

STRIDE Service Coverage Assessment

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Anders Eklund
Worldwide Rehabilitation Ltd.

EXECUTIVE SUMMARY

Nepal, like other countries in the region, has a substantial number of people who need physical rehabilitation. The 10-year civil conflict and the earthquake in April 2015 contributed to increasing that need.

The Strengthening Rehabilitation in District Environs (STRIDE) program seeks to ensure that sustainable, accessible and quality physical rehabilitation services and community-based follow-up are provided for people with physical disabilities. The program is funded by the United States Agency for International Development (USAID) and implemented by Handicap International (HI) with sub-awards to five physical rehabilitation centers (PRCs) in four of the country's five regions. It was launched in January 2010 and is now in its second three-year extension (ending in January 2019).

STRIDE plays an important role in the Nepali rehabilitation sector. To date, STRIDE PRCs have successfully provided physical rehabilitation services to more than 40,000 persons, including the delivery of more than 7200 prostheses and orthoses, 1200 wheelchairs and 4300 mobility aids. Services are normally center-based, but are also provided through outreach rehabilitation camps and field visits (so far reaching 52 of Nepal's 75 districts), with community disability workers (CDWs) conducting follow-up in the field.

The main question that the present service coverage assessment sets out to answer is to what degree the physical rehabilitation services in Nepal, and in particular those of the five STRIDE PRCs, are able to meet the country's rehabilitation needs. Such information would help service providers to understand the actions that are needed to expand the services, for example in terms of increasing human resources and material supply, putting in place new strategies to ensure access to services, and stepping up lobbying efforts to secure the availability of needed funds.

To allow providing recommendations to STRIDE partners on how to further strengthen services, the aim of the mission was also to assess the current and potential capacities of the PRCs, and analyze factors that influence the quantity, cost-effectiveness, quality and overall impact of service provision.

The assignment was carried out during the period November 7 – December 1, 2016, in close collaboration with USAID, HI and the five PRCs, and with particularly valuable support from the HI Monitoring, Evaluation and Documentation Officer for the Rehabilitation Project. A review of key documents was made and data on service provision was obtained from project reports and the STRIDE database on service provision. Visits were made to partner centers, satellites and one outreach camp, and interviews and discussions were held with representatives of HI, STRIDE partners, government officers, local governments, disabled people's organizations (DPOs), professional associations, and community workers.

The actual service coverage assessment was carried out as a pilot study to assess the need and unmet need of *prosthetics and orthotics (P&O) services*, which is one of three types of rehabilitation services provided by the STRIDE PRCs. The intention is that, once the results of the P&O study have been obtained in sufficient detail, similar studies can be made to

generate an understanding of the need, provision and coverage of physiotherapy services and services for wheelchairs and mobility aids.

The methodology used for the service coverage assessment included analyzing and comparing P&O *service utilization* (i.e. the proportion of a population that uses P&O services) in the country's 75 districts with the use of information from the STRIDE database. The service utilization rate is equivalent to the *verifiable minimum need*: if a certain number of people in a geographical area *use* services, it is because there are *at least* so many people there who *need* services.

As a first step, districts with high service utilization rates were identified. In those districts, in turn, *villages/municipalities* with high rates were identified. As could be expected, it was found that, in and around locations where services are provided, service utilization is high, and where services are difficult to access, service utilization is low. It is therefore close at hand to assume that, wherever in the country a permanent service unit would be established, it would bring up the service utilization rate in that geographical area to a level similar to that of other villages/municipalities with easy access to rehabilitation services.

The study found that some villages and municipalities had a service utilization rate – i.e. a verifiable minimum need – of around 0.1% (among those were the municipality of Kohalpur, where one of the STRIDE PRCs is located, and villages in the Terai where a higher number of outreach camps have been provided). Based on the main assumption that this value represents the approximate level of minimum need in all district, it could be concluded that some 26,000 people in Nepal (0.1% of the population) need *essential P&O services* (i.e. services of the type currently provided by STRIDE PRCs). In comparison, the World Health Organization (WHO) suggests that the P&O need could be as much as 5 times higher, i.e. 0.5%, but then including a wider range of P&O devices.

Since the value of 0.1% is mainly based on findings in the Terai, it would be important make separate studies to analyze the variations between the needs in different geographical areas (the Terai, hills and mountains). These differences will be influenced by such factors as health hazards, traffic accidents, work accidents, poverty levels, ease of access to health services, etc. While traffic accidents, for example, are likely to be more common in the Terai and hills, other factors may increase disability rates in the mountains. It should be noted that the 2011 national census found that the prevalence of disability was considerably higher in the mountains (3.0%) compared to the hills (2.2%) and the Terai (1.6%).

With further use of service data, the study could also conclude that STRIDE PRCs currently cover approximately 10% of the estimated essential need in Nepal's 75 districts. However, this does not mean that the total need could be covered by STRIDE in 10 years' time. P&O devices need to be regularly renewed as they wear out or no longer fit. If this is not done, the unmet need will increase. In the study, it has been assumed that renewals are needed on an average every three years and eight months.

Though the results of the assessment will still need to be confirmed with the use of complementary data from other P&O service providers in Nepal, and though more evidence is required to verify that the different assumption that were made are correct, the pilot study already now indicates that the P&O need greatly exceeds the current capacities of STRIDE PRCs. Even though it is true that other service providers also contribute to reducing

national unmet needs, it is likely that the vast majority of people who need services currently have to manage without them, which means that many people are excluded from society, with limited opportunities to go to school and work, etc. While this situation is likely to be most difficult in remote areas of the country, service provision data indicates that there are also great unmet needs in parts of the districts where the PRCs are located.

The conclusion that follows from this is that, with regard to present service provision capacities, status quo is not sufficient, but services need to be radically expanded. HI and STRIDE PRCs need to continue their fundraising efforts in ministry offices and local governments. This has been very successful in the past, in particular in the Ministry of Women, Children and Social Welfare (MoWCSW). Special efforts are now needed to further strengthen collaboration with the Ministry of Health (MoH). Closer contacts are generally needed with the health sector. The aim should be that rehabilitation services become an integrated part of health services – possibly involving formal public-private partnerships – and are covered in health insurance schemes, as part of the basic health service package. Though achieving this will still require much lobbying, there are very positive signs that MoH recognizes the importance of rehabilitation. Its Leprosy Control Division (LCD) has established a disability unit and developed a 10-year Action Plan for Disability and Rehabilitation, and physiotherapy is mentioned in the current Nepal Health Sector Strategy. Immediately after the earthquake, furthermore, seven physiotherapy/rehabilitation units were established in public health facilities with HI's support.

In parallel to working with the ministries, support should also be sought from international and national organizations for well defined service expansion projects. These can include the introduction of mobile units and new tele-rehabilitation technologies.

STRIDE PRCs should strive to increase cost-effectiveness, which can free financial resources and allow making use of human resource capacities that are currently underutilized. Since P&O clinicians are few and difficult to find on the market, PRCs should also consider increasing the number of bench workers to allow clinicians to focus on clinical work.

Continued awareness-raising is important in order to increase knowledge and understanding of the role, purpose, benefits and importance of physical rehabilitation services among the general public and health workers, as well as at policy level. For this, social and economic arguments are needed, many of which can be produced with the help of available service data. Professional associations and the National Association of Service Providers in Rehabilitation (NASPIR) can work with national authorities to raise awareness and provide advice and practical support in national planning and monitoring. To ensure the safety of service users, state regulation of physical rehabilitation services is urgently needed. For NASPIR to fully assume an advisory role on these issues, STRIDE support is needed to further build the association's capacity.

Outreach camps and CDWs have proven effective in identifying and increasing the number of service users, and will always be needed to secure access for service users in remote areas. The expansion of outreach services must go hand-in-hand with the deployment of new CDWs to ensure follow-up of treatments can be provided. The evaluation of the quality of services is important in both centre-based and outreach services. STRIDE has a critical role in establishing a proper quality management system to make sure high quality services can be provided to the whole Nepali population in the future.

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Acronyms used in this document

CBR	community-based rehabilitation
CBRB	Community Based Rehabilitation – Biratnagar
CDW	community disability worker
DDC	district development committee
DPO	disabled people's organization
FCHV	female community health volunteer
GATE	Global Cooperation on Assistive Technology (of WHO)
HI	Handicap International
HRDC	Hospital and Rehabilitation Centre for Disabled Children
ICRC	International Committee of the Red Cross
ISPO	International Society for Prosthetics and Orthotics
MoH	Ministry of Health
MoWCSW	Ministry of Women, Children and Social Welfare
NASPIR	National Association of Service Providers in Rehabilitation
NDF	National Disabled Fund
NGMC	Nepalgunj Medical College
NNSWA	Nepal National Social Welfare Association
NPR	Nepalese Rupee
PHC	primary health care
POS-Nepal	Prosthetics Orthotics Society – Nepal
PRC	physical rehabilitation centre
PT	physiotherapy
P&O	prosthetics and orthotics
RMS	rehabilitation management system
STRIDE	Strengthening Rehabilitation in District Environs
USAID	United States Agency for International Development
VDC	village development committee
WHO	World Health Organization

The consultant

Anders Eklund is a Certified Prosthetist-Orthotist with nearly 30 years' experience of physical rehabilitation and disability issues in low-income settings, including 4 years field work, 5 years international work at a WHO Collaborating Centre for Orthopaedic Technology and 3 years at the Disability and Rehabilitation Unit of WHO Headquarters in Geneva. As an independent consultant since 2001, Mr. Eklund has worked with a range of international organizations on the planning, implementation and evaluation of rehabilitation and disability projects. He also conducted the evaluation of STRIDE at the end of the first three-year period in January 2013.

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Anders Eklund, Worldwide Rehabilitation Ltd.

1. INTRODUCTION

THIS ASSESSMENT

Objectives

This assessment has two main objectives:

Objective 1: To assess the current service coverage by the physical rehabilitation centers of the Strengthening Rehabilitation in District Environs (STRIDE) program, with an analyses of:

- the need, demand and coverage of physical rehabilitation services in Nepal;
- the current and potential capacities of STRIDE physical rehabilitation centers (PRCs) to meet the need/demand; and
- factors that influence the quantity, cost-effectiveness, quality and overall impact of service provision.

Objective 2: To develop detailed, sufficient and strategic recommendations for enhancing coverage.

Specific, sufficient and feasible recommendations for enhancing coverage and cost-effectiveness of good quality physical rehabilitation services should be developed together with a timeline for their implementation. Recommendations should be based on the analyses described in Objective 1.

Audience

The primary audience of this assessment are the STRIDE implementing partners; Handicap International (HI) and its sub-partners.

The secondary audience is the United States Agency for International Development (USAID).

Furthermore, the recommendations of the report will be shared with the Ministry of Health (MoH), the Ministry of Women, Children and Social Welfare (MoWCSW), and other ministries as appropriate. The results will also be of relevance for other providers of physical rehabilitation services in Nepal as well as for organizations, associations and agencies involved in facilitating access to physical rehabilitation services for persons with impairments or functional limitations.

PERIOD OF PERFORMANCE

This assessment was carried out by Anders Eklund, Disability and Rehabilitation Consultant of Worldwide Rehabilitation Ltd., during the period November 7 – December 1, 2016 (see program in Annex 6).

2. BACKGROUND

COUNTRY CONTEXT

Nepal (officially the Federal Democratic Republic of Nepal, see Map 1 in Annex 1) is a landlocked state located in the Himalayas bordered to the north by China, and to the south, east and west by India. With an area of almost 150,000 square kilometers and a population of 26.5 million, Nepal is the world's 93rd largest country by land mass and the 46th most populous country. With 25% of the population below the poverty line, it ranks number 145 (of 188 countries) on the Human Development Index list.

During Nepal's 10-year civil war (1996-2006), more than 15,000 people were killed and a high number were injured and disabled. On April 25, 2015, an earthquake killed nearly 9,000 people, injured some 22,000 (many of whom needed rehabilitation), and made hundreds of thousands of people homeless. With a magnitude of 7.8 M_w and with its epicenter in the Gorkha district some 100 km northwest of Kathmandu, it was the worst natural disaster to strike Nepal since the earthquake in 1934.

THE STRIDE PROGRAM

Aim

The STRIDE program is implemented since 2010 with the aim to improve the lives of people with disabilities in Nepal through greater mobility and functional independence. It seeks to ensure sustainable, accessible and quality physical rehabilitation services and community-based follow-up are provided for people living with physical disabilities. The range of rehabilitation service provision includes assessment, surgery, prosthetic and orthotic production and fitting, physiotherapy, counseling, and follow-up services. Services are normally center-based, but are also provided through outreach camps and field visits, with community disability workers (CDWs) conducting follow-up in the field.

Since January 2013, the STRIDE program has also included a social inclusion component with intensive personal counseling for access to local livelihood opportunities. (This document discusses physical rehabilitation only.)

Partners

Funded by USAID, the physical rehabilitation component of STRIDE is implemented by HI, which in turn has sub-awards with five PRCs in four regions (see Map 1 in Annex 1):

- Nepal National Social Welfare Association (NNSWA), Mahendranagar, Kanchanpur District, Far-Western Region;
- Nepalgunj Medical College (NGMC), Kohalpur, Banke District, Mid-Western Region;
- National Disabled Fund (NDF), Kathmandu District, Central Region;
- Prerana, Sarlahi District, Central Region (with satellites in Rautahat and Makwanpur districts); and
- Community Based Rehabilitation - Biratnagar (CBRB), Morang District, Eastern Region.

These centers provide prosthetics and orthotics (P&O) and physiotherapy (PT) services for persons with physical impairments or functional limitations. As part of STRIDE, they also implement social inclusion activities.

Objectives

Initiated in January 2010 as a 3-year program with the aim to improve quality, access to, and sustainability of physical rehabilitation services, STRIDE had three objectives:

- To improve the quality of service delivery in the five PRCs through education of personnel.
- To extend rehabilitation services through outreach camps.
- To improve PRCs' capacity for financial resource mobilization.

The first 3-year extension (ending in January 2016) re-organized into two objectives, being:

- To strengthen the sustainability of physical rehabilitation services with improved quality and accessibility at the five PRCs.
- To foster the integration of persons with disabilities including disabled ex-combatants, in productive life.

The second 3-year extension (ending in January 2019) continued with the same two main objectives and the following intermediate results for the first objective:

- Quality of rehabilitation service provision is improved:
 - client follow-up is regularly conducted;
 - client satisfaction with achievement of rehabilitation goal is enhanced.
- Accessibility of services is expanded:
 - the needs of persons with disability for rehabilitation services are met;
 - the needs of persons with disability for surgery are met.
- Rehabilitation centre management is enhanced:
 - centers' resource mobilization capacities are enhanced;
 - PRC staff's technical and general professional capacities are enhanced.

Achievements

During the period 2010–2016, STRIDE has generated very important outcomes, including:

- establishment of a workforce with adequate professional training (presently including nine P&O clinicians and six physiotherapists);
- provision of quality physical rehabilitation services to more than 40,000 persons;
- provision of physical rehabilitation through outreach camps to 52 districts;
- delivery of more than 7200 P&O devices, 1200 wheelchairs and 4300 mobility aids;
- enhanced management capacities of PRCs, including material procurement; and
- the mobilization by PRCs of 60% or more of operational costs through collaboration with disabled people's organizations (DPOs), District Development Committees (DDCs) and Village Development Committees (VDCs), and increasing financial support from various national authorities, most importantly Ministry of Women, Children and Social Welfare (MoWCSW).

3. OVERVIEW OF MISSION APPROACH ---

GENERAL

The STRIDE Service Coverage Assessment mission was carried out in close collaboration with:

- USAID;
- Handicap International; and
- the five STRIDE sub-partners.

Information and service data was collected through:

- a review of key documents and statistics (see Chapter 10. Sources of information);
- an assessment questionnaire distributed to the five STRIDE PRCs to collect preliminary information before the actual visit to Nepal;
- visits to STRIDE partners' PRCs, satellites and one outreach camp (see program in Annex 6); and
- interviews with representatives of HI, STRIDE partners, government officers, local governments, DPOs, professional associations, and community workers.

Analysis of service data was done in collaboration with Handicap International.

ASSESSMENT OF SERVICE PROVISION

Descriptive and qualitative data of STRIDE sub-partners' services, working methods, processes and technical work was collected and analyzed in order to compare the PRCs' different approaches and results. This enabled identifying areas where measures need to be taken to make service provision more rational, more efficient, more cost-effective and of improved quality.

A quantitative analysis of service output and human resource numbers was applied to provide a preliminary picture of capacities, resource utilization and cost-effectiveness. This allowed comparing the results of different STRIDE PRCs and providing recommendations on how to strengthen and expand services.

STRIDE SERVICE COVERAGE ASSESSMENT

The methodology of the STRIDE service coverage assessment is described in detail in the next chapter.

4. SERVICE COVERAGE ASSESSMENT METHODOLOGY ---

RATIONALE

Providers of physical rehabilitation services must strive to understand how well they are covering the need for rehabilitation services in their intended catchment areas. Without proper knowledge of this, service providers may have the wrong impression of service needs. In particular, the fact that few people actively seek assistance may give the idea that the needs are almost met. However, while the active demand for services may be very limited (because people, in particular in more distant areas, do not know about the services, cannot afford them, cannot access them, or for other reasons do not think they can help), the actual need may be substantial and several times higher than the current service provision. For service providers to fully understand the measures that are needed to reach out to all people in need, the service coverage must be better known. More precise data on needs can urge service providers to further expand services, increase human resources, and continue awareness-raising and lobbying to secure needed funds. A needs assessment forms the basis for further development of the physical rehabilitation sector.

A PILOT STUDY

The present study is a pilot that aims to assess the need and unmet need of *P&O services*, which is one of three parts of the physical rehabilitation services provided by the STRIDE partners (P&O treatments; physiotherapy treatments; and the delivery of wheelchair and mobility aids). There are three main reasons why the P&O area has been chosen for the pilot. First of all, it is the most challenging area of the three to sustain: as compared to physiotherapy, it requires an extensive range of tools, machines, components and materials, which makes the services comparatively expensive. Secondly, it is a well defined area of work: an accomplished P&O treatment can easily be identified in the database as a delivered device. Thirdly, the results of a study on P&O service coverage will also shed some light on needs and coverage of physiotherapy services, as they could be expected to be proportional to P&O needs/coverage. Once the pilot P&O study has been done, similar studies can be made to provide a more precise understanding of the other fields.

CHOSEN METHOD

In this study, the method that is used to estimate the total and unmet needs for P&O services in Nepal involves analyzing and comparing **service utilization** in the country's 75 districts with the help of information on service provision in the STRIDE database.

UNDERLYING PRINCIPLES FOR THE METHOD

Service utilization: The utilization of P&O services is often strongly correlated to the proximity of the services to the potential service users. The degree of utilization is likely to be the highest in populations closely around a service unit or where outreach services are provided, in particular if the services are also financially accessible. In the close surroundings of a unit, the most critical need for P&O services may be nearly met. By looking at historical data on service provision in that limited geographical area, it is possible to estimate the

proportion of that population that has been assisted. By applying this value to other geographical areas, a preliminary idea can be generated of the *minimum* level of need that could be expected for other regions and the entire country. The calculation can be refined by taking into account factors that influence the need in different geographical areas. This requires more in-depth studies (see comments on *Assumption 1* on page 20).

Renewal of P&O devices: For most P&O service users, prostheses and orthoses need to be regularly renewed (in addition to normal maintenance and repairs). This means that P&O service provision is not a one-off work, but has to be a continuous service. Once all people in need have been fitted with a device, these devices will wear out and the fitting of new devices is required. If this is not done, it will only take a few years before all people assisted will belong to the group of "non-fitted" again. The lifespan of P&O devices varies between different types of devices and also with the activity level of the user. The exact average life span of P&O devices is not known, but is still a factor that needs to be considered when analyzing service utilization figures. The World Health Organization (WHO) suggests that, globally, the lifespan may be approximately 3 years¹. This would mean that, to manage the full need in a population, one third of all people who need P&O devices would need to be assisted per year. In the current analysis, the lifespan – or "renewal period" – is estimated to be 3 years and 8 months. Within that period, all people in need would need to be assisted to meet the full need.

ALTERNATIVE METHODS AND SOURCES TO ANALYSE NEEDS

WHO estimates that 0.5% of a population needs a prosthesis or orthosis. This figure can be used as a reference when analyzing the results of the current methodology. Other data on needs are not readily available in Nepal at present. There is not enough detailed epidemiological data on P&O-related diseases and diagnoses to generate accurate figures on P&O needs. Some data on disability is available from the 2011 census, but, compared to other countries, the rate (1.94% people with disability) is very low, and numbers on rehabilitation needs were not collected. As these were the only figures available, HI did use them to calculate service coverage by districts, which was a very good initiative. Still, the results are likely to show too high coverage (as much as 90% in the Kanchanpur district).

To carry out a dedicated survey on P&O needs could be a possibility for the future, but would require substantial funding and still risks to record too low figures. It is likely to be more effective to instead spend the funds that can be made available in this field on service provision and expansion of services. By doing so, and by further developing the current methodology, which already indicates great unmet needs, it will be possible to gradually get a better understanding of the situation.

INITIAL ASSUMPTIONS

To carry out this study with the chosen methodology, the following assumptions have been made:

- The P&O need is the same in all populations and geographical areas of Nepal.
- On an average, P&O devices need to be renewed every 3 years and 8 months.

¹ *Guidelines for training personnel in developing countries for prosthetics and orthotics services*, WHO, p. 18.

- Service users' permanent home addresses are registered in the database that is used for the analysis.
- All needed types of P&O devices are provided by the services.

These assumptions are not necessarily true in all senses. This fact needs to be considered in the final analysis of the results (see *Analysis of initial assumptions* on page 20).

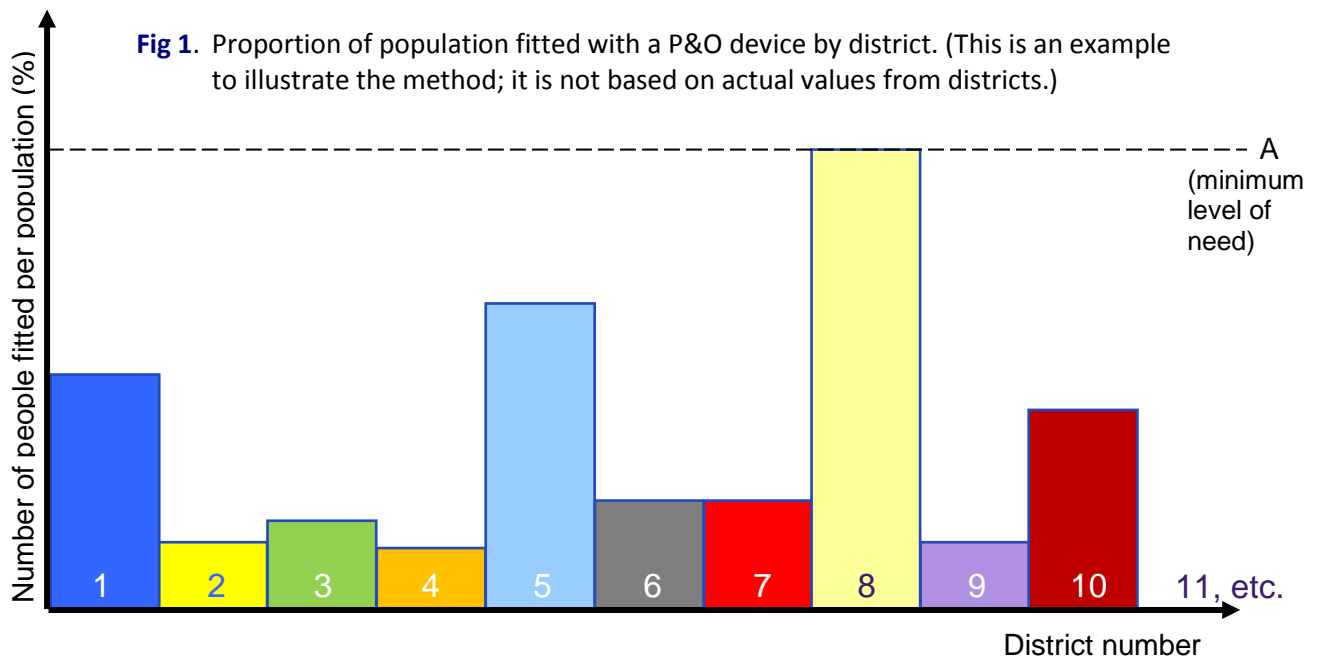
METHODOLOGY STEPS

The assessment consists of the following steps:

A) Analysis to determine the verifiable minimum need at **district level**:

- 1.) With the help of information on service provision from the STRIDE database, and looking at the services delivered by the five STRIDE PRCs, service users who had been fitted with at least one new P&O device during the past 3 years and 8 months (the renewal period) were identified.
- 2.) District by district, the number of these users was divided by the district population, thus getting the service utilization (i.e. the proportion of the population that had been fitted with P&O devices during the renewal period) in the 75 districts. (Fig. 1.)

<p>Calculation made in step 2 (for every district):</p> $\frac{\text{Number of service users fitted}}{\text{Population}} = \text{Service utilization (= Verifiable minimum need)}$



- 3.) The district with the highest service utilization was identified (number 8 in the example). By necessity, the *need* for P&O services in this district must be at least as high as the proportion of persons fitted per population. This is the verifiable minimum need in this district. Assuming that the need is the same in all districts, this reference

level (A) can be used to make a preliminary calculation of the number of persons in need of P&O devices in all 75 districts.

Calculation made in step 3 (for every district):

$$\text{Proportion of persons in need} \times \text{Population} = \text{Number of persons in need}$$

B) Calculation of service coverage based on analysis of service utilization at district level:

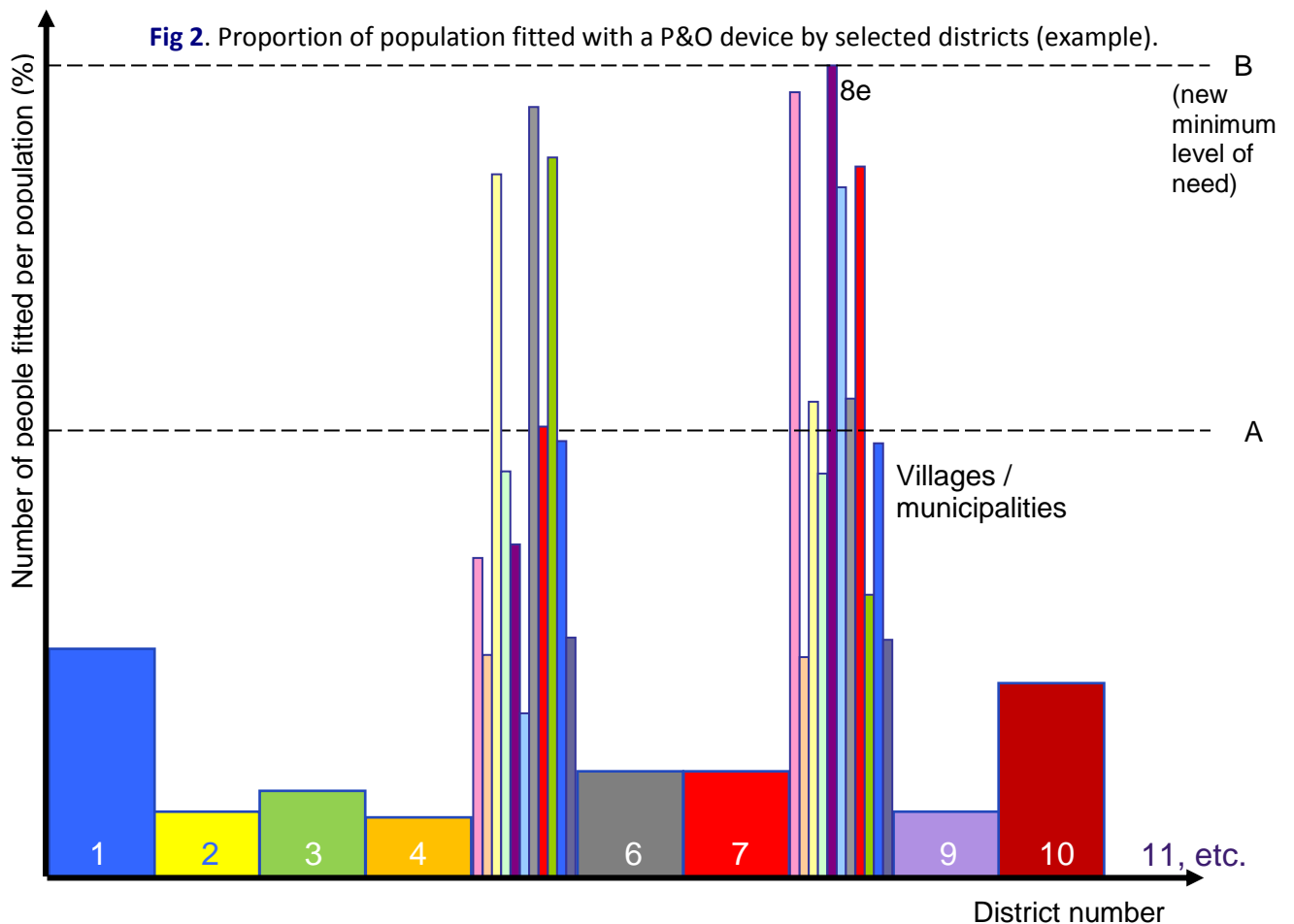
- 4.) The service coverage can then be calculated by dividing the number of service users fitted by the calculated minimum level of need, district by district.

Calculation made in step 4 (for every district):

$$\frac{\text{Number of service users fitted}}{\text{Number of persons in need}} = \text{Service coverage (in \%)}$$

C) Analysis to determine the verifiable minimum need at village/municipality level:

- 5.) In districts with high service utilization (5 and 8 in Fig. 1), the total number in each village of users fitted with P&O devices during the renewal period was divided by the village population.
- 6.) The village/municipality with the highest service utilization was identified (village 8e in the example, Fig. 2). This is the verifiable minimum need in this village. Again, assuming that the need is the same in all parts of the country, this reference level (B) can be used to calculate the number of persons in need of P&O devices in all districts.



$$\frac{\text{Number of service users fitted}}{\text{Population}} = \text{Service utilization (= Verifiable minimum need)}$$

$$\text{Proportion of persons in need} \times \text{Population} = \text{Number of persons in need}$$

D) Calculation of coverage based on analysis of service utilization at village/municipality level:

- 7.) In the same way as in step 4, now using the new minimum need value (calculated in step 5 and identified in step 6), the service coverage could be calculated by dividing the number of service users fitted by the minimum level of need, district by district.

$$\frac{\text{Number of service users fitted}}{\text{Number of persons in need}} = \text{Service coverage (in \%)}$$

E) Analysis of results:

- 8.) The results were analyzed taking into consideration the initial assumptions that had been made (see Results section in the next chapter).

5. SERVICE COVERAGE ASSESSMENT FINDINGS

SUMMARY

Based on the service utilization rate found in the Kohalpur Municipality (in Banke District, Mid-Western Region), it is likely that 0.1% of the population in Nepal (or 26,000 people) need essential P&O treatments (i.e. the range and type of services currently provided by STRIDE PRCs, see comments related to *Assumption 4* on page 23). The five STRIDE PRCs are able to cover 10% of that need. These are preliminary results that will need to be supported by more evidence in the future. The need could be considerably higher and, with that, the coverage significantly smaller. WHO suggests that the P&O need may be as high as 0.5% in many countries. Nevertheless, these results can be used as a first reference when identifying barriers that limit access to P&O services, and when planning expansion of services to increase coverage.

RESULTS

Service utilization

The study shows that there is a very clear correlation between service utilization and the proximity of P&O services or ease of access to these. This is illustrated by the following examples (see also Annexes 2 and 3):

- 1.) Of the nine districts in the **Far-Western Region**, service utilization is twice as high in the district where the PRC of NNSWA is located (Kanchanpur) as compared to any other district. The second highest rate is found in Kailali, which is adjacent to Kanchanpur, with relatively good transport connections, and with the highest number of outreach camps carried out in any district. Furthermore, when looking at data of the different VDCs in the Kailali district (see Fig. 6 and Map 2 in Annex 3), there is a clear correlation between the small scale outreach camps that NNSWA has carried out (8 in total) and the degree of service utilization. The six villages/municipalities with highest service utilization rates have either directly received outreach services (four of them) or are adjacent to such villages (two).
- 2.) In the **Mid-Western Region**, a similar pattern can be seen: Banke district (where the PRC of NGMC is located) has more than twice the service utilization of any other district in the Terai. Within the Banke district, furthermore, the Kohalpur Municipality (where the PRC is located) has the by far highest service utilization of all major villages/municipalities. The three districts with the highest service utilization rate in the region, apart from Banke, have all enjoyed outreach camps. The highest rate is found in Rukum district, where also the highest number of camps (3) was provided.
- 3.) In the **Central Region**, service utilization in the **Terai** is clearly higher in districts where services are provided from Prerana's main centre or satellites, or through outreach camps. The three districts with the *lowest* service utilization have enjoyed neither of these services. In the Sarlahi district, the significantly highest service utilization rates are found in Malangawa (where the PRC of Prerana is located), and the adjacent village (Bhelahi). Furthermore, when studying rates in the Rautahat district, higher service utilization is found in areas in the central eastern part (along

the main north-south road), which have received more support from Prerana in terms of small scale outreach camps (13 in total), focused support by CDWs and the strategic location of satellite clinics in the area (see Fig. 9 and Map 3 in Annex 3). Similarly, in **the hills and mountains**, service utilization is clearly higher in districts where outreach camps have been provided. In the Kathmandu district, in contrast, the service utilization is relatively low, which is likely to be due to the proportionally higher population to be covered, in combination with the presence of several other service providers.

- 4.) Service utilization in the **Eastern Region** shows the same pattern. It is highest in the Morang district (where CBRB is located) and two districts where outreach camps have been provided. In the Morang district, furthermore, of all villages/municipalities with a population higher than 10,000, Biratnagar (the location of CBRB) has the clearly highest service utilization. In Morang, nearly half of the service users treated at CBRB (46%) come from Biratnagar. When looking at the whole Eastern Region, approximately one in six service users come from Biratnagar (17%), while the municipality only makes up 3.5% of the region's total population.

These findings come as no surprise. They just confirm what anyone would have already guessed: in locations where services are provided, service utilization is high; where services are difficult to access, service utilization is low. However, in the extension it is also likely to mean that, wherever in the country a permanent service unit would be established, it would bring up the service utilization rate in that geographical area to the same level as now found in well supported villages/municipalities with high rates.

Though not all villages/municipalities have been analyzed, some have been found to have rates that are 7, 8 or even 10 times higher than the average for the country. Four villages/municipalities are particularly interesting here (Table 1):

Table 1. Service utilization rates in four VDCs/municipalities.

Village/municipality	District	Population	Utilization rate
Kohalpur	Banke	36,019	0.10%
Pahalmanpur	Kailali	15,055	0.09%
Daijee	Kanchanpur	27,481	0.08%
Dekhatbhuli	Kanchanpur	18,578	0.08%

Source: STRIDE database

These are not the municipalities with the highest utilization rates in Nepal, but they have a comparatively high population, which makes the utilization rate value more reliable. It is also important to note that, among the municipalities that have been analyzed within this study, the one with the highest rate (Kohalpur) is one where a PRC is located (NGMC). Again, this should come as no surprise.

Furthermore, it can be safely stated that, in none of these municipalities, the need has been fully met. To which degree it has been met cannot be said within the frame of the current study, but when considering that the services are still not known in all parts of these municipalities, the need may be significantly higher than the utilization rate. If the rate used by WHO would be used, the need would be five times higher or even more.

Based on these findings, derived from the data available so far, it is suggested that the service utilization rate found in Kohalpur (0.10%) is used as a preliminary reference for the need in all parts of the country. The assumption would be that, if PRC service were accessible to all people in need in Nepal in the same way as they are now available for people in Kohalpur, the average utilization rate would be 0.10%, and that would correspond to, and meet, the minimum need of essential P&O services in the country. This assumption is supported by the high utilization rates found in many smaller villages too. It is also supported by the highest value found in the first analysis of districts. With a population of 450,000, the Kanchanpur district has a verifiable minimum need of almost 0.04%, meaning that, based on the estimated need of 0.1%, 40% of the essential P&O need in that district would be covered. All factors considered, this is not likely to be a too high value. If anything, the coverage rate is likely to be smaller.

Estimated minimum P&O need in Nepal: 0.1%

As more data is collected and results are refined, this value may be adjusted both up and down. In particular, data collected from other service providers, which is still unknown at the time of writing this report, will increase the number of service users – and thereby service utilization rates – in essentially all districts and villages/municipalities. Some service providers, in particular the Hospital and Rehabilitation Centre for Disabled Children (HRDC), though only providing services for a limited age group, could be expected to have a very high output, which could considerably increase the minimum need value, or at the least confirm that level.

Service coverage

P&O service coverage has been calculated by dividing the number of service users district by district by the number of persons in need calculated on the rate of 0.1% (see Table 5 in Annex 2). The need that is covered by STRIDE PRCs amounts to approximately 10% (see Fig. 12 in Annex 4). The contribution of other service providers ensures that a higher rate of the need is covered (though, if their contribution would also have been taken into account in the service utilization calculation, the calculated minimum need would most likely also be higher, see comment in previous paragraph).

Estimated P&O service coverage by STRIDE PRCs: 10% of estimated minimum needs

6. DISCUSSION; SERVICE COVERAGE

THE P&O NEED

The study has pointed out that **there is still a huge unmet need of P&O services in Nepal**. The results would still need to be redefined (see below), but even if the need would turn out to be lower than the now estimated 0.1% – even as low as half of this (0.05%), which is very unlikely – the fact is that **most of it is unmet**. This, in turn, means that many people with disabilities are excluded from society, with limited opportunities to go to school and work, etc. While the unmet need is greater in remote areas of the country, service utilization data indicates that access to services may be challenging also in parts of the districts where the PRCs are located. Clearly, intensified work is needed by service providers, the government (represented by various ministries) and other stakeholders to improve the situation for the many people who would require physical rehabilitation services. The STRIDE PRCs have a continued central role in this work. The ambition should not be to maintain status quo, but to **expand the services** – to strive to double or triple the output, both in terms of numbers and geographical coverage. Suggestions on how to achieve this are presented in other parts of this document.

REFINING THE RESULTS

This pilot study is an attempt to analyze P&O service needs and coverage in Nepal with the use of available services data. Since the analysis is so far only based on data from STRIDE PRCs, the study would need to be expanded and also look at service data from all service providers in the country. It is recommended that all service providers in the country continue to collaborate on the establishment of a national database on physical rehabilitation service provision (as was also concluded in the Stakeholders Meeting on 30 November 2016). Such database would not only help to get a better understanding of service needs, provision and coverage (which is essential for planning and expanding services), but it also helps to avoid duplication of services. The Leprosy Control Division (LCD) of MoH is clearly interested in taking part of such information.

ANALYSIS OF INITIAL ASSUMPTIONS

The reliability of the initial assumptions that were made for this study needs to be analyzed. In some cases, additional studies are needed to arrive at more exact results. These issues are discussed in the following.

Assumption 1: The P&O need is the same in all populations and geographical areas

Obviously, this is not necessarily true; the need is likely to vary between districts as well as between villages or communities. Rates may differ because of: different types of environments (health hazards, traffic accidents, work accidents, etc.); the effect of civil conflict and earthquake; poverty levels; the rise of noncommunicable diseases in certain parts of the population; ease of access to health services (that can prevent injuries, impairments and disabilities); migration (see below); as well as random differences, etc. The types of needs and their proportions may also change in districts over time.

To get a better understanding of the needs in different types of settings, it would be important to make needs and coverage estimations for different geographical areas and zones (urban and rural; mountain, hilly and Terai). However, if the present method is to be used for this, this would require that service provision is first increased and better met in these areas. That the study could identify some areas in the Terai with particularly high service utilization (which were then used to estimate national needs and coverage) is because *services were easily accessible* there. In the mountains and most areas of the hills, this is not the case. It would not be possible to point at the highest service utilization rate found among mountainous districts in the available material and conclude that this corresponds to the need in all mountainous districts. First a good amount of regular services have to be provided there in order to see how big part of the population that responds to this opportunity and seeks assistance. With time, as the need is gradually being met, it will be possible to understand how big the need is. In a similar way, it would be possible to estimate needs and coverage in other geographical parts.

While the degree to which the P&O need varies between different geographical areas is currently not known, some understanding of the character of these differences can still be provided by looking at available data. As a first step, it would be possible to make a profile of the types of services that are provided in different geographic and economic settings, preferably by selecting districts/municipalities in the three different eco zones while also considering urban and rural areas, as well as socio-economic factors. With enough data, it would be possible to see what the average "service package" looks like. What is the proportion of prostheses and orthoses and the different types of these?

A "service package" in the mountains, for example, could be expected to have a lower proportion of prostheses than one in the Terai, since, with fewer roads, there are less road traffic accidents (which are an important cause of amputation). On the other hand, amputations because of infections may be more common in mountainous areas since health services are less accessible. In a similar way, spinal cord injuries may be common in rural areas because people fall from trees, while in urban areas they may be common because of falls with heavy loads at construction sites. If searched for, the database may already now give some preliminary answers to these questions.

Furthermore, it is possible that families that have a member with disability choose to migrate from mountainous areas to the hills and the Terai to facilitate practical matters in their daily lives and have easier access to needed services. This can reduce disability rates in mountain districts. To gain better understanding of this, a data field for "*the home address of the service user when the impairment or disability occurred*" can be added in the service database to understand if migration has happened after that.

However, it should also be noted that a great deal of "normal" migration has taken place over the past years from the mountains and hills to lower areas. Many persons with disabilities will have migrated as part of this process too. The number of people with disabilities that move may be proportional to the size of the migrating population, but could also be higher or lower than this. For example, it is likely that families that have a person with disability are poorer than the average population, which might make it more difficult for them to move. This would be supported by the findings of the 2011 national census, which indicates that the disability prevalence is 50% higher in the mountain areas as

compared to the hills and the Terai. Obviously, migration issues need to be considered in the overall analysis.

Another factor that needs to be held in mind is that, in some parts of the country (in particular at some points close to the Indian border), people may have a tendency to seek assistance abroad, meaning that they will not appear in the statistics of P&O services in Nepal. Still, they should be included in the national statistics on needs (and should normally also be assisted in Nepal – that must be the aim).

Other possible factors also need to be considered.

Assumption 2: P&O devices need to be replaced every 3 years and 8 months

The renewal frequency of P&O devices directly influences the need for services. If devices are of good quality and with good fit, they need to be renewed less often. For example, if the quality and fit can be improved so that devices only need to be renewed every four years instead of every two, then the annual need for services will be reduced by 50%. (This is a simplified example, but it shows the importance of quality management.)

The average replacement frequency of 3 years and 8 months is used in this study. (Though this value was chosen based on convenience and the ease of availability of data, it is very close to the figure of 3 years used by WHO.) The assumption would be that, after a period of 3 years and 8 months, the average service user would require a new device (because the old one is worn out or no longer fits). The study therefore looks at the number of service users that have been assisted during that time period. If all people who need services would have been assisted during that time, service needs are met.

In reality, however, the average lifespan of P&O devices in Nepal may be both shorter and longer than 3 years and 8 months. To be able to refine the value on P&O needs in future calculations, it is therefore important to get more precise information on the average lifespan of devices. This can be done by looking at information in the service database (if needed, by adding a new field to this), or by making a sample survey of service users, in which these aspects are evaluated on the users' return to the PRC or in the field by CDWs. Such study also needs to consider service users who only require assistance once (for example, for use of fracture braces, temporary spinal support or similar). These users would need to be counted separately.

Analyzing the lifespan of P&O devices is not only helpful for a service coverage analysis, but can also assist service providers to identify areas where quality improvements are needed. This may for example include looking at manufacturing processes, component choice and alignment of devices to ensure they do not wear out or break earlier than should be expected because of the use of improper working methods or materials. It also includes ensuring optimal fit and function of P&O devices so that users do not abandon them because of pain or non-healing wounds, or because devices do not generate the positive results that were expected. Quality thinking and quality management are central to ensure service outcomes can be maximized and annual needs minimized (see *Quality considerations* on page 34).

Assumption 3: Service users' permanent home addresses are registered in the database

To give a correct picture of service utilization in different districts and villages/municipalities, it is important that the permanent home address of service users is registered and not a temporary address they may use at the PRC location. This should normally be correctly done already, but could still need to be verified.

Assumption 4: All needed types of P&O devices are provided by PRCs

So far, this study only considers the type of P&O devices that are currently provided by the STRIDE PRCs. However, there may be devices that are needed in the country, but which are not available because they are not considered a priority or because they have not been requested by either service users or service providers. This may be the case of many "soft products", such as knee braces and cervical collars, fracture orthoses, foot orthoses, and orthopedic footwear. For the time being, the products that are provided are regarded as *essential* P&O devices. With time, the range of products may grow to include other types. This will increase the need for services as well as the possibility of generating funding through cross-subsidization (see last paragraph of *Financial sustainability* on page 29).

It should be noted that the opposite of *essential* devices is not *luxury* devices. All P&O devices either improve the function of the user or reduce pain, etc. Though some devices may have higher priority than others, all of them help the user. (See also information about priorities as suggested by WHO in *Setting priorities* on page 34.)

FURTHER ANALYSES

HI and STRIDE PRCs can further analyze data and produce graphs that provide a clearer picture of service provision. This can be done in many different ways. The maps (2 and 3) in Annex 3, for example, make it easy to see how successful services are in reaching out to the more remote areas of the country. Those maps show that service utilization is the highest where special measures have been taken to assist populations in certain areas, as well as along the main roads, which facilitates access to service units. A countrywide analysis is likely to show that high service utilization rates are limited to some pockets of the country, close to service units, at outreach camp sites, and along the roads connecting with these locations. If such maps/graphs would be produced on a regular basis, it would be easy to see the expansion of service coverage and verify the results of any measures that are taken to this extent. Maps/graphs can be made of districts, zones, regions or of the whole country, and, possibly, of Kathmandu (provided information is sufficiently detailed in the database).

COST IMPLICATIONS OF SERVICE EXPANSION

Annex 5 shows the principle of making an approximate calculation of the additional annual costs that would need to be covered to expand services to fully cover the essential P&O need (based on the estimate of 0.1% need and a renewal period of 3 years and 8 months) in a defined geographical area. The example shows calculations for the Far-Western Region. Similar calculations can be made for the other regions or for single districts.

It should be noted that only running costs have been considered in this calculation. Certain investment costs will also need to be considered once a more detailed calculation is done. These costs may vary greatly between the different PRCs depending on the local

circumstances. The two most important investment costs refer to the training of staff (should trained professionals not be available on the market) and the expansion of service facilities (if space is not enough or cannot be rearranged to accommodate the new workload). While the latter cost is deemed to be comparatively small, at least in a longer time perspective, costs of training may be significant, in particular when it comes to the training of P&O clinicians. However, by having this staff category focusing on clinical work and employing bench workers and P&O technicians (if available) for technical work, the capacities of PRCs can be dramatically increased without having to hire great numbers of P&O clinicians (see *Efficiency and capacities of PRCs* on page 31). Even though bench workers will need some degree of training too, this would normally be done on-the-job. The total costs of training new personnel can thereby be kept rather low in the nearest future. (In the long-term, however, it is clear that Nepal will need many more P&O clinicians.)

The results of this calculation (see summary in Table 2) show that, for the analyzed cost items and the chosen region, running costs will be approximately four times higher than the current costs. They also highlight that the by far highest proportion of the increase refers to that of materials (nearly 70%), followed by the cost of CDWs (20%), while additional staff costs is relatively small, as is the cost of the extra outreach services needed.

Table 2. Approximate additional annual running costs that have to be met to cover all the needs in the Far-Western region, by main cost item. (Additional expenses may also be incurred, such as for training of human resources, expansion of service facilities and additional needs of P&O-related physiotherapy.)

Cost item	Current annual cost (NPR)	Additional annual cost (NPR)	Portion of total increase	Total annual cost (NPR)
P&O clinicians	1,376,000	688,000	2%	2,064,000
Bench workers	300,000	1,500,000	5%	1,800,000
CDWs	2,275,000	5,850,000	20%	8,125,000
Outreach services	800,000	1,200,000	4%	2,000,000
P&O materials	4,500,000	20,500,000	69%	25,000,000
Total	9,251,000	29,738,000	(100%)	38,989,000

This type of calculation can be used to analyze budget requirements, as well as in planning of services and fundraising. Once needs in other rehabilitation areas have been established, similar calculations can be made for costs of physiotherapy, wheelchair and mobility aids services.

7. FINDINGS; ACTIVITIES OF STRIDE PRCS

Satellite services

Some attempts were made by HI in the early days of the STRIDE program to support public and NGO partners to establish satellite rehabilitation services, but it turned out to be difficult. The main reason was that the satellite units were not linked to a main rehabilitation centre of the same organization. It was expected that the satellites would become sustainable on their own, but there were not sufficient resources at that level to achieve that.

The recent attempts by the Prerana centre are more promising since the three newly established satellites are under the main organization's management. The satellite unit² in the Makwanpur district (not visited by the consultant) is staffed by one physiotherapist and one physiotherapy assistant, with two CDWs (paid by Prerana) placed in different VDCs on a rotation basis. The two satellite clinics in the Rautahat district (visited) are smaller, with only one CDW. They are located in health posts, which facilitates collaboration and inter-referral with the health sector. They are open one to two days per week and are easily accessible for people in the surrounding areas. The advantage here is that opening hours can be adjusted to the need; if the demand for services would increase, the number of days can also be increased. Also the schedule of P&O and PT personnel, who now visit the satellite clinics on a monthly basis, can be adjusted according to the need.

These services have contributed to increasing service coverage in the areas where they are located. The Rautahat district has the highest P&O service utilization rate of all Terai districts in the Central Region, and is only second after the Kanchanpur district in the whole Terai. After fully evaluating these satellite services, it is possible that this approach could be applied more extensively by STRIDE partners and satellites be established in more districts. Gradually, satellite units can grow in terms of opening hours, frequency of visits by P&O and PT personnel, equipment (including tools and machines), and the range of services provided. With time, some satellites may become permanent centers in less covered areas of the country. This is a very interesting approach that should be further pursued and raised in all discussions with MoH related to the establishment of new PT units in hospitals. In order to increase accessibility to physical rehabilitation services in remote areas, it will be important to link the PT units with PRC activities (see *Inclusion of rehabilitation in the health sector* on page 37).

Outreach camps

Though it is true that the use of outreach services is not the most cost-effective way of providing rehabilitation services (they have a considerable cost; they disrupt normal centre-based services; and, for the service provider, it is clearly much more economical not to visit the districts but instead meet the service users at the centre), outreach services must be provided. Under present circumstances, it is the only way of reaching out to people in need, and to create conditions for people to fulfill their rights. Furthermore, when looking at the

² This unit, which was established to meet rehabilitation needs arising from the April 2015 earthquake, was closed at the end of December 2016.

total cost (i.e. the combined cost of the service provider and service users), outreach services may in fact be less expensive than having all service users travelling to the PRCs.

The consultant had the pleasure of visiting one outreach camp organized by CBRB in Taplejung. This gave a good understanding of the amount of work that is invested in such ventures by all five STRIDE partners (as well as by several other service providers in the country). It demonstrated how such camps are the result of a collaborative effort, involving offices of social welfare, education, health and DPOs. It also made it easy to see the direct benefits of such services. Outreach camps greatly facilitate service access, and even if many service users still have to travel to the main centre, it helps them to take the final step to embark on that travel. By seeing first-hand what the service is all about, and by getting direct information from rehabilitation personnel, people can better understand what the benefits of doing that trip can be.

Outreach camps importantly contribute to reaching new service users. Of all new service users registered during 2016 (5255), nearly 30% of them (1543) were first assessed in an outreach camp. Without these visits, only very limited parts of Nepal's population would have access to physical rehabilitation services. The services not only have to continue, they also have to be expanded. Just because a district has been visited once, it does not mean that needs there have been met. An average district with a population of 350,000 may have 300–400 people in need of P&O devices scattered over large geographical areas. One outreach travel, done over several days in one or more locations, can identify and start P&O treatment of some 50–100 people (in addition to an even higher number of persons in need of physiotherapy and counseling) – still only covering a limited geographical area. This means that many more visits are needed in each district. In addition, many districts have yet to be targeted. Of Nepal's 75 districts, outreach services from STRIDE PRCs have so far been provided to 52.

Expansion of services can be done (and is currently being done) by increasing the time that is spent – and the number of locations visited – on each outreach trip. This is a cost-effective way of reaching out. Cost-effectiveness can also be increased by carefully maximizing the types of services that can be provided, for example by using more prefabricated devices (such as drop foot splints). At the same time, it is critical to safeguard the quality of services. This requires carefully evaluating the results and defining minimum requirements for the range of services that can be provided. It also requires that follow-up is provided. This is not consistently done in all locations visited. Camps for follow-up are no longer provided (for good reasons; they were not cost-effective), but all service users would need to have access to – and should be followed up by – a CDW, who can refer people to the service unit when needed. This is not the case in all districts, but must be strongly considered. Service users must not be left on their own. Treatments must be followed up so that the results are known by the service provider.

Mobile unit

The provision of P&O and rehabilitation services from a mobile unit has been discussed within the STRIDE program. A mobile P&O unit is essentially a P&O facility on wheels equipped with the tools and machinery needed to produce a certain range of P&O products. This enables the service provider to offer more comprehensive P&O services than those

provided in outreach camps (while still using the same professional team) and facilitates accessibility to the services for a wider group of users.

While P&O mobile units have been used in many countries in the past, not all projects have been successful. Units have been left without maintenance, running costs turned out to be high, and gradually many services have stopped. While STRIDE partners have since long proven that they can organize outreach visits, and while they would surely be able to manage a mobile unit as part of the outreach activity (with improved service results), it will be important to carefully consider all requirements (the financial ones in particular) before going ahead and investing in this equipment. Investment and maintenance costs *are* considerable. If funding would be available for this type of project, it would be advisable to start on a low scale, with a trial carried out in one region first. This would allow evaluating the added value of using a mobile unit as compared to current outreach visits. To make efficient use of a mobile unit, it can also be shared between two or several PRCs (as long as responsibilities for maintenance are clear).

One should have in mind that, while some production of P&O devices can be made in a mobile unit, the fitting of these still require many days – in some cases weeks – of user training. Unless the unit can stay for, say, 2-3 weeks in one location, the number of service users that need to travel to the main centre would still remain high.

The possibly greatest advantage of mobile services is that maintenance and repair work can be carried out in parallel, which reduces the need for people to travel to the centre, and increases the overall outcome of services.

Community Disability Workers

The role of the PRCs' CDWs has slightly changed over the past years. From having been assigned to work in rather limited geographical areas and mostly focusing on rehabilitation, the CDWs are now working in entire districts and their responsibilities have been expanded to address awareness-raising, fund raising and networking, while continuing identification and follow-up of service users, but with less focus on hands-on rehabilitation. The idea is that CDWs should know how to identify needs and problems in service users, and then refer them to the main centre for specialized interventions. Overall, this is a positive development, which has resulted in important achievements. Still, it also presents some challenges. Ideally, CDWs should work closely with VDCs, DDCs, DPOs, NGOs, social, education and health offices/institutions, as well as with female community health volunteers (FCHVs). CDWs would be needed in all districts to pave the way for increasing coverage through outreach camps (for which their presence is a condition, see above). Currently, many CDWs cover a population of three to four hundred thousand, which in reality is an impossible task. To be manageable, it is likely that the population should not exceed one hundred thousand, at least in the identification phase.

It might be challenging to dramatically increase the number of CDWs, in particular when considering the increasing costs of personnel that would be the result. In the future, however, the CDWs may be able to raise enough funds in the districts and villages where they work to cover their own costs. Ideally, their salaries should be paid by the district where they work. If good models of this can be obtained, it can dramatically increase the possibilities of deploying CDWs in wider geographical areas. One interesting example here is

the cost sharing arrangement of CBRB, in which a DPO pays half of the CDW's salary. Other possibilities should also be investigated. It could be possible, for example, to coordinate the work of CDWs with CBR workers (even though the CBR program is very limited in Nepal) and with PHC workers and FCHVs. Some of these workers have very similar profiles in that they possess basic knowledge in different fields of rehabilitation and health. Ideally, their tasks could be combined into one type of rehabilitation/health worker, and their salaries could be sustained in a coordinated approach by financial investments from different sectors; health, social, DPOs and PRCs. It is an interesting possibility that could be further discussed between the different stakeholders.

Tele-rehabilitation

The use of modern IT and telecommunication technology should be encouraged in rehabilitation work. Distances are great in Nepal, which makes networking challenging. Smart phones and tablets can help to overcome this. Devices that allow easy transfer of data, pictures and video clips can improve communication between service providers, satellite units, CDWs, teams in the field, and also facilitates HI's monitoring and support to the different STRIDE partners. This can save time and money, and generally enhance quality of services. CDWs, for example, can directly communicate with the PRC, and show video clips of a person potentially in need of rehabilitation, before deciding if referral should be done. The devices needed for this are of relatively low cost. It would be important to fully explore the potential of these technologies in all parts of rehabilitation work.

Retention of personnel

Specialized rehabilitation professionals are critical to the long-term success of the STRIDE program. They are the service providers' most important assets. Without them, the services cannot be provided. The challenge to retain key personnel is slightly different for different professions:

Physiotherapists tend to stay very short on their jobs. Many of them see physical rehabilitation as a stepping stone on the way to positions that are better paid and offering more career possibilities (which in reality are very few at the PRCs). While this is annoying in the sense that new professionals have to be continuously recruited when the "old" ones leave after having worked for only a year, it is still a problem that can be overcome. There are usually physiotherapists available on the market. Still, it may be disruptive for the services and require unnecessary additional resources to always have to train new personnel.

P&O personnel have remained remarkably faithful to the PRCs. As compared to 2013, the number and individuals of staff are much the same. This is very positive. Still, no unit has more than two trained P&O professionals (and in NGMC there is only one). This means that the centers are very sensitive to any unforeseen changes; if one P&O professional would leave, the capacity would immediately be reduced by 50%; if another one would leave, services would stop.

The STRIDE program has provided a good amount of support to the rehabilitation professionals. They are regularly mentored by HI's P&O and PT advisors, and they receive advice and shorter training sessions following skills assessment made twice per year. In 2017, four P&O clinicians are going to India for the upper-limb module training.

Even though there could still be room for further improvements, the P&O personnel, in particular, are not likely to have more interesting options in other service providers. However, the area where they present most concerns is with regard to their *salaries* and *employment benefits*. Many of the clinical staff in the STRIDE program (both P&O and PT personnel) feel that they are underpaid as compared to peers in other services. This poses a serious threat to the sustainability of the services. Should the private sector grow, for example, some may choose to go to service providers that offer, not necessarily more interesting work, but considerably higher salaries. PRCs must continue to develop the clinical staff, and give them high responsibilities to make the job interesting. In addition, however, their employment benefits must be reviewed (see next section).

Salary levels

Generally speaking, the salaries paid by STRIDE partners (which are set according to the directives given by HI) are clearly below the salary level of corresponding staff in the public and private sectors. This also applies to employment benefits and it concerns almost all staff, from CDWs and up. One particular concern is that most staff are employed on a project basis, which means that they are not entitled to pension payments. Even though it is true that all activities are implemented on a project basis and may, in the worst case, cease when the STRIDE program is over, this is not fair to the personnel, who are investing many years of their working life in the services. All salaries and employment benefits would need to be reviewed³ to ensure services can continue once the STRIDE program comes to an end. It is true that this increases the costs, and that this also may have a negative effect on the number of service users that can be assisted, but it is likely to be needed to ensure services can at all be provided in the long term.

Financial sustainability

Lack of funding is a major barrier to expanding service provision, but positive developments can be seen. HI has worked very closely with the STRIDE partners to find ways of financially securing the services. This has been a hard work, which has gradually generated very important results. Most PRCs are currently able to raise 60% or more of their funding (with STRIDE covering the remaining 40%). This is a great achievement in a country where financial resources are generally scarce. Still, fund raising efforts need to continue. First of all, the PRCs should be expected to be even less dependent on STRIDE funds. In addition, the services would need to be considerably expanded, which will further increase costs. Furthermore, staff salaries and employment conditions would need to be adjusted (see section above), which, again, increases costs.

The strategy that HI and partners have used in the past is a good one and should be continued. It has consisted of relentless discussions with national and district authorities, raising their awareness and interests, and convincing them about their obligation to support people with disabilities by helping them to access physical rehabilitation services. MoWCSW, in particular, has taken on this responsibility and is now regularly contributing funds to all PRCs (most recently adding Prerana to the list). This now makes up some 20-30% of PRC budgets. In parallel, STRIDE's advocacy efforts in MoH have changed the ministry's

³ A revision of the salaries of all PRC staff (including CDWs) was in process at the beginning of 2017 (after the present mission took place). Salaries and employment benefits are expected to be adjusted in line with government salary scales.

understanding of the need for physical rehabilitation in health. The earthquake and subsequent interventions by HI and others, together with the ministry, also contributed to this. Though it has not happened yet, there is certainly a possibility that the MoH could provide funds to physical rehabilitation. If rehabilitation could be included in health insurance schemes, as part of the basic health service package, this could dramatically change the scenario and enable PRCs to significantly increase service provision. This will not happen overnight, but will require continuous lobbying by STRIDE partners and other stakeholders. Once it happens, financing of rehabilitation services should preferably be done as a more formalized public–private partnership than presently is the case (see box below and *Inclusion of rehabilitation in the health sector* on page 37).

Public–private partnership

In public–private partnerships, governments normally sub-contract services to private providers in an open tendering process. This is not yet the case in Nepal, but it could be a possibility for the future. In such scenario, at the latest, the government must have regulations and mechanisms in place to ensure services are provided with acceptable quality. When the quality is not there, the contract should be terminated. This puts pressure on service providers to make improvements and offer the best service possible. Service providers that from the outset do not meet set requirements (for example with regard to the number and qualification of rehabilitation professionals) should not be considered for public contracts (or might not even be allowed to practice the trade, as determined by national regulations).

Some PRCs have also managed to raise funds at district level, from DDCs, or even from VDCs, often through lobbying done by DPOs. In the Mid-Western Region, the Disabled Empowerment and Communication Centre – Nepal was even able to raise more funds than could actually be used by the PRC of NGMC. (These funds were earmarked for certain districts and could not be used for other purposes.) DPOs have an important role in the disability sector and must continue to be close partners of PRCs. They can lobby at all levels, through the complete planning and budgeting process (which starts in mid-November and goes on for seven months, with proposals selected according to priority at five different levels: settlement, ward, village, ilaka and district). If rehabilitation would be regarded a priority by Ministry of Federal Affairs and Local Development, there is also the possibility that DDCs could get direct funding from national level. This aim should be pursued.

Some PRCs are also able to raise funds from other sources. A particularly interesting example is the interest yield of an internal fund that makes up 7% of CBRB's budget. CDWs are also involved in raising funds at district and village levels. Even though the amounts may not always be very big, they do contribute to financing the sector. If CDWs would be able to raise funds that correspond to their own costs, this would already be a great achievement (see section on *Community Disability Workers* above).

Also service users contribute to some degree to the costs of the services they receive. Following a socio-economic assessment of each user to determine their capacity to pay, they are categorized in four groups: the ones that are comparatively well off are expected to pay at least 50% of the service costs; the upper-mid-level 25–50%; the lower-mid-level 0–25%; while the poorest are entitled to free services. In reality, most service users belong to

the two poorest groups, and service fees currently only cover 1–2% of the total cost in most PRCs. It is difficult to expect current service users to contribute much more than that. However, PRCs should increase their efforts to attract service users who *can* afford the full cost of devices. The profit that can be made on that group can be used to subsidize services for poor users. This requires that the quality of services is high and that service units have a clinical and professional look (see *The look* on page 38) to compete with service providers who have a more attractive image. It also requires that interesting technical options are available – which gradually must include a broader range of products (also those that currently are not considered essential) – so that all types of service needs and requests can be met. STRIDE PRCs must compete with the private sector (including services in India) about self-pay clients, offering the same type of services and products as those service providers, and applying a similar image.

Efficiency and capacities of PRCs

Even though funds are still limited, PRCs can still increase the efficiency with which services are provided and thereby be able to assist more people. Thus it is important to: consider choice of technology (see next heading); make sure working methods are rational; make sure human resources are fully utilized (see below); explore ways of having mobility devices and materials tax exempted by the government; improve quality; and making sure financial resources are used in the best way. The latter should include, for example, setting clear priorities for which types of P&O devices to deliver (see *Setting priorities* on page 34).

When it comes to human resources, it seems that the P&O clinicians (ISPO category I and II professionals) of STRIDE PRCs have a capacity that is not fully utilized. (A major reason for this may be lack of funds; without enough funds to buy sufficient materials, it is simply not possible to increase the production.) In 2016, there were 8 clinicians at the five PRCs, together producing some 1160 devices per year, i.e. 145 devices per staff member, which is about half of the average production level suggested by WHO⁴ (300). Table 3 shows the production of the different PRCs as compared to the number of P&O clinicians and bench workers. NNSWA shows a productivity per P&O clinician that is approximately twice that of Prerana and CBRB. Though there may be natural explanations for these differences (such as lack of funds), it would be important for STRIDE stakeholders to make a more thorough analysis of the situation and explain the differences. (What types of devices were delivered? How were they delivered? How was the quality? etc.) Such analysis may offer the possibility of identifying good examples of service provision that can be shared between the centers.

Table 3. P&O personnel and production in STRIDE PRCs, 2016.

	NNSWA	NGMC	Prerana	NDF	CBRB
P&O clinicians	1 (2 in 2017)	1	2	2	2
Bench workers	1	1	1	2	2
P&O production (number of devices)	224	154	240	317	225
Production/clinician	224	154	120	158	112

⁴ *Guidelines for training personnel in developing countries for prosthetics and orthotics services*, WHO, p. 17.

When comparing STRIDE production rates with the figure of WHO (300), one must keep in mind that STRIDE P&O clinicians often spend part of their working time travelling to and from field work, and that they also deliver mobility aids and wheelchairs, which reduces the time available for P&O production. Most of all, it should be noted that the WHO figure assumes that P&O clinicians are supported by two non-clinicians (P&O technicians or bench workers), which is not the case in STRIDE. Since P&O clinicians are few in Nepal (and difficult to recruit), the latter fact presents an important opportunity: by hiring more technicians/bench workers, PRCs would have the possibility to instantly increase the production (provided materials are available). The present capacities of P&O clinicians would then be used in clinical work, while production would be done by non-clinicians (under the clinician's supervision). Traditionally, P&O clinicians are expected to do the whole range of work – from assessment, through production, to the delivery of the P&O device – and are certainly trained to do so. In countries where clinicians are few, however, it is clearly a waste of precious resources to have them doing technical work that can be carried out by less qualified personnel. WHO urges countries to rethink this and to increase the ratio of non-clinicians to clinicians where the lack of clinicians is a barrier to expanding services. In a well organized PRC, there could be 2–3 – or even more – non-clinicians for every clinician. This possibility must be considered in STRIDE PRCs and in the country in general.

Of course, not *anyone* should be allowed to carry out *any work* in the manufacturing process. Also bench workers need to be carefully selected when they are recruited and be given sufficient training (normally on-the-job). It also has to be made sure they have the right profile and the capacity to undergo higher training, should opportunities for this arise in the future. There is no formal training for P&O *technicians* (the category between the bench worker and the clinician) in Nepal. Having in mind the limited availability of P&O clinicians, the establishment of such a course must be considered.

With regard to P&O-related physiotherapy, it should also be investigated if there are tasks in gait training and other exercises in the fitting process that are currently carried out by P&O personnel, but which could be taken over by PT personnel in order to release P&O clinicians for core P&O clinical work.

In conclusion, if services could be made more cost-effective, and new funds can be raised, it would be possible to expand services without immediately having to increase staff numbers, at least not P&O clinicians. (The example in Annex 5 shows that the essential P&O need in the Far-Western Region could possibly be met by adding one P&O clinician to the present two, provided the three clinicians are assisted by six bench workers.)

Table 4 provides an idea of the current capacity of STRIDE PRCs when considering the human resources (and not taking into account other constraints, such as limited funding and materials, etc.). Though this is a very approximate calculation, it does indicate that three of the PRCs' P&O departments (the ones of NGMC, Prerana and NDF) have human resource capacities that are slightly underutilized, while the capacity of CBRB is significantly underutilized (production could possibly be increased by more than 50%). NNSWA, on the other hand, exceeded its expected capacity in 2016 by approximately 32%. Again, it could be important for the PRCs to analyze these differences (while also taking into account quality aspects) and search for possible explanations to them. The underutilized capacity of CBRB

could, for example, be because of financial constraints. The high production shown at NNSWA may indicate that the capacities in reality may be higher than the expected capacities suggested in Table 4.

Table 4. Expected approximate P&O capacity in STRIDE PRCs in 2017 with regard to present human resources (financial and other constraints disregarded). Figures on expected capacity are based on the assumption that a team of three (one P&O clinician and two bench workers) can assist 250 service users with new devices per year. (This is lower than the WHO estimate of 300 since STRIDE clinicians use part of their working hours travelling to and from the field). It is also assumed that the capacity of the team changes proportionally to its size. (Note that the production is given in number of *devices*, not number of *service users*, which is not necessarily the same. More data would be required to determine this.)

	NNSWA	NGMC	Prerana	NDF	CBRB
P&O clinicians	1 (2 in 2017)	1	2	2	2
Bench workers	1	1	1	2	2
P&O production in 2016	224	154	240	317	225
Expected capacity per centre (2017)	250 ^(*)	170	250	340	340
Capacity as compared to the production in 2016	(**)	+10%	+4%	+7%	+51%

* The capacity calculation for NNSWA is based on three P&O personnel; the production in 2016 was carried out by two.

** Cannot be calculated. (NNSWA exceeded its expected capacity by approximately 32% in 2016.)

Like the other PRCs, NGMC would need to have two P&O clinicians to safeguard service provision. It would also allow the PRC to strengthen its contacts with the hospital.

Technology

The choice of technologies in P&O manufacturing must be further considered. The cost-effectiveness, in particular, must be evaluated for different options. Currently, PRCs are using a mix of different technologies, including components and material from India, China and Otto Bock. The latter technology would normally be provided to paying service users, but in many instances it is also used for other users, in particular those who are very active. In principle, this approach is correct. The reasoning is that, even though Otto Bock components are more expensive (approximately twice the price of low-cost alternatives), they are also of higher quality and have a longer life span (possibly twice the one of other technologies). If so, it would make sense to use the more expensive product. However, the assumed higher quality still needs to be verified by proper evaluations. Without evidence of the longer life span, well-based decisions cannot be taken.

Other technologies should also be compared with the ones now used, for example the one of the International Committee of the Red Cross (ICRC). Because of various reasons, this particular technology seems not to be used by STRIDE PRCs. It is said to be heavy, difficult to obtain in Nepal, require more time for manufacturing and repairs, have limited durability, and it is not easily accepted by service users. Again, while these observations may indeed reflect the reality, they would still need to be verified by proper evaluations. Some of the problems may turn out to be exaggerated and others may be possible to resolve. There are STRIDE clinicians who are used to working with this technology and find it appropriate. It is

already the standard technology of Green Pastures in Pokhara and Ministry of Defense. The technology is widely used in many other countries and might be an appropriate solution for Nepal too. If durability would turn out to be a problem, it could at least be used for less active service users. Every lakh or dollar that can be saved offers the possibility of assisting more service users.

Other cost-effective technologies have been made available on the international market over recent years, and products are becoming gradually more affordable. These options need to be continuously compared and evaluated to ensure that the most cost-effective components and materials are used and costs are kept at a minimum, thus ensuring that the maximum number of people can be assisted.

HI and STRIDE PRCs should also keep themselves updated on the development of new working methods, such as the possibility of using 3-D printing for the manufacturing of prostheses. Except for as part of coordinated pilot testing, such working methods should not be introduced before they are fully evaluated and proven effective. (With regard to the particular example of 3-D printing, it must be emphasized that the production of prostheses must still be carried out by properly trained personnel supervised by a P&O clinician, who would also do the actual fitting. It is not a technology that would allow prostheses to be fitted by non-professionals.)

Quality considerations

The quality of services of STRIDE PRCs could need to be looked into more thoroughly than what is presently the case by the centre management. Even though quality levels are likely to have increased over the past years, in particular when having in mind the substantial support that has been provided by HI advisors to rehabilitation personnel, there is little objective data verifying this. While there is good documentation of staff skill improvements, and indications in the RMS (see below) of a positive development in many different management areas, objective evidence is still missing of, for example, service user satisfaction and the technical quality, fit and function of delivered mobility devices, including prostheses and orthoses. This is particularly important when services are provided in the field. It could be important to explore these issues and consider the establishment of a quality management system that can be used to verify service results.

Setting priorities

All STRIDE PRCs must strive to assist more service users. This will have to be done within the resources that can be made available and will, most likely, require setting priorities for the type of services that should be provided. Not all rehabilitation treatments are of the same importance. Some treatments and P&O devices can make a dramatic change for the user, others may be considered less important in the view of available/limited financial resources. Some treatments and devices, furthermore, are of low cost and easier to afford, while others may be very expensive. In the situation where many people are requesting services, but funding is limited, priorities need to be set so that maximum benefits can be generated to the highest number of service users within available funds. This also involves taking decisions about renewals of P&O devices. In a situation where funding is difficult, it is essential to make the most possible out of the devices that are delivered and prioritize repairs and socket replacements before making new devices. Obviously, it also requires that the quality is the best possible in all work from the start so that devices are long-lasting.

The Global Cooperation on Assistive Technology (GATE) initiative of WHO has developed a Priority Assistive Products List (APL)⁵ of 50 assistive products that are deemed highly needed and should be available at an affordable price. The list includes 16 mobility devices, six of which are P&O devices (or groups of devices):

- Lower-limb orthoses
- Upper-limb orthoses
- Spinal orthoses
- Club foot braces
- Lower-limb prostheses
- Therapeutic footwear (diabetic, neuropathic and orthopedic)

The APL can help governments to develop national priority assistive products lists and offers a powerful tool for national stakeholders to advocate for the inclusion of assistive products (including P&O devices) into the national health insurance and the basic health service package. At PRC level, however, the priorities that need to be set must be more detailed than that of the WHO list. It will require looking at all different devices included in the main groups prioritized by WHO (*lower-limb orthoses*, for example, include foot orthoses, ankle-foot orthoses, knee-ankle-foot orthoses, etc.). Since upper-limb prostheses are not mentioned in the APL, this indicates that at least some such devices may be of lower priority than other devices. While this does not mean that they should not at all be considered, it may imply that, for example, complex *functional* arm prostheses (which may require considerable work and be rather expensive to produce, at the same time as the functional outcome may be less striking) are of less priority than *cosmetic* prostheses (which are easier to fabricate while still providing important benefits – both cosmetic and functional – for the user). Similar comparisons can be made for other devices. The WHO list also highlights the need of considering therapeutic footwear.

RMS

The Rehabilitation Management System (RMS) was introduced by HI to assist PRCs in strengthening the overall management of service units. This has proven to be a good tool to evaluate the status in different areas and for identifying actions needed to make improvements. Evaluations show very positive developments in the PRCs and can verify that actions were taken and improvements achieved, with the centers greatly reducing the number of issues below acceptable standard (see Fig. 3).

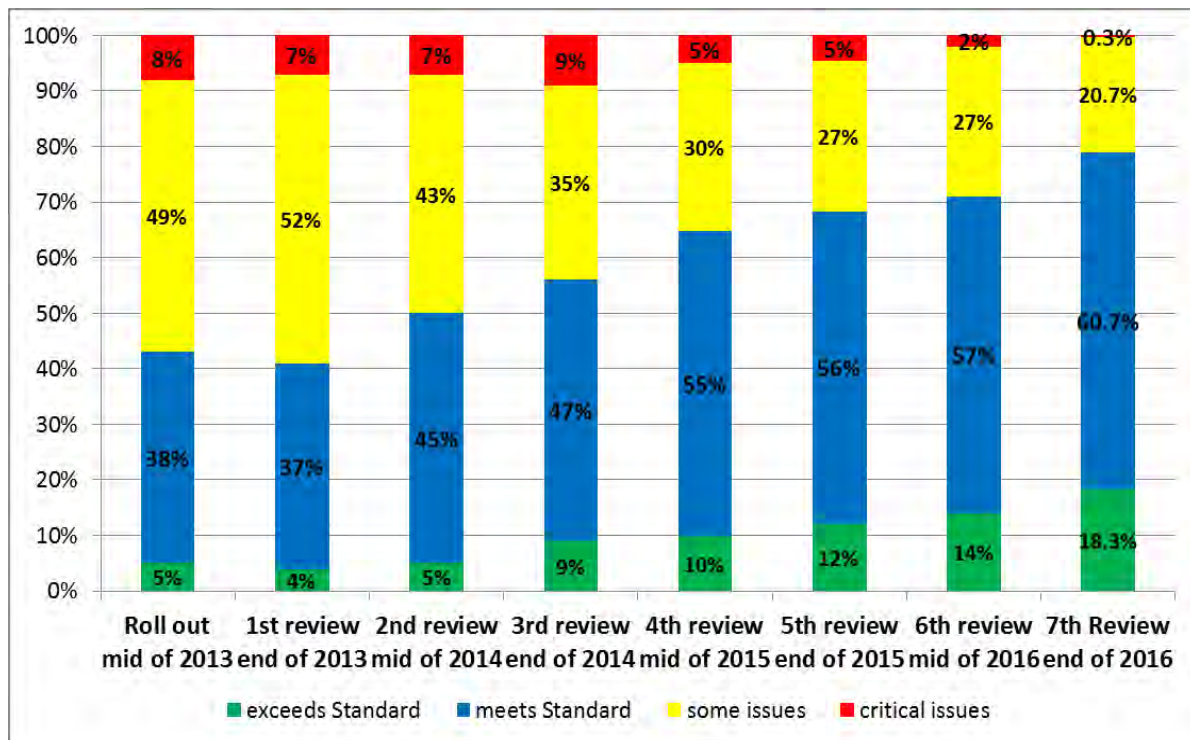
Evaluations are made with the different PRCs twice per year. These sessions used to take five days, but now less than two days are needed. Management tasks have steadily been taken over by the PRCs, most recently the responsibility for procurement of consumables.

The RMS has recently been revised and the number of standards has been reduced (with some redundant repetitions taken out). This has made the tool more manageable. As a complement to the RMS, HI could consider developing a simpler checklist to cover an even broader range of issues (in both clinical and managerial work). Some of the content for this checklist may be derived from the imminent *WHO Standards on Prosthetics and Orthotics*. Other points may emerge from a structured brainstorming on issues that need to be in place

⁵ See also http://www.who.int/phi/implementation/assistive_technology/global_survey-apl/en/

in a PRC to ensure rehabilitation services are safe, effective, efficient, accessible and affordable. This can deal with everything from referrals to the layout and appearance of service units. It can deal with clinical work and the service user pathway, or accommodation facilities and follow-up, i.e. everything that has an influence on how "good" the services are. In the same way as HI has been in the forefront developing the RMS, it could spearhead the development of a "rehabilitation management checklist" (RMC).

Fig. 3. Distribution of RMS scores, combined for the PRCs of NNSWA, Prerana and CBRB (2013-2016).



Awareness-raising about impact

The STRIDE project, through its implementers – HI and PRCs – has greatly contributed to raising awareness in Nepal about rehabilitation needs and the role and benefits of physical rehabilitation services. This is a task that needs to be continued. Among other things, it would be important to more clearly demonstrate the impact of rehabilitation services, and P&O treatments in particular, to policy makers and donors. How can rehabilitation change the situation of a person's life? And how does it affect the family and community? What does it mean in terms of social and economical possibilities for the individual, the family and community? And, on a bigger scale, what are the economic benefits for society and the country of providing these services? Surely, rehabilitation contributes to stopping poor populations from getting poorer. Though difficult to measure, this is an important argument for investing in services. It is not only a question of rights, it is a question of working towards a healthy and economically more developed society. Measuring the impact of rehabilitation is difficult, but it can be done on a smaller scale. Already now PRCs collect some basic information about improvements in activity and participation when the outcome of rehabilitation is documented. These questions can be expanded, enabling the collection of more comprehensive sets of data on the impact (with regard to the ability to go to school, return to work, participate in social life, etc.). Analyzing *economic* benefits is a bigger work,

but it can already now be considered and could be an opportunity for a more comprehensive study in the future.

Inclusion of rehabilitation in the health sector

Physical rehabilitation services can greatly benefit from being well integrated in health services, which is of benefit for the health sector too. Rehabilitation services, including P&O services, are health services. They contribute to improving the health of patients, and are part of the health care continuum. Mainstreaming of rehabilitation into health contributes to rehabilitation services gaining higher recognition, and increases the chances of receiving sustainable funding.

Even so, most of the STRIDE PRCs are separate from the health system. The only exception is the P&O unit of NGMC, which is located in the hospital compound of the Medical College – but not in the hospital, which is unfortunate. It could have been a great advantage to have the P&O unit next to PT and orthopedic departments, with easy access to orthopedic wards. That could have resulted in increased recognition of P&O services and made it easier to catch the clients as they pass through the other departments. As it is now, some of them are referred to another service provider. P&O should be at the same level as other hospital departments and not be treated as a second-rate activity lumped together with the hospital maintenance workshop, cantina and laundry unit. The NGMC management should strive to have the P&O unit physically integrated in the hospital, or at least have the P&O clinician placed together with the PT personnel (who are already in the hospital). Other STRIDE PRCs are separate from hospitals, but can still work closely with the health system, and should promote themselves as health services. This would include applying a more clinical look (see separate heading below).

In all the devastation it caused, the earthquake did bring at least one good thing; following the vigorous advocacy work for sector development done over many years by STRIDE and other HI programs, the earthquake fully opened the eyes of the MoH for the importance of physical rehabilitation. HI's very prompt interventions after the earthquake also greatly contributed to this. Through an additional grant provided by USAID, physical rehabilitation services were provided in earthquake affected districts by NDF and Prerana to a total of 1744 people (including 322 persons with earthquake-related injuries). Moreover, through the Health System Strengthening Project and HI's deployment of physiotherapists and establishment of seven PT/rehabilitation units in public health facilities, more than 1000 earthquake victims were assisted (in addition to almost 3500 other beneficiaries).

The new pilot study on early detection of impairments in children and appropriate referral will contribute to further strengthening HI's contacts with MoH, and clarifying the role of rehabilitation in the health sector. (Early detection, obviously, is essential to minimize impairments and disabilities, reduce suffering for the individual and facilitate rehabilitation.)

Clearly, there is an important momentum right now to strengthen rehabilitation in the health sector. MoH is gradually showing more interest in this field. The Leprosy Control Division has established a disability unit and has just developed a 10-year Action Plan for Disability and Rehabilitation (not yet available in English). Furthermore, the provision of physiotherapy services within the national health system is mentioned in the Nepal Health Sector Strategy 2015– 2020 as an element of the Basic Health Service Package, intended to

be provided free of charge in in-patient services, as well as for outpatients down to health post level. Though this may take time to realize, and while *rehabilitation* services are still only discussed in the context of earthquake victims, this is a very positive step. It provides a possibility for STRIDE to intensify collaboration with MoH on these issues and push for the establishment of physiotherapy units in hospitals. This is an appropriate way of expanding physical rehabilitation in wider geographical areas, since stand alone services are difficult to sustain. Ideally, also P&O services should be provided in hospitals, but this may take longer time to achieve. The PRCs of STRIDE will always be needed, but, when new P&O service units are established, they should preferably be located in hospitals – which may be public or private – in currently underserved districts. This may be services that grow from STRIDE satellites, which means that the location of potential satellites needs to be carefully considered in long-term planning.

Another area in which contacts between STRIDE and MoH can be strengthened is in the coordination of outreach camps. By jointly organizing rehabilitation and health outreach activities it can be ensured that available financial and human resources are used in an effective way and access to services is increased in remote areas.

Other areas for collaboration with MoH, which can further promote rehabilitation in the health sector, include the establishment of a national database on service provision and linkage with different health programs, such as the implementation of the Birth Defect Surveillance, Prevention and Control plan (of which physical rehabilitation is a natural extension) or in the area of noncommunicable diseases. Like most other countries, Nepal risks facing a great challenge with the rise of noncommunicable diseases, which increases the need for P&O devices and physiotherapy. STRIDE can help the government to ensure that appropriate assistance can be provided where prevention measures are not yet sufficient to limit the number of people affected.

The look

Physical rehabilitation services are a generally unknown field of work. To be able to develop this sector, it would need to gain more recognition. STRIDE PRCs have an important role in making service users, visitors and other stakeholders understand that this is a highly qualified work that requires training in a wide range of subjects. Rehabilitation must be presented as an integrated part of health services, provided by highly specialized allied health professionals. P&O, in particular, has two sides: on the one hand, it is a clinical work; on the other, it is a work that is noisy and dusty. To be able to change people's perception about this profession, so that they do not only see it as a craftsman's work, it is the first image that must be promoted. By making the clinical areas tidy, bright, comfortable, quiet, and well separated from the workshop, visitors will get a more positive impression of these activities. By making the services more hospital-like, collaboration with the health sector and MoH will be easier. Somehow, PRCs must get out of the "charity image". Even though it is true that the services are partly based on a charity approach, and even though this has generated very significant results in the past, it would be important to stress that having access to rehabilitation services is first and foremost a *rights* issue. Moreover, to be able to compete with private services and attract self-pay clients, PRCs would need to adapt the same "flashy" image and attitude as they often have. While lack of professionalism is not a major problem in the PRCs, it is more a matter of changing the impression of the services that is given to users and other visitors and give it a more professional look.

Furthermore, *privacy* must be ensured for service users throughout the service delivery process. Users should have the right to be assessed, treated and fitted one by one, without other service users present watching and listening. This must be made sure in all services, including those provided in satellites and outreach camps. Even though service users may not insist on this right, it should be given to them as a standard, as part of a written service user policy of the PRC.

National coordination

With the ministries showing increasing interest in the rehabilitation sector over the past four years, there is hope that relevant authorities can gradually assume more responsibility for coordinating the sector. This will take time, however, and continued support will be needed from other bodies for years to come.

The National Association of Service Providers in Rehabilitation (NASPIR) has played an important role in coordinating physical rehabilitation activities at the national level, much thanks to the support of HI and STRIDE. However, this support has decreased over recent years, which makes it difficult for NASPIR to function effectively. In particular, it does no longer have its own office and administration. Even though NASPIR has a good strategy, not much has been materialized lately.

All in all, the support of STRIDE and HI is still highly needed to guide national stakeholders on the right path and make sure that sustainable coordination, planning and monitoring of the sector is in place. NASPIR could be the natural body to take over that role once the international support is phased out. Its members have a great deal of knowledge and enthusiasm, but would still need more support from STRIDE to fully manage that task. Furthermore, it would be important for NASPIR to widen its membership so that also private service providers and professional associations are consulted and informed about current discussions, plans and decisions.

Professional associations – most importantly the Prosthetics Orthotics Society-Nepal (POS-Nepal), the Association of Nepal's Occupational Therapists (ANOT) and the Nepal Physiotherapy Association (NEPTA) – also play a critical role in coordination of the physical rehabilitation sector and in awareness-raising. NASPIR, with the support of HI, should involve professional associations and raise awareness among different health actors and policymakers of the role of rehabilitation and different professions involved, as well as the importance of national planning and regulation (see below).

National regulation

In Nepal, rehabilitation professionals (including physiotherapists and P&O clinicians) are registered with the Nepal Health Professionals Council, but there is no state regulation of the rehabilitation sector. The government has an important role in putting such regulation in place. In P&O services, in particular, there is now a tendency that private individuals, who may not even have adequate training, provide service without any control. This puts service users at risk; treatments may be of bad quality and users may be asked excessive prices. STRIDE, together with NASPIR and national professional associations, have a critical task in urging the government to establish national regulation that can protect service users from such risks. This should be started as soon as possible since implementation will become more difficult with time.

8. CONCLUSIONS

The service coverage assessment could conclude that, even though there are very few persons with impairments or functional limitations who *actively ask* for rehabilitation services (i.e. the *demand* is low), the need for services is great. The results suggest that more than 26,000 people (0.1% of Nepal's population) could need *essential* P&O services. This greatly exceeds the capacities of STRIDE PRCs, which currently are able to meet approximately 10% of that need. If the contribution of other service providers had been included in the study, it would have shown that a higher number of people receive assistance, but it is also likely to have generated a higher value of the need. Even though more evidence is needed to give a comprehensive picture of need and unmet needs in Nepal, it can still be concluded that the need greatly exceeds the services that are provided. There is therefore strong justification for taking all possible steps to further expand services, and to continue awareness-raising activities among ministries and other stakeholders about the importance of physical rehabilitation, with the aim of having them assuming more responsibility for this field.

The pilot study needs to be followed up with collection of more data on, for example, the life span of P&O devices, possible migration of persons with disabilities from higher to lower parts of the country, and local factors that contribute to different types of need in different geographical areas. This will not only provide more evidence to the results, but it will also help in the planning to meet those needs. Since the study looked at needs and coverage of *P&O services* only, separate studies will have to be made to understand needs and coverage of services for physiotherapy, wheelchairs and mobility aids. (It should be expected that physiotherapy needs and coverage show similar patterns – and are proportional – to P&O needs/coverage. This would need to be verified.)

CHALLENGES

The STRIDE program continues to play an important role in the Nepali rehabilitation sector. It enjoys a very good reputation among the government and national stakeholders, who see the professionalism and efforts in all its activities and at all levels of the program. STRIDE has greatly contributed to increasing physical rehabilitation services in the country and is consistently taking on the challenges involved in increasing access to service provision in vast parts of the country. This is extremely positive.

Still, many challenges remain. The main barrier to increasing services is the limited availability of funding. Great efforts have been made by STRIDE to find different funding sources, and it would be important to continue exploring those possibilities, through existing and new channels. HI and STRIDE PRCs should set very ambitious goals, aiming at radically increasing service provision so that a much greater proportion of the need can be met. The development over past years shows that STRIDE has been very successful in fundraising. Though it is a slow process, there is hope that this success can continue. While STRIDE should continue to work with all ministries, particular consideration should be given to increasing awareness-raising and lobbying in MoH, with the aim of securing national funding for long-term services through formalized public–private partnerships, preferably by

having rehabilitation services included in the national health insurance and the basic health service package. As a temporary solution, PRCs should consider submitting proposals to international and national organizations and agencies for well defined service expansion projects, for example with the aim of covering the need in a defined geographical area (district or region). This could include the use of a mobile unit and new technologies for tele-rehabilitation.

STRIDE PRCs are likely to have some capacities that are not fully utilized, for example in terms of human resources. Measures to increase cost effectiveness may give some room for utilizing those resources. Such measures could include, for example, making careful choices of technology and working methods, and carefully prioritizing the type of services that should be provided. Furthermore, PRCs can hire bench workers to allow P&O clinicians to focus on clinical work and thereby further increase capacities. Depending on how well services are organized, a service unit can have 2-3 – or even more – non-clinical personnel per P&O clinician. Obviously, the PRCs will still need additional P&O clinicians in the future (both to be able to expand services and to safeguard them in case personnel would leave). At present, however, bench workers should be regarded as the first priority.

An important barrier to service provision is the limited knowledge and understanding of the role, purpose, benefits and importance of physical rehabilitation services among the general public and health personnel (the latter who must know how to refer and follow up people in need of rehabilitation). There is also an important lack of knowledge at policy level, which calls for continued awareness-raising. For this purpose, social and economic arguments can be produced with the help of available service data, or by the structured collection of new data. Professional associations and NASPIR are important long-term resources here. They can work with national authorities to raise awareness and provide advice and practical support in national planning and monitoring. However, to assume this role, NASPIR would need to be considerably strengthened.

Other means of facilitating access to services include the establishment of satellite units and the use of mobile rehabilitation units and recent technologies for tele-rehabilitation, all of which are approaches that need to be tested and evaluated. Outreach camps have already proven effective in identifying and increasing the number of service users, and will always be needed to secure access for service users in remote areas. The use of CDWs has also proven effective and they are particularly important for the follow-up of users treated in outreach camps to ensure treatments do not fail. Service providers must make sure they have complete information about the outcome of rehabilitation interventions. The expansion of outreach services must therefore go hand-in-hand with the deployment of new CDWs.

Other critical issues relate to controlling the quality of services provided by PRCs, for which a proper quality management system would be required, and the safeguarding of appropriate and safe service provision nationally, for which state regulation is urgently needed. STRIDE has a critical role in establishing both systems, importantly contributing to making sure that high quality services can be provided to all persons in need of physical rehabilitation services in Nepal in the future.

9. RECOMMENDATIONS

Recommendations to STRIDE implementers (HI and the five PRCs):

SERVICE COVERAGE ASSESSMENT

- 1.) Refine the service coverage pilot study to generate more evidence:
 - Complete the analysis with data from other service providers in the country.
 - Collect data on the life span of P&O devices.
 - Introduce a new field in the database to detect service users who have migrated from mountains or hills to lower areas.
 - Analyze "service packages" for different geographic and economic settings (i.e. the proportion of prostheses and orthoses – and of the different sub-categories of these – that characterize different areas).
 - Produce graphs and maps of service utilization in selected geographical areas (at village, district, regional and national levels) to visualize coverage and unmet needs.
- 2.) Once robust evidence has been generated in the P&O field, repeat the same assessment for wheelchairs and mobility aids, and next, in a similar fashion, for physiotherapy services.
- 3.) Work with service providers and other stakeholders, including relevant ministries, to establish a national database on physical rehabilitation. Promote the inclusion of certain data into the Health Management Information System of Ministry of Health.
- 4.) Calculate the human, material, equipment and financial resources needed to cover estimated needs in different districts and regions.

ENHANCING SERVICE COVERAGE

- 5.) Carry out targeted fundraising with the aim of securing *short- and mid-term* funding from international and non-governmental sources to increase service coverage.
- 6.) Continue regular fundraising with the aim of securing *long-term* continuous funding from the government. Engage in discussions with relevant government offices about the possible inclusion of defined parts of rehabilitation services into the national health insurance and the basic health service package. Use the Priority Assistive Products List developed by WHO's GATE initiative as a lobbying tool.
- 7.) Make studies – as an integrated part of normal service provision and follow-up – of the *impact* of rehabilitation to show the positive social and economic outcomes. Use the results in awareness-raising at policy level to demonstrate that rehabilitation is an investment that yields an important social and economic return.
- 8.) Continue close contacts with the government and its different ministries. In particular, further intensify collaboration with the Ministry of Health. Demonstrate the importance of physical rehabilitation in the health sector. Encourage the establishment of physiotherapy units in hospitals, with which PRCs can be linked. Carry out outreach camps in close collaboration with the Ministry and with district/village health services (hospitals/health centers). Promote the concept of public-private partnerships.

- 9.) Work with medical faculties and educational institutions to ensure knowledge about physical rehabilitation – including identification, referral and follow-up – is properly included in courses for doctors, nurses and other health workers and volunteers.
- 10.) Evaluate the satellite approaches currently used by Prerana in terms of effectiveness, efficiency, quality and contribution to increased service coverage. If results are favorable, promote this approach in other parts of the country.
- 11.) Prepare a proposal for the introduction of a mobile rehabilitation unit as a pilot project in one or two regions, followed by proper evaluation of outcomes.
- 12.) Prepare a proposal for the introduction of tele-rehabilitation technology as a pilot project, followed by proper evaluation of outcomes.
- 13.) Expand the use of CDWs to ensure service users are followed up in districts where outreach services are provided. Increase efforts to find cost-sharing models so that an increasing part of CDWs' salaries is paid by the districts where they work.
- 14.) Review salary levels and other employment benefits of all staff categories to ensure they are set at the appropriate level, with the aim of increasing staff satisfaction and retention.
- 15.) Identify areas where the cost-effectiveness of services can be improved. Take systematic actions in relevant areas and share outcomes between PRCs.
- 16.) Make robust studies on the cost-effectiveness of different types of P&O technologies to generate evidence on appropriate technology and clear criteria for choosing components and materials according to the need, activity level, socio-economic situation, etc. of individual service users. Evaluations should be ongoing to capture new developments.
- 17.) In workforce planning, safeguard long-term services by ensuring the availability of a sufficient number of P&O clinicians. Also strongly consider the possibility of increasing the ratio of bench workers to P&O clinicians in the PRCs as a means of quickly growing service capacities.
- 18.) Set priorities for the types and range of services that should be provided by PRCs to ensure the *greatest possible benefits* can be generated to *as many people as possible* with the resources that can be made available.
- 19.) Plan for the introduction of a quality management system to objectively verify that the quality of services, whether centre-based or delivered in the field, is at an acceptable level.
- 20.) Consider the possibility of increasing support to NASPIR so that the association has the capacity to work with the government on national coordination, awareness-raising and providing specialized advice on planning.
- 21.) Work with NASPIR and national professional associations, in particular POS Nepal, to urge the government to establish proper regulation of physical rehabilitation and P&O services.
- 22.) Promote permanent tax exemption on import of assistive devices, components and materials.

10. SOURCES OF INFORMATION

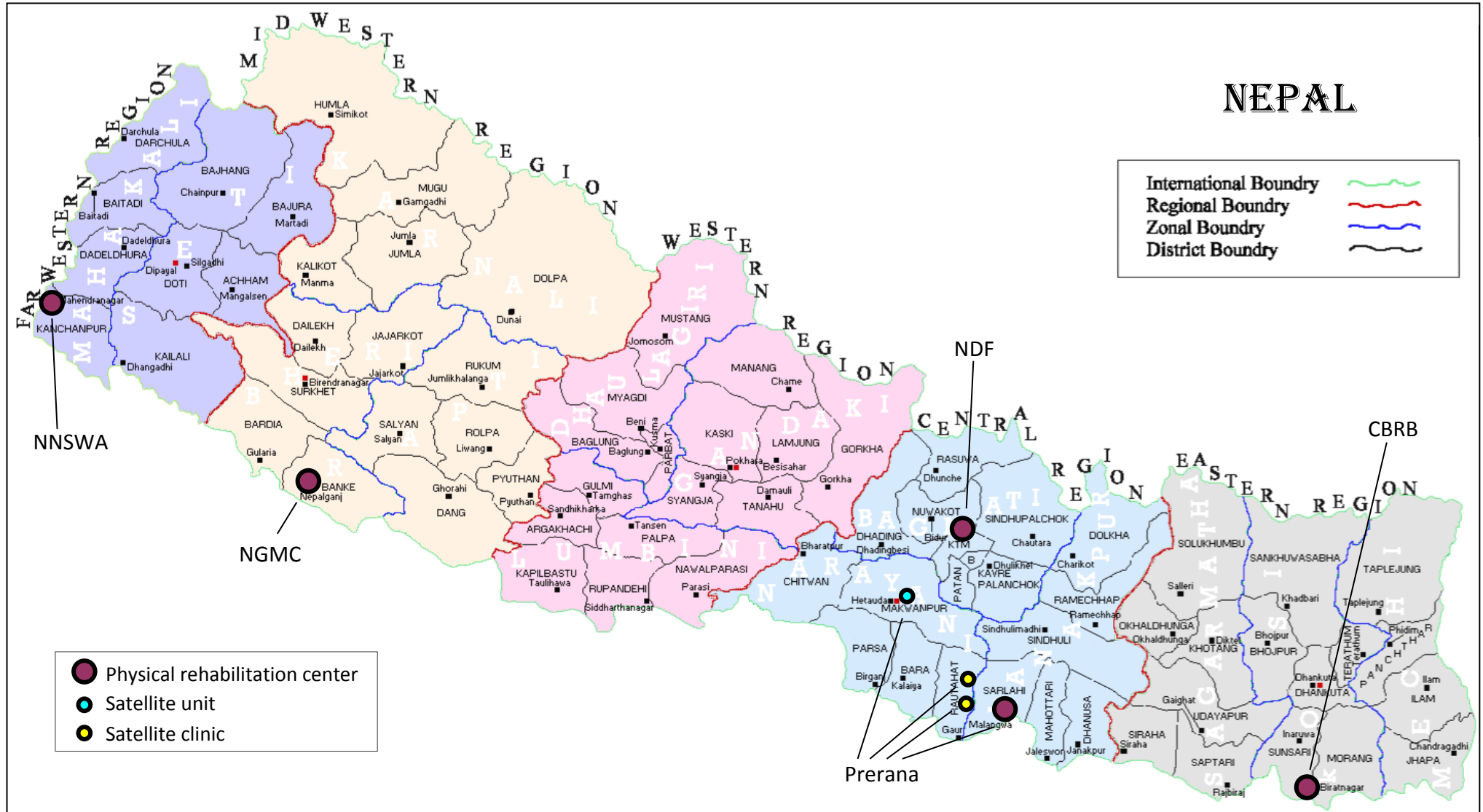
- STRIDE database
- STRIDE Fact Sheet
- STRIDE II District Coverage
- STRIDE Annual Work Plan 2016
- STRIDE Program Description (Second Extension 2016-2019), USAID
- STRIDE Evaluation 2010-2012, March 2013
- 6th STRIDE Annual Performance Report, HI, January 2016
- The Rehabilitation Service Management System of HI
- Health System Strengthening Project (HSSP), Report, Handicap International, September 2016
- National Population and Housing Census 2011, Government of Nepal, National Planning Commission Secretariat, Central Bureau of Statistics, Kathmandu, Nepal, November, 2012
- Birth Defect Surveillance, Prevention and Control (BDSPC), National Implementation Plan 2015 – 2019, Ministry of Health
- Multisectoral Action Plan for the Prevention and Control of Non Communicable Diseases (2014-2020), Government of Nepal
- Nepal Health Sector Strategy 2015– 2020, Ministry of Health
- Technical Proposal: Pilot Study in the Mid-Western Development Region to ensure effectiveness of training of selected government health workers to improve ability to detect and refer for treatment children with selected impairments, Handicap International (submitted to USAID), September 2016
- Strategy Document 2011 to 2015, National Association of Service Providers in Rehabilitation (NASPIR), 2013 (revised)
- Interviews (see Annex 6)

ANNEXES

ANNEX 1: MAP OF NEPAL / LOCATION OF STRIDE PRCs

Map 1. Nepal; administrative division; 5 regions and 75 districts.

Five main physically rehabilitation centers and three satellites are supported by Handicap International within the STRIDE project.



ANNEX 2: DISTRICT WISE P&O SERVICE UTILIZATION AND COVERAGE

Table 5. Estimated coverage of P&O needs based on district wise service utilization

Mountain	Hill	Terai
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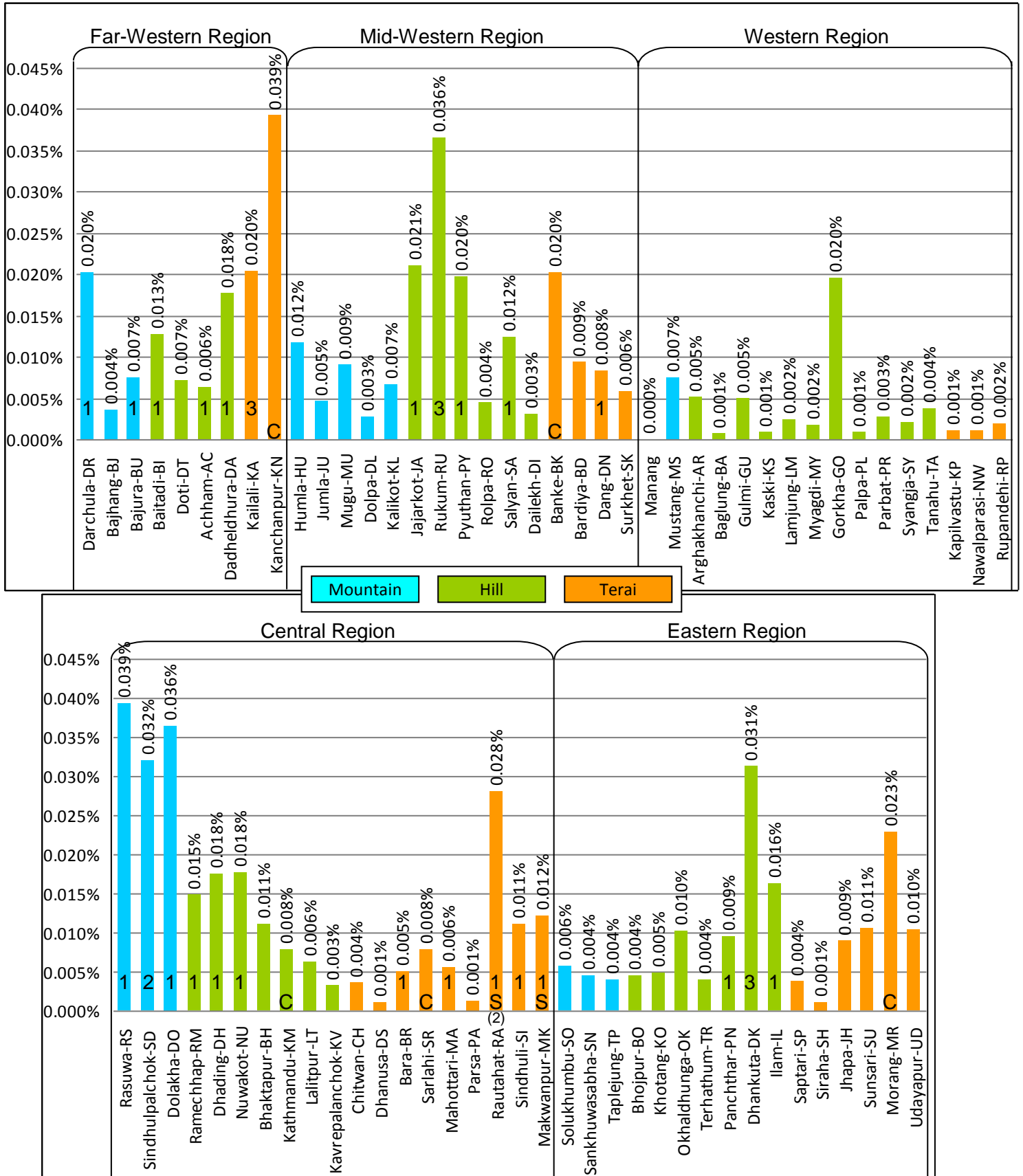
Region/district	Population	Weight ¹	No. of P&O service users ²	Service utilization ³	Need in numbers ⁴	Coverage ⁵
Far-Western Region	2'552'517	7.2	467	0.018%	2'553	18%
Darchula-DR	133'274	0.4	27	0.020%	133	20%
Bajhang-BJ	195'159	0.6	7	0.004%	195	4%
Bajura-BU	134'912	0.4	10	0.007%	135	7%
Baitadi-BI	250'898	0.7	32	0.013%	251	13%
Doti-DT	211'746	0.6	15	0.007%	212	7%
Achham-AC	257'477	0.7	16	0.006%	257	6%
Dadheldhura-DA	142'094	0.4	25	0.018%	142	18%
Kailali-KA	775'709	2.2	158	0.020%	776	20%
Kanchanpur-KN	451'248	1.3	177	0.039%	451	39%
Mid-Western Region	3'546'682	10.0	436	0.012%	3'547	12%
Humla-HU	50'858	0.1	6	0.012%	51	12%
Jumla-JU	108'921	0.3	5	0.005%	109	5%
Mugu-MU	55'286	0.2	5	0.009%	55	9%
Dolpa-DL	36'700	0.1	1	0.003%	37	3%
Kalikot-KL	136'948	0.4	9	0.007%	137	7%
Jajarkot-JA	171'304	0.5	36	0.021%	171	21%
Rukum-RU	208'567	0.6	76	0.036%	209	36%
Pyuthan-PY	228'102	0.6	45	0.020%	228	20%
Rolpa-RO	224'506	0.6	10	0.004%	225	4%
Salyan-SA	242'444	0.7	30	0.012%	242	12%
Dailekh-DI	261'770	0.7	8	0.003%	262	3%
Banke-BK	491'313	1.4	99	0.020%	491	20%
Bardiya-BD	426'576	1.2	40	0.009%	427	9%
Dang-DN	552'583	1.6	46	0.008%	553	8%
Surkhet-SK	350'804	1.0	20	0.006%	351	6%
Western Region	4'926'765	13.9	90	0.002%	4'927	2%
Manang	6'538	0.0	0	0.000%	7	0%
Mustang-MS	13'452	0.0	1	0.007%	13	7%
Arghakhanchi-AR	197'632	0.6	10	0.005%	198	5%
Baglung-BA	268'613	0.8	2	0.001%	269	1%
Gulmi-GU	280'160	0.8	14	0.005%	280	5%
Kaski-KS	492'098	1.4	4	0.001%	492	1%
Lamjung-LM	167'724	0.5	4	0.002%	168	2%
Myagdi-MY	113'641	0.3	2	0.002%	114	2%
Gorkha-GO	271'061	0.8	53	0.020%	271	20%
Palpa-PL	261'180	0.7	2	0.001%	261	1%
Parbat-PR	146'590	0.4	4	0.003%	147	3%
Syangja-SY	289'148	0.8	6	0.002%	289	2%
Tanahu-TA	323'288	0.9	12	0.004%	323	4%
Kapilvastu-KP	571'936	1.6	6	0.001%	572	1%
Nawalparasi-NW	643'508	1.8	7	0.001%	644	1%
Rupandehi-RP	880'196	2.5	17	0.002%	880	2%

Region/district	Population	Weight ¹	No. of P&O service users ²	Service utilization ³	Need in numbers ⁴	Coverage ⁵
Central Region	9'656'985	27.3	969	0.010%	9'657	10%
Rasuwa-RS	43'300	0.1	17	0.039%	43	39%
Sindhupalchok-SD	287'798	0.8	92	0.032%	288	32%
Dolakha-DO	186'557	0.5	68	0.036%	187	36%
Ramechhap-RM	202'646	0.6	30	0.015%	203	15%
Dhading-DH	336'067	1.0	59	0.018%	336	18%
Nuwakot-NU	277'471	0.8	49	0.018%	277	18%
Bhaktapur-BH	304'651	0.9	34	0.011%	305	11%
Kathmandu-KM	1'744'240	4.9	137	0.008%	1'744	8%
Lalitpur-LT	468'132	1.3	29	0.006%	468	6%
Kavrepalanchok-KV	381'937	1.1	12	0.003%	382	3%
Chitwan-CH	579'984	1.6	21	0.004%	580	4%
Dhanusa-DS	754'777	2.1	8	0.001%	755	1%
Bara-BR	687'708	1.9	34	0.005%	688	5%
Sarlahi-SR	769'729	2.2	60	0.008%	770	8%
Mahottari-MA	627'580	1.8	35	0.006%	628	6%
Parsa-PA	601'017	1.7	8	0.001%	601	1%
Rautahat-RA	686'722	1.9	192	0.028%	687	28%
Sindhuli-SI	296'192	0.8	33	0.011%	296	11%
Makwanpur-MK	420'477	1.2	51	0.012%	420	12%
Eastern Region	5'811'555	16.5	609	0.010%	5'812	10%
Solukhumbu-SO	105'886	0.3	6	0.006%	106	6%
Sankhuwasabha-SN	158'742	0.4	7	0.004%	159	4%
Taplejung-TP	127'461	0.4	5	0.004%	127	4%
Bhojpur-BO	182'459	0.5	8	0.004%	182	4%
Khotang-KO	206'312	0.6	10	0.005%	206	5%
Okhaldhunga-OK	147'984	0.4	15	0.010%	148	10%
Terhathum-TR	101'577	0.3	4	0.004%	102	4%
Panchthar-PN	191'817	0.5	18	0.009%	192	9%
Dhankuta-DK	163'412	0.5	51	0.031%	163	31%
Ilam-IL	290'254	0.8	47	0.016%	290	16%
Saptari-SP	639'284	1.8	24	0.004%	639	4%
Siraha-SH	637'328	1.8	7	0.001%	637	1%
Jhapa-JH	812'650	2.3	72	0.009%	813	9%
Sunsari-SU	763'487	2.2	81	0.011%	763	11%
Morang-MR	965'370	2.7	221	0.023%	965	23%
Udayapur-UD	317'532	0.9	33	0.010%	318	10%
Grand Total	26'494'504	75.0	2'571	0.010%	26'495	10%

Source: STRIDE database

- (1) Proportional weight of district/region population relative to the average population of Nepal's 75 districts (which is 353,260 inhabitants).
- (2) Number of P&O service users assisted by STRIDE PRCs during the period Feb/2013 – Sep/2016.
- (3) Number of service users per population.
- (4) Number of persons in need of P&O devices based on the estimated figure of 0.1%.
- (5) Proportion of the estimated number of persons in need that has been assisted.

Fig. 4. P&O service utilization (= proportion of service users per population) per district



C = location of PRC

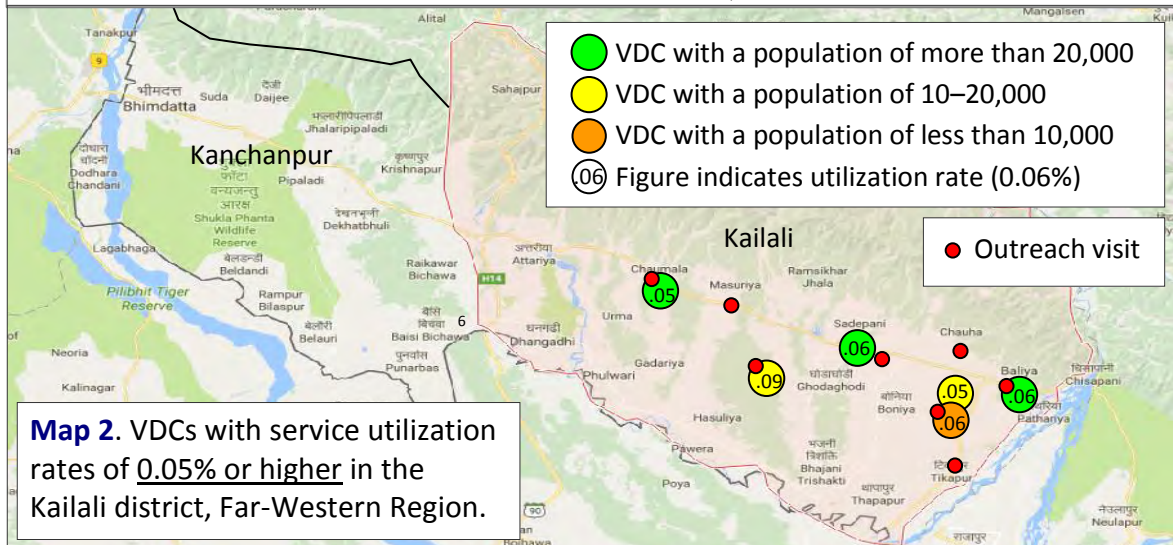
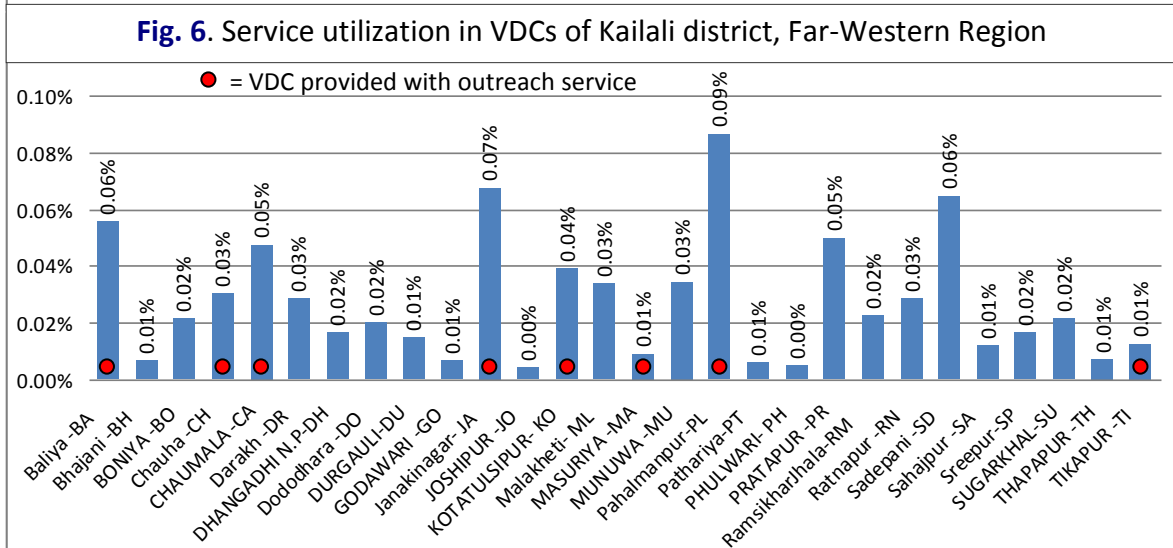
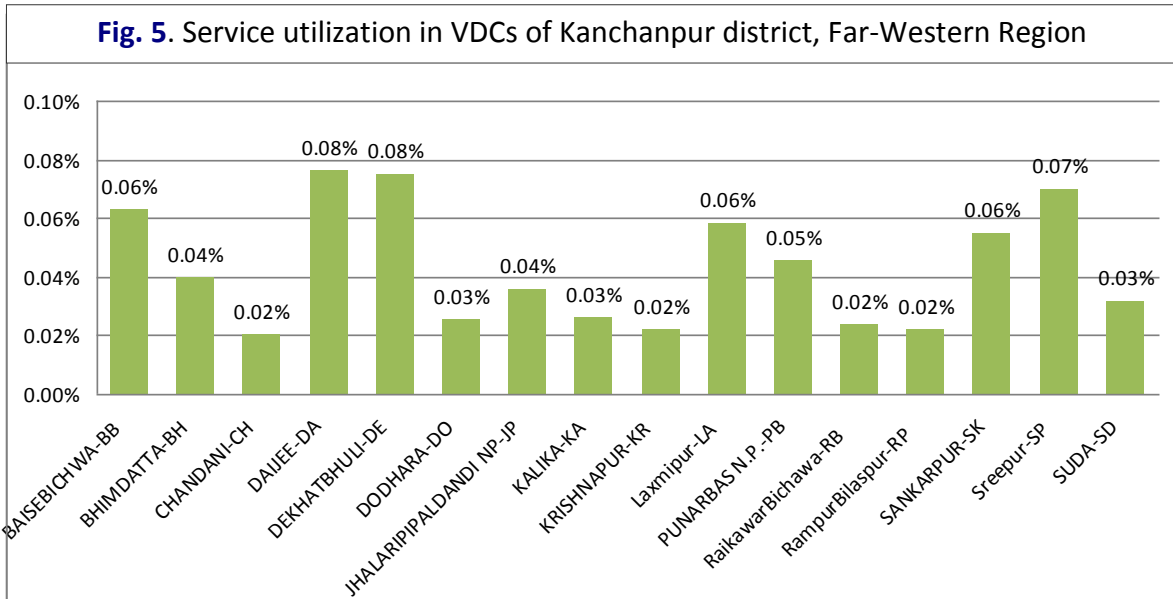
S = location of satellites (Rautahat district has two satellite clinics)

Figure (1,2,3) = number of outreach camps (sets) during the analyzed period (32 in total for all PRCs)

Source: STRIDE database

ANNEX 3: VDC WISE P&O SERVICE UTILIZATION (IN SELECTED DISTRICTS)

(Only villages/municipalities that have service users are included in selected districts.)



Source: STRIDE database

Fig. 7. Service utilization in VDCs of Banke district, Mid-Western Region

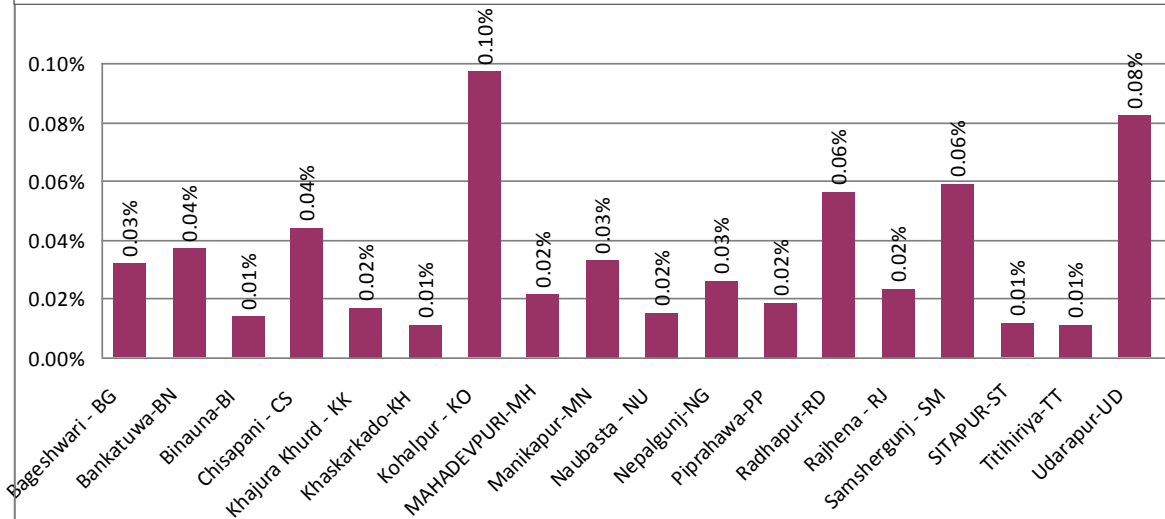


Fig. 8. Service utilization in VDCs of Sarlahi district, Central Region

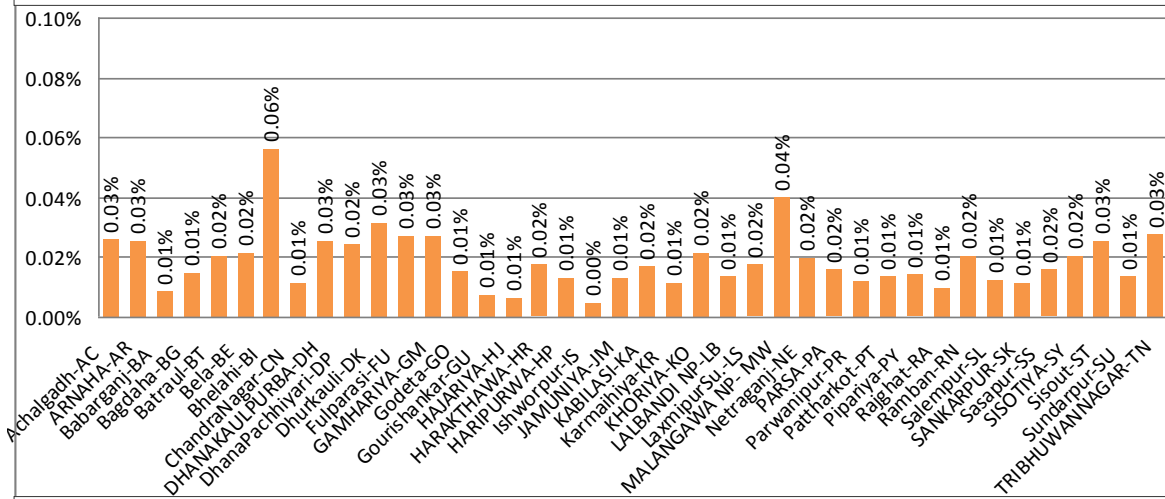
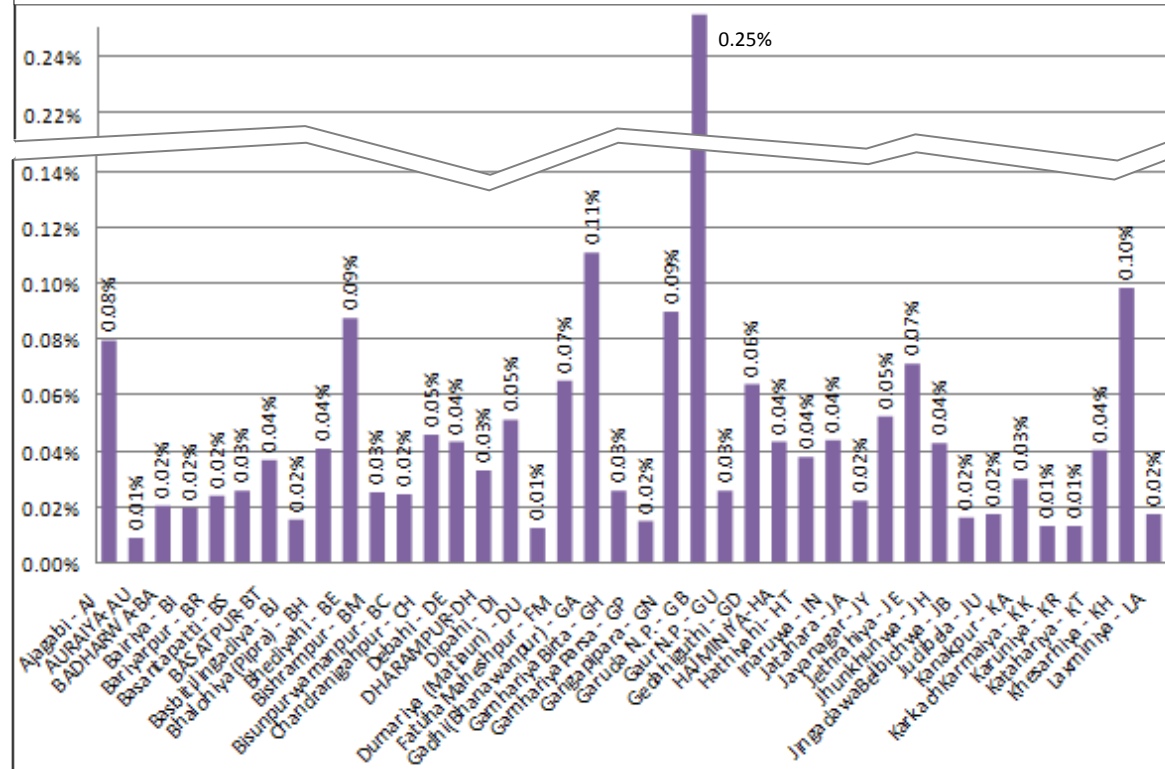
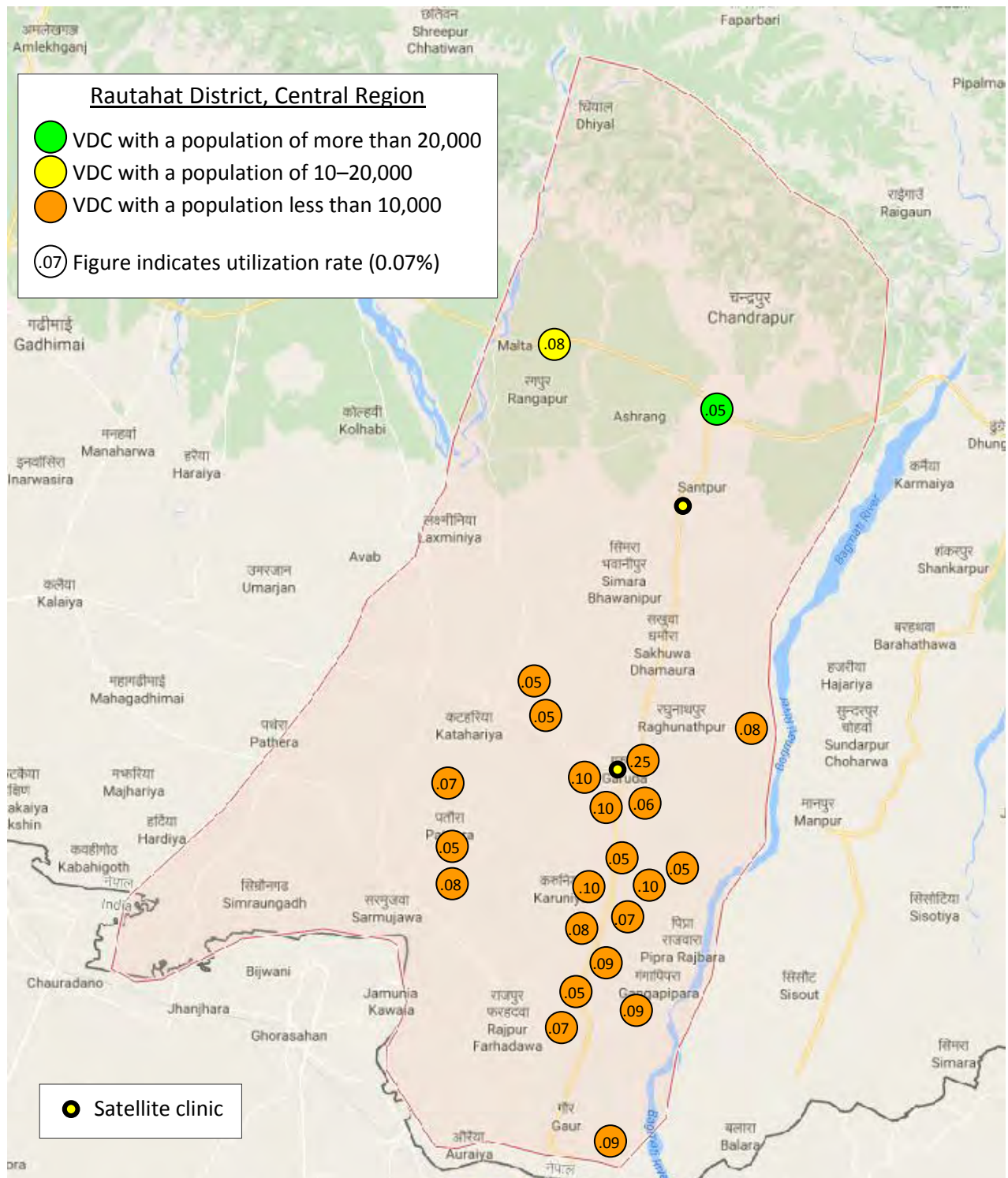


Fig. 9. Service utilization in a range (A-L) of VDCs of Rautahat district, Central Region

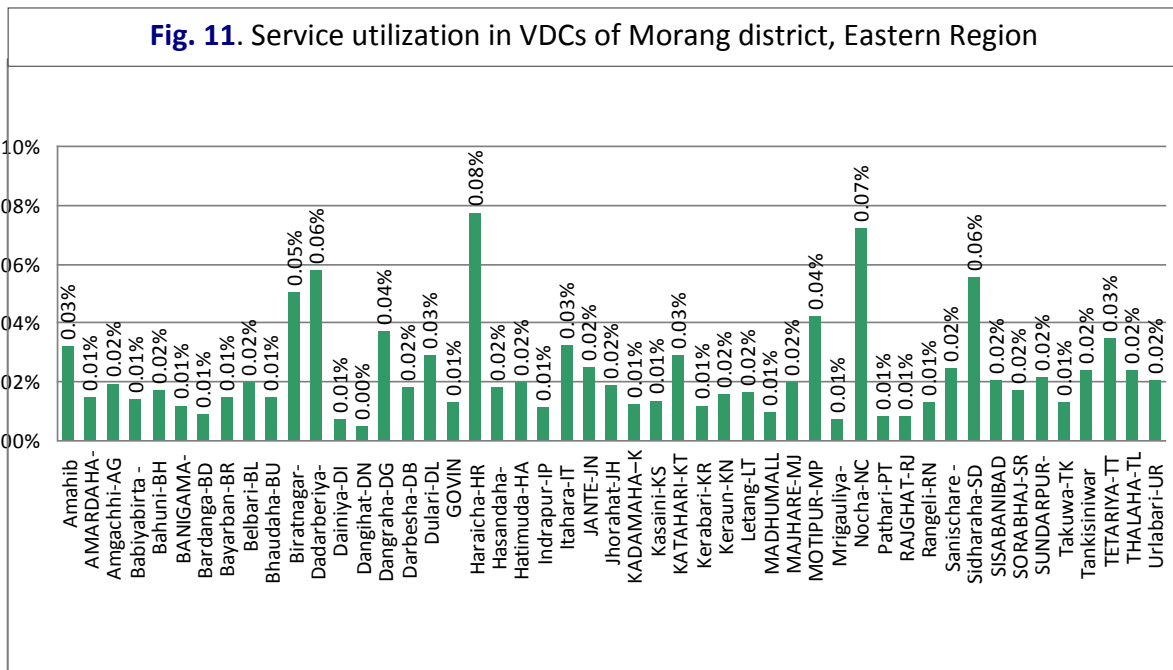
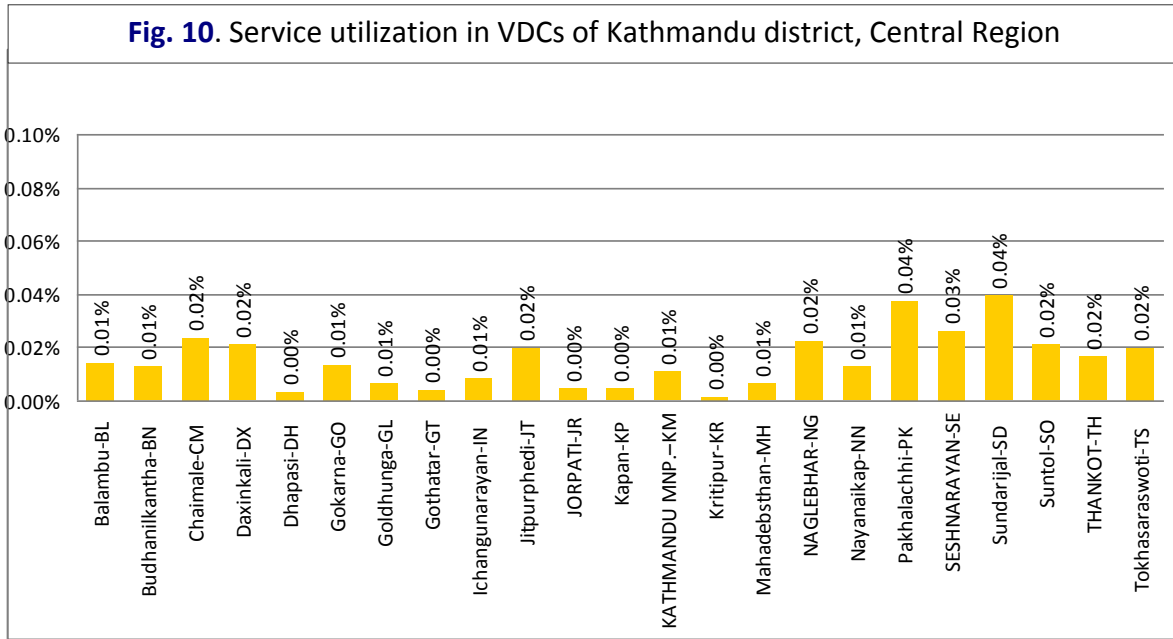


Map 3. P&O service utilization in the Rautahat district, Central Region.



Source: STRIDE database

All VDCs in the district with a P&O service utilization rate of 0.05% or higher have been marked on this map. Even though there are still pockets with lower rates in the eastern part of the district, it shows that Prerana's interventions along the main north-south road (including small scale outreach camps, and support from CDWs and satellite clinics) have increased rates in this area as compared to the western part and in VDCs along the Indian border (where rates in all villages are below 0.05%.) Because of easier access to transport means, also areas along the East-West Highway in the north have higher rates.



Source: STRIDE database

ANNEX 4: COVERAGE OF ESTIMATED NATIONAL NEED BY STRIDE PRCs

Fig. 12. Coverage by STRIDE PRCs of estimated national need by district and region

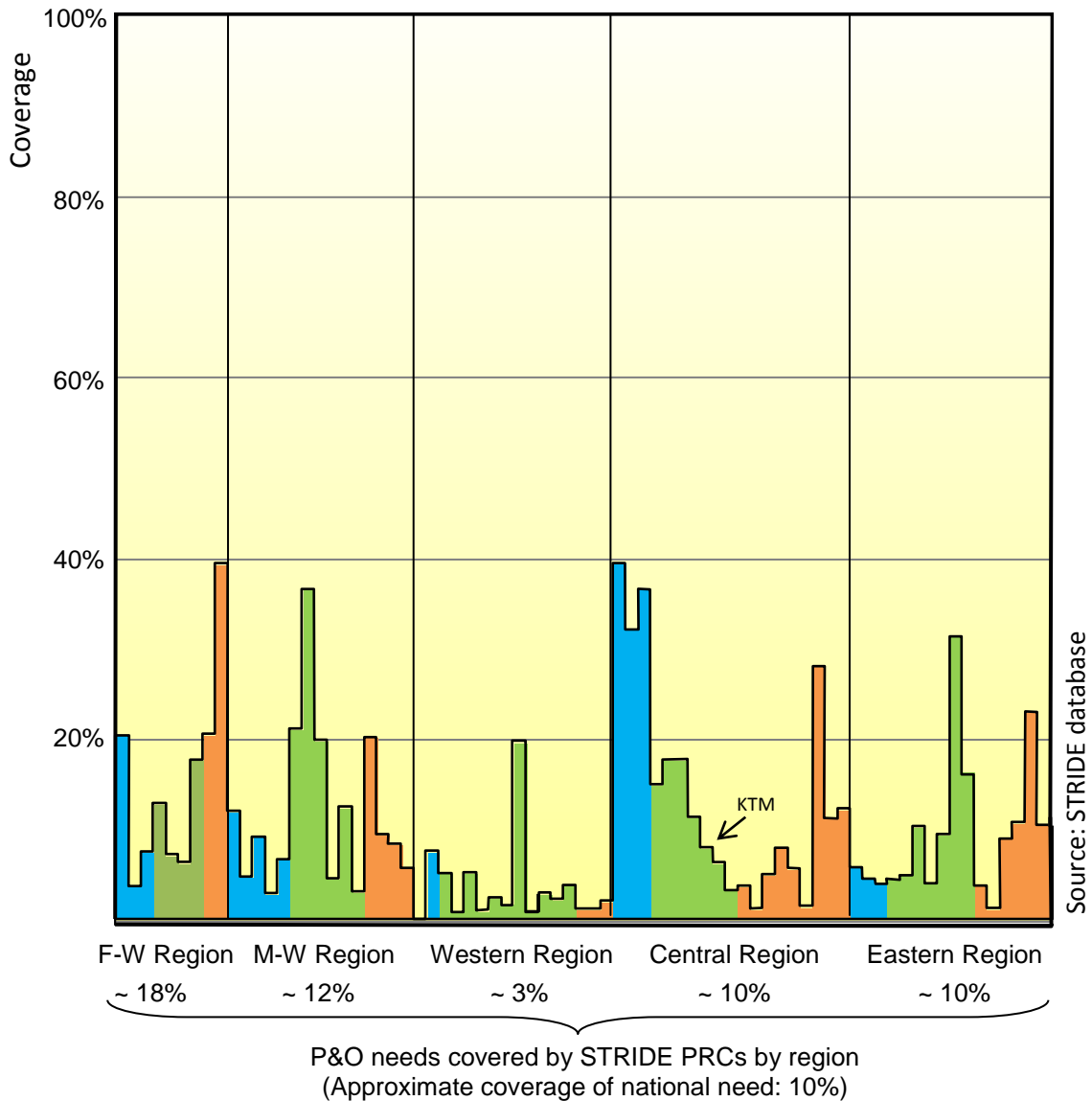


Fig. 12 provides an initial picture of the total national P&O need (as calculated with the preliminary figure of 0.1%) and the degree to which this need is covered by STRIDE PRCs, by district and region. (Also other service providers in the country contribute to covering the unmet need – the yellow surface – but the degree of this is not yet known.)

Note: This graph only gives an approximate picture of the relative contribution of districts to covering the national need. To accurately represent the coverage, the bars should have been weighed according to the size of the district's population; bars of small population districts should have been narrower, those of high populations wider. (This could not be achieved with the functions available in Excel.) Table 5 in Annex 2 shows the relative weight of all districts. With few exceptions, blue (mountain) and green (hill) districts should have been narrower, while orange (Terai) districts should have been wider. The total width of the three mountainous districts in the central region, for example, should have been about half of the present one. Kathmandu (green district in that same region) is the major exception to the rule; it should have been represented by a bar approximately five times wider than it is now. (Values given in the graph are based on accurate calculations.)

ANNEX 5: SERVICE EXPANSION COST CALCULATION EXAMPLE

This is an approximate calculation of the additional annual costs that would be incurred by NNSWA if services were to be expanded to reach all people in need of P&O devices in the Far-Western Region. (This region was chosen on the ground that the NNSWA is essentially the only PRC contributing to meeting the need there. It is also the smallest region of the five.) The calculation is based on an estimated essential P&O need of 0.1% and a renewal period of 3 years and 8 months. It considers additional **running** costs, but not **investment** costs (i.e. investments required in additional training, space, equipment, etc.), which depend on the local situation and must be considered separately. (Unit costs are based on figures provided by NNSWA.⁶) (See also *Cost implications of service expansion* on page 23.)

Human resource requirements: P&O clinicians

Population of the Far-Western Region: 2,550,000
Essential P&O need: 2,550
Annual P&O need (total need divided by renewal period): 700
Number of P&O clinicians needed: 3, each able to assist 200-250 users/yr
Current number of P&O clinicians: 2 (including the new diploma graduate)
Additional P&O clinicians needed: 1
Additional annual cost of 1 P&O clinician: NPR 688,000

Human resource requirements: P&O non-clinicians (P&O technicians/bench workers)

No of P&O non-clinicians needed: 6 (2 per P&O clinician)
Current number of P&O non-clinicians: 1 bench worker
Additional non-clinicians needed: 5
Additional annual cost of 5 non-clinicians: NPR 1,500,000 (5 x NPR 300,000)

Human resource requirements: CDWs

Population of the Far-Western Region: 2,550,000
Population that can realistically be covered by one CDW: 100,000
Number of CDWs needed: 25
Current number of CDWs: 7
Additional CDWs needed: 18
Additional annual staff costs of 18 CDWs: NPR 5,850,000 (18 x NPR 325,000)

Outreach service requirements

Population of the Far-Western Region: 2,550,000
Essential P&O need (0.1%): 2,550
50% of the users are assessed in outreach services: 1,275
Number of P&O users per outreach visits: 70 (covering a population of 140,000)
Number of visits needed during the renewal period: 18
Number of visits needed per year: 5
Current number of outreach visits provided: 2
Additional outreach visits needed: 3
Additional annual cost of expanded outreach visits: NPR 1,200,000 (3 x NPR 400,000)

P&O material costs

Current P&O material costs: NPR 4,500,000
Current coverage: 18%
Additional material needed: 4.55 times the current use ((100-18)/18)
Additional annual cost⁷ of materials: NPR 20,500,000 (4.55 * 4,500,000)

⁶ Staff costs are those of 2016 and do not reflect possible adjustments made in the salary revision of early 2017.

⁷ Material costs are based on the technologies currently used.

ANNEX 6: ASSESSMENT PROGRAM

Date	Activity	Location
Mon 7 Nov	Meeting with USAID	US Embassy
	Meeting with HI Nepal team	HI Office
	Meeting with PT and P&O staff of NNSWA	Kathmandu
Tue 8 Nov	Travel to Mahendranagar	Kanchanpur
	Visit to NNSWA centre, meeting with centre staff	Kanchanpur
Wed 9 Nov	Interaction with beneficiaries of NNSWA	Kanchanpur
	Meeting with District Women, Children and Social Welfare Office	Kanchanpur
	Meeting with District Development Committee	Kanchanpur
	Meeting with NNSWA Management	Kanchanpur
	Meeting with NNSWA Database Manager	Kanchanpur
Thu 10 Nov	Travel from Mahendranagar to Kohalpur	Banke
Fri 11 Nov	Visit to NGMC centre, meeting with centre staff, interaction with beneficiaries	Banke
	Visit to Orthopaedic Department and Ward, NGMC	Banke
	Meeting with the Disabled Empowerment and Communication Centre (DECC) – Nepal	Banke
	Meeting with NGMC Management	Banke
Sat 12 Nov	Return to Kathmandu from Banke	
Sun 13 Nov		
Mon 14 Nov	Travel to Phidim, Taplejung, via Bhadrapur	Taplejung
Tue 15 Nov	Travel to outreach camp location in Sinam, meetings with women/social, health, education and DPO representatives	Taplejung
	Study of assessment camp activities, meetings with CBRB staff, interaction with beneficiaries	Taplejung
Wed 16 Nov	Return to Kathmandu via Bhadrapur	Kathmandu
Thu 17 Nov	Visit to Army Rehabilitation Centre, meeting with centre staff	Kathmandu
	Meeting with Ministry of Women Children and Social Welfare	Kathmandu
Fri 18 Nov	Visit to Hospital and Rehabilitation Centre for Disabled Children (HRDC)	Banepa
	Meeting with the National Association of the Physical Disabled	Kathmandu
	Meeting with the Association of Nepal's Occupational Therapists	Kathmandu
Sat 19 Nov		
Sun 20 Nov		
Mon 21 Nov	Meeting on HI's HSSP Project	HI Office
	Meeting with WHO	Kathmandu
Tue 22 Nov	Meeting with Ministry of Health, Curative Service Division	Kathmandu
	STRIDE database review	HI Office
Wed 23 Nov	Travel to Rautahat	Rautahat
	Field visit in Rautahat, visit to satellite clinics, interaction with CDWs and beneficiaries	Rautahat
Thu 24 Nov	Travel to Malangawa from Rautahat	Sarlahi
	Visit to Prerana centre, meeting with centre staff, interaction with beneficiaries	Sarlahi
Fri 25 Nov	Return to Kathmandu	Kathmandu
Sat 26 Nov		
Sun 27 Nov	Visit to NDF centre, meeting with staff, interaction with beneficiaries	Kathmandu
Mon 28 Nov	Meeting with Ministry of Health, Department of Health Services, Leprosy Control Division (LCD)	Kathmandu
	Meeting with Prosthetics Orthotics Society – Nepal (POS-Nepal)	HI Office
	Meeting with HI's Technical Advisors	HI Office
	Meeting with USAID and HI	HI Office
Tue 29 Nov	Meeting with NASPIR	Kathmandu
Wed 30 Nov	Stakeholder meeting	HI Office
	Debriefing meeting with HI and STRIDE partners	HI Office
Thu 1 Dec	Meeting on HI's Early Detection Project	HI Office
	Debriefing with USAID	US Embassy