not available at an affordable cost," and "users want to purchase but have no money."*

These insights reflect a strong aspiration for responsive and equitable provisioning based on proper evaluation, user feedback, and affordability.

Recommendations:

- Adopt WHO Wheelchair Service Provision guidelines at municipal and provincial levels.
- Mandate individual assessments before wheelchair distribution, with proper sizing and fitting.
- Allocate targeted subsidies or insurance mechanisms to support low-income users.
- Include local DPOs and rehabilitation professionals in the assessment and distribution process.

Increased Budget Allocation and Prioritization for Disability

A cross-cutting concern in most groups was the inadequate public investment in disability services. Participants remarked, *"budget allocation in disability sector is not adequate,"* and noted *"wheelchair sector is at low preference by government."* The rich picture depicting a tree emphasized that *"we need an adequate budget"* to implement policies and sustain services.

Participants viewed better budgeting not merely as a financial matter but as a reflection of political will and prioritization.

Recommendations:

- Ensure dedicated budget lines for wheelchair services at federal, provincial, and local levels.
- Integrate assistive technology financing into existing health insurance or social security schemes.
- Require municipalities to submit annual disability-inclusive budget and utilization reports.

Local Manufacturing and Repair Ecosystem Development

Participants also expressed a desire for more sustainable, locally managed solutions. One group stated, *"industries should be set up for manufacturing assistive technology,"* while another pointed to the *"lack of skilled manpower for repair and wheelchair services"* and *"lack of raw materials and spare parts."* These concerns highlight both economic and logistical aspirations.

Recommendations:

- Promote small and micro enterprises (SMEs) for assistive technology production and repair at the local level.
- Provide vocational training and start-up grants to youths with disabilities and technicians in wheelchair repair.
- Partner with technical institutions such as CTEVT to establish courses in wheelchair assembly, customization, and maintenance.
- Create a decentralized network of service and repair hubs aligned with provincial or municipal health posts.
- Provide mobile wheelchair repair services through local government initiative to serve users in remote areas.

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 14. 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 service ecosystem in Lumbini Province is characterized by systemic fragmentation, inadequate infrastructure, and a lack of user-centered approaches. Despite growing awareness and isolated efforts toward reform, the current landscape remains dominated by ad hoc distribution practices, insufficient customization, and limited access to repair and maintenance services. These challenges are compounded by economic hardship, geographic isolation, and a pervasive lack of coordination among stakeholders.

Workshop participants highlighted the urgent need for a paradigm shift - from reactive, charity-based models to proactive, inclusive, and sustainable service systems. The recommendations emerging from the discussions emphasize the importance of enforcing accessibility standards, strengthening stakeholder coordination, and adopting individualized wheelchair provision aligned with WHO wheelchair provision guidelines. Furthermore, the development of local manufacturing and repair ecosystems, coupled with increased budget allocation and vocational training, is essential to ensure long-term service sustainability and user empowerment. 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.

Ultimately, transforming wheelchair services in Lumbini Province requires a multisectoral commitment to inclusive policy implementation, infrastructure reform, and community engagement. By aligning local efforts with global best practices and embedding accessibility into the core of development planning, Lumbini can move toward a future where mobility, dignity, and participation are rights enjoyed by all wheelchair users.

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.