AT2030
Case Study

Situational Analysis of Manual Wheelchair Provision in Nepal

Methodology Process and Overview

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

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Background

In Nepal, approximately 2.2% of the population lives with a disability, many of whom face significant barriers in accessing essential assistive devices like wheelchairs *(NPHC, 2021)*[1]. Many researchers argue about the census reported disability data being underrepresented. The World Health Organization (WHO) rapid Assistive Technology Assessment (rATA) survey[2] in 2021 reported 13.8% disability rate amongst the sampled population from 2970 houses across Nepal. This figure is more than 6 times the figure reported in the census survey and is close to the global average of 16% disability rate. The study also suggests higher disability prevalence amongst the older population with almost half the population (46.4%) aged over 65 years have functional disabilities. rATA study revealed significant lack of access to assistive products/technologies (AP/AT) and identified affordability and unavailability as major reasons for limited access to AT in Nepal.

[1] 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.

[2] 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

Nepal has made significant progress on disability rights since ratifying the Convention on the Rights of Persons with Disabilities in 2010 *(United Nations, 2018)*[3]*,* adopting a new Constitution in 2015 that guarantees rights for persons with disabilities, setting out special provisions to ensure their access to education, social justice and proportional representation at local bodies, and passing the *Disability Rights Act in 2017* to shift from a welfare to rights-based approach. Laying on the foundations of these global guidelines and conventions, and these recently endorsed national policies, Nepal demonstrated its pioneering interest in steering disability activism by becoming a first few nations to develop *National Priority Assistive Product List (PAPL, 2018)* following the recommendations outlined by World Health Organization (WHO) Priority Assistive Product List (PAPL) which aims to improve access to high quality, affordable Assistive Products (AP) in all countries *(WHO, 2016).* Report on the first national review and planning workshop on disability in 2017 identified gaps in assistive products in Nepal, outlining assistive product availability as a significant challenge. These issues are further detailed in *Policy, Strategy and 10 years Action Plan on Disability Management 2016-2026.* Although national policies including constitutional guarantees and commitments to free Assistive Technology (AT) services exist in Nepal, implementation remains inconsistent and

[3] Convention on the Rights of Persons with Disabilities (2006) OHCHR. Available at: https://www.ohchr.org/en/instruments-mechanisms/instruments/convention-rights-persons-disabilities

incomplete. Empirical data indicate that wheelchair provision is largely charitable or ad hoc, lacking sustainable supply chains, distribution systems, or maintenance mechanisms *(Karki et al., 2021).*[4]

Enabling Fridays Community (EFC): Scoping and Community Building

To initiate dialogues on further understanding gaps and priorities for Nepal, the local team led by one of the researcher (RCT)[1] and backed by UCL GDI Hub AT2030 team initiated *Enabling Fridays Community (EFC),* an informal group wanting to bring together local and global expertise working in the AT sector to identify routes that would unlock local innovation, and improve current gaps in service. Initially, the group was solely a Friday activity as the day is historically relevant for supporting new thoughts and enabling lives – also a half working day in Nepal. The group was then joined by 16 stakeholders from 11 institutions including development sector, academia, private companies, hospital and clinics, and innovation centers who have given their valuable time freely between February to April 2022, with the aim to establish something which is sustainable in the long-term. The group identified issues

[4] Karki, J. et al. (2021). Access to assistive technology for persons with disabilities: a critical review from Nepal, India and Bangladesh. Disability and Rehabilitation: Assistive Technology [Preprint]. Available at: https://doi.org/10.1080/17483107.2021.1892843.

in the mobility sector, especially prosthetics and manual wheelchairs and voted as the top priority areas for our work. This laid out the foundation for research and development on wheelchair provision and bespoke prosthesis in Nepal. More about EFC and its journey can be found on this AT2030 site.[5]

Stakeholder identification and individual interviews: Methodology

To understand the gaps in the wheelchair provision in Nepal, a qualitative study involving fourteen semi-structured interviews (N=14) was conducted with a diverse group of AT stakeholders identified through purposive and snowball sampling approach: wheelchair users, healthcare professionals such as Physiotherapist, Prosthetist and Orthotist, rehabilitation officers, product engineer, distributor and NGO project managers. Most of the participants were from Kathmandu and Pokhara, two largest and populous cities in Nepal, representing 4 from each city. There were participations from 4 of 7 provinces in Nepal: Bagmati (n=6), Gandaki (n=4), Koshi (n=3) and Karnali (n=1). The interviews were scheduled at locations and times convenient for each participant and were mostly conducted only by the GDI Hub AT2030 researchers Dr Rosie Gowran, University of Limerick, Dr Ben Oldfrey, UCL

[5] GDI Hub (2022). *Enabling Fridays Community Nepal*. [online] Global Disability Innovation Hub. Available at: https://www.disabilityinnovation.com/projects/local-systems-strengthening-nepal/enabling-fridays-community-building.

GDI Hub and Ram Chandra Thapa, UCL GDI Hub. The purpose of the interviews was to explore stakeholders' experiences of engaging with support services for wheelchair users, examining their aims, interests, and motives for involvement. While some stakeholders had stronger direct connections to the WC service than others, all were interviewed using a uniform schedule based on the political Activities of Daily Living (pADL) framework previously utilized by *Gowran et al.* in *'A Stakeholder-Centered Approach'* study[6]. Each interview lasted around an hour and was audio-recorded and transcribed. The responses from their lived experiences were analysed using Braun and Clarke's thematic analysis method[7] and were categorized under the WHO's 5Ps framework[8]: People, Product, Provision, Personnel and Policy. Initial findings from these interviews are presented in the MSc thesis report by Ram Chandra Thapa titled "*Enabling Access Locally: A Systems Approach to Wheelchair Provisioning in Low-Resource*." Detailed report can be accessed in this AT2030 site[9].

[6] Gowran, R. J., Kennan, A., Marshall, S., Mulcahy, I., Ní Mhaille, S., Beasley, S., & Devlin, M. (2015). Adopting a Sustainable Community of Practice Model when Developing a Service to Support Patients with Epidermolysis Bullosa (EB): A Stakeholder-Centered Approach. *The patient*, *8*(1), 51–63. https://doi.org/10.1007/s40271-014-0097-5

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

[8] Global Report on Assistive Technology. Geneva: World Health Organization (2022). [online] www.who.int. Available at: https://www.who.int/publications/i/item/9789240049451.

[9] Thapa, R.C. (2023). *Enabling Access Locally: A Systems Approach to Wheelchair Provisioning in Low-Resource*. [online] AT2030. Available at:

Individual Interview Findings: Summary

People with disabilities in Nepal, particularly wheelchair users, are navigating a highly constrained environment shaped by trauma-induced disability (road accidents, burn, fall injury etc.) social stigma, and poverty. Many interviewees highlighted that rugged terrains and inaccessible infrastructure intensify their daily struggles, with health complications such as pressure sores and urinary tract infections (UTI) commonly reported. One respondent noted, *"Wheelchair use is difficult in Nepal due to complex landscape and terrain... the solution requires intervention across home, people's mindset and the environment."* Socio-cultural stigma remains a barrier to opportunity and inclusion. A user recalled, *"My mom was stigmatized... told not to spend on my education because disability was considered a burden."* These narratives critic how disability is both a cause and consequence of poverty and exclusionary mindset in Nepal's rural and urban settings.

Product: Users and service providers voiced strong concerns over the limited availability of quality wheelchairs and spare parts. The high cost of imported devices, compounded by an absence of local manufacturing, has left users dependent on

https://at2030.org/static/at2030_core/outputs/Wheelchair_Provisioning_in_Low-Resource_Contexts_Nepal_-_EfID_4qngZJC.pdf

inconsistent supply chains. This affects repair and maintenance, forcing users to resort to informal fixes or abandon wheelchair. One user recounted, *"If I couldn't fix my wheelchair here, I had to search the local market... or even post on Facebook for help."* The lack of contextually appropriate and affordable wheelchairs adds to long-term sustainability concerns.

Provision of wheelchairs in Nepal is fragmented and often dependent on charitable models, which participants criticized as unsustainable. Long waiting times and inconsistent service quality were frequently mentioned. Wheelchair distribution remains unequal, often privileging those with institutional connections. As one user remarked, *"Someone who has a connection to the distributing organizations might receive a wheelchair... others will have a hard time."* Many of the donated wheelchairs were found to be of poor quality, short-lived, and irreparable, raising questions about the long-term utility of such practices.

Personnel: Interviewees identified critical gaps in Personnel, noting a shortage of trained professionals with appropriate certification in wheelchair service provision. Nonetheless, frontline workers expressed a high degree of personal motivation and commitment to user welfare. One service provider shared, *"Supporting users to move around their space for the first time... brings great joy and happiness to me."* The need for structured training pathways and ongoing professional development emerged as a key priority.

Policy: Participants emphasized systemic issues such as the lack of disaggregated data, weak enforcement of quality standards, and insufficient public funding. Bureaucratic inefficiencies, including complex import taxes and regulatory processes, were also noted as major bottlenecks for accessing wheelchairs both locally and through imports. Participants lamented regarding the inaccessibility of basic public infrastructures such as hospitals, government offices and schools. A wheelchair user commented, *"Until grade 8, my school didn't have an accessible toilet, and I couldn't use it,"* illustrating policy failure in ensuring inclusive infrastructure. Furthermore, while social security allowances exist, users found them inadequate to meet essential health and assistive product needs. As one respondent stated, *"Users will also have their own priorities... medical expenses such as catheter tubes, diapers. The social security allowance alone is not sufficient."*

The table below presents a summary of thematic findings and users voices example categorized under 5Ps main themes and further sub-themes. These findings affirm the need for a holistic, system-level transformation that moves beyond isolated interventions to address the socio-political, economic, and infrastructural aspects of equitable wheelchair provision in Nepal.

Table 1. *5Ps Thematic summary of the wheelchair provision in Nepal Individual interviews.*

Themes (5Ps)	**Sub-theme Summary**	**User Quotes**
People	- Rising disability cases accounting to trauma incidents (fall, accident) - Social stigma, exclusion and lack of awareness - Affected due to inaccessible infrastructure and rugged terrain - Health complications: pressure sores and urinary tract infection (UTI) - Poverty and economic hardships linked to disability	*"WC use is difficult in Nepal due to complex landscape and terrain. Disability solution requires intervention across home, people's mindset and the environment they live in, and it is more complex than we assume."* *"… poor and marginalized users in the remote communities are not able to access wheelchair due to financial situation and lack of accessibility. I have seen these problems throughout my career."* "my mom was *stigmatized by society and told her not to spend on my education because disability was then considered a burden.* She got suggested that I abandon my schooling at Pokhara to return back to village and work on a farm."

Product	- Limited access and wheelchair availability - High cost due to import dependency and lack of local manufacturing - Spare parts shortages affecting maintenance	*"If I couldn't fix my wheelchair here, I go searching after parts like bearings in the local market, search for gas welding to fix a broken frame, visit a tire shop for fixing tires. If not, speak to my friends who are in Kathmandu. Once, I couldn't fix it through any means and had to make a post on a (popular) Facebook page. Finding spare parts and repair service is a worst challenge."* "*I wish there was a factory which produces wheelchairs in Nepal…. the situation is that you can't even get a good quality appropriate wheelchair even though you want to pay for it."*
Provision	- Mixed practices on standard service provision - Long wait time for WC services - Charitable distribution of donated WCs by NGOs leads to unsustainability - Repair, maintenance and durability challenges	"*Someone who has connection to the distributing organizations might receive wheelchair. Otherwise in [the case of many] normal person with disability, mainly the one from the villages who are uneducated and not involved in any institutions, [they] will have hard time getting a wheelchair because there is high demand and short supply."* "…*the charitable wheelchairs, even though someone gives that to me for free, I'll only be able to use that for one or one and half year, and then I'll have to discard it because you can't fix it.* So, of what use!"

Personnel	- Skill gaps and wheelchair certification issues - High motivation for social impact	*"When we were able to support them (users) assistive devices such as wheelchair and crutches and see them move around their space to see the surroundings for the first time in their life, that brings great joy and happiness to me."*
Policy	- Gaps in data, quality control and policies implementation lead to exclusion of WC users - Complex and lengthy import regulations, bureaucracy and taxation - Inadequate fund allocation by public sector	"…. we have challenges in studies because *school infrastructures are not accessible…. Our schools, rather than improving accessibility to accommodate these users, they deprive users of education and justify their infrastructural challenges in spite upgrading for better. For example, until grade 8, my school didn't have an accessible toilet, and I couldn't use it."* "That [social security allowance] won't be sufficient…. Users will also have their own priorities such as into their *basic needs and medical expenses* such as expenses on cathedral tubes, diapers, etc. *So, the social security allowance alone is not sufficient."*

Provincial Workshops: Planning and Delivery

Figure 1. Multi-stakeholder participants of the Wheelchair Provision Workshop organized at Kathmandu, Bagmati Province.

Following these interviews, plan for more in-depth multi-stakeholder participation workshop was proposed which would focus on situational analysis of wheelchair provision across varying geographical locations over 4 provinces: Koshi (n=28), Bagmati (n=27), Gandaki (n=31) and Lumbini (n=30).

Ethics approval was obtained both from the UCL Ethics Committee (16149/001) and Nepal Health Research Council (NHRC) by GDI hub and Kathmandu University.

The research was led by the GDI Hub AT2030 researcher team and facilitated by team members Dr Rosie Gowran, University of Limerick, Ram C Thapa, GDI Hub and Ashish Thapa, Kathmandu University. Logistical arrangements and stakeholder coordination were done by Kathmandu University Design Lab researchers. Coordination support from various community-based NGOs: CDCA, Karuna

Foundation Nepal, CIL Pokhara and Spinal Cord Injury Network Nepal (SCINN) were instrumental in identifying local OPDs, activists, users and local government. Without their support, maintaining the 'diversity and inclusion' into our participatory workshops would have been a deep challenge.

Challenge: Accessible Workshop Venues

Each workshop came with its own challenges which has given us invaluable learnings and opportunities for reflection. One remarkable challenge that the team faced was on identifying an appropriate accessible venue for inclusive workshop/discussion.

We found out that accessibility is not universal and often come with a higher budget for venues based on geographical locations. For example, venues at Biratnagar, Koshi Province and Butwal, Lumbini Province despite being at the ground flood had accessibility issues such as lack of ramp access to hall and dining area, and narrow doors at toilet facility. Whereas, at Pokhara, Gandaki Province and Kathmandu, Bagmati Province, venues were accessible to standard despite being on the higher floor at Kathmandu. Necessary adjustments were made prior to the workshop day either by borrowing a portable ramp or fabricating one at the site in the case of Koshi and Lumbini Province. In the case of Kathmandu, the workshop planning and

delivery went well as it was the final workshop, and we had learnt enough from other provinces. Overall, the provincial workshops were a big success.

This report focuses on the findings of the Kathmandu workshop, Bagmati Province in specific. However, the results are consistent across other provinces in which sense this report, despite being the Bagmati Province piece of work, applies both locally and nationally.

Situational Analysis Methodological Process

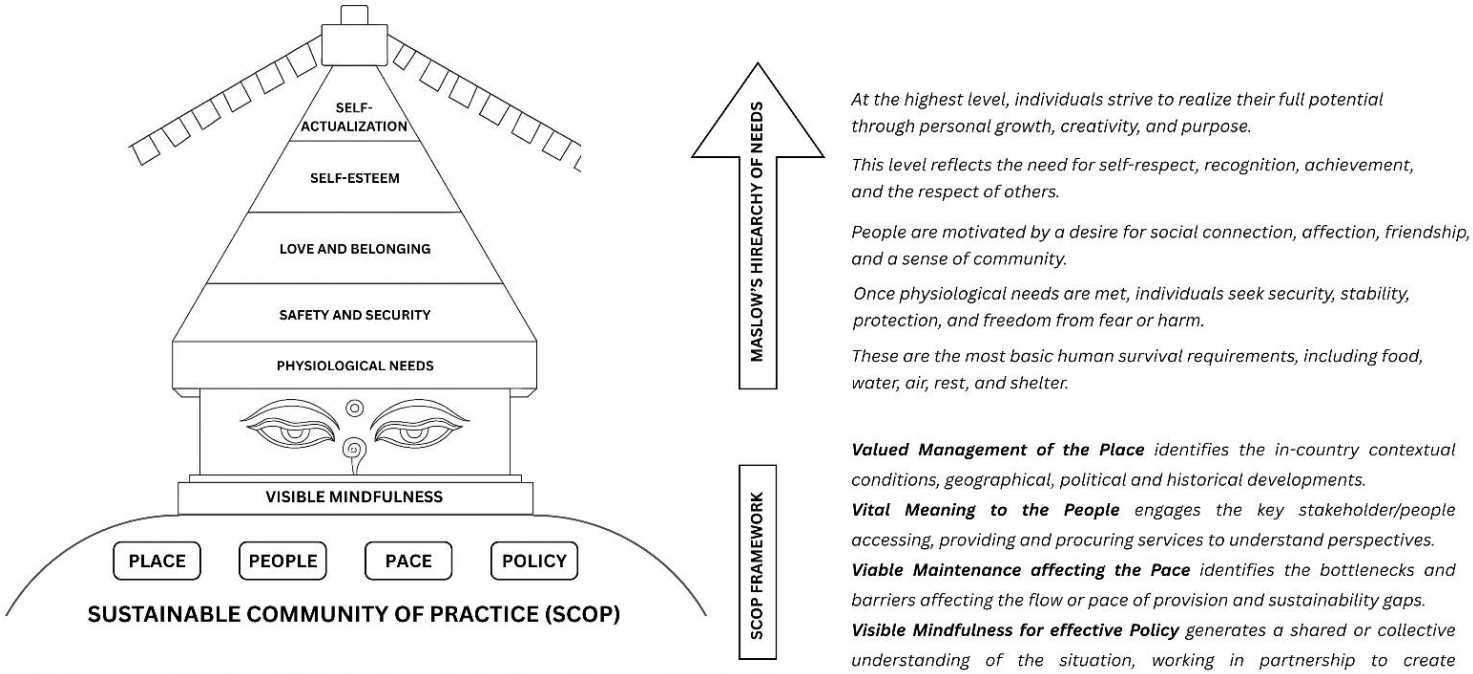
Gowran's *Sustainable Community of Practice (SCOP)* model was used as a framework to analyze Nepal's wheelchair provision situation from a socio-political and geographic context. The framework has already been applied in the context of Ireland[10], Romania and the Philippines by *Gowran et al.* to study wheelchair provision[11]; in the paper *"Adopting a Sustainable Community of Practice Model when Developing a Service to Support Patients with Epidermolysis Bullosa (EB)"*.

[10] 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

[11] 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

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)*:



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 et. Al., 2017)[14].

Sustainability is at the core of the SOCP model and can only be achieved by engaging stakeholders to build a system that meets peoples' primary needs now and in the future.

The SCOP model emphasizes sustainability as:

"the ability of the system to produce benefits valued sufficiently by users and stakeholders (people) to ensure enough resources (place) to continue activities with long-term benefits (pace and policy)" (UNICEF, 1992 in Olsen, 1998, p. 289).

Soft System Approach (SSA), is applied within the SCOP model as a method to understand the 'real-world' situation. Soft Systems Methodology is a qualitative, action-based approach used to explore complex, ambiguous problems by engaging multiple stakeholder perspectives. Developed by *Checkland & Scholes (1999)*, it focuses on learning through structured inquiry, using conceptual models of purposeful action to provoke discussion and identify context-specific improvements.[12] SSA facilitates stakeholder-centred engagement in a structured way to accommodate multiple perspectives to:

1. *Understand wheelchair provision by identifying and engaging key stakeholders*
2. *Understand the aims, interests and motive of stakeholders*
3. *Share an understanding as a group and in a workshop creating a visual representation of stakeholder experiences and understanding of wheelchair*

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

provision and identify the issues that inhibit the flow of the system, known as a 'rich picture'

4. *Define key issues which require transformation within wheelchair provision system*
5. *Create a plan of what a sustainable system should look like and compare it to the current system or 'real world'*
6. *Develop a report with recommendations for implementation to support the sustainable wheelchair provision in Nepal as a community of practice.*

Rather than seeking fixed solutions, it enables participants to collaboratively reflect on their situation and take informed, negotiated actions. SSA is used to gather qualitative data on current conditions and challenges. This approach provides a method to identify barriers affecting wheelchair services and an opportunity to generate solutions towards sustainability. It supports the development of locally relevant, evidence-based policies and interventions to improve access to wheelchairs, enhancing the quality of life for people requiring wheelchair services. Refer to the link below for detailed provincial level workshop reports:

1. Biratnagar, Koshi Province
2. Butwal, Lumbini Province
3. Pokhara, Gandaki Province
4. Kathmandu, Bagmati Province