

# IMPACTS OF THE NIPPON FOUNDATION'S INVESTMENTS IN PROSTHETICS & ORTHOTICS

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HEALTH



*“In the Buddhist religion you must pray with 2 hands. Now I have one hand I cannot pray. Now I am happy. I will get the artificial hand, so I can pray again.”*

*Client (F), Myanmar*

*“People are proud. So, to make changes, we have to be careful not to provide a model. In peacebuilding, the top down approach just won’t work. We need to build leaders from the ground up. This takes time. There is no other way.”*

*Mr. Yohei Sasakawa, Director, Nippon Foundation*

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# FOREWORD

*Mr. Yohei Sasakawa (笹川 陽平)*

*Chairman, The Nippon Foundation*



The Nippon Foundation has been engaging in various activities in order to realize an inclusive society. Among these activities, our efforts have focused particularly on supporting persons with disabilities for more than 50 years. Our project's goal is to create a society which opens more options and allows self-determination for persons with disabilities who constantly receive unfavourable treatment in education or employment, and encourage them to be independent and participate in society.

The Prosthetics and Orthotics project plays an important role in achieving this major goal by fostering excellent prosthetists and orthotists and providing high-quality care to fulfil the needs of the physically disabled and promote social participation. The Nippon Foundation has been working on establishing and managing training schools for prosthetists and orthotists in various countries in Asia which have a high demand for services, such as Cambodia, Sri Lanka, Myanmar, Philippines, Thailand and Indonesia since 1991. Over 500 prosthetists and orthotists have been trained and over 100,000 devices were provided without charge. After 10 years of support from the Nippon Foundation, the training schools in Sri Lanka and Indonesia had been handed over to the Ministry of Health in both countries. Without relying on human resources from other countries, the projects are now managed only by local people.

The Nippon Foundation will continue to engage in activities towards the realization of an inclusive society where everyone cooperates with one another and no one will be left behind.

*Associate Professor Dr. Friedbert Kohler, OAM*

*MBBS, FAFRM, President ISPO*



On behalf of the International Society of Prosthetics and Orthotics, I would like to express the pleasure and gratitude that we have in being able to assist with this report. The report outlines generosity, foresight, initiative, determination and outcomes, from perspectives of both professionals and service users.

The Prosthetics and Orthotics profession, and the many persons with disabilities who benefit from their services and assistive technology are grateful for the generosity of the Nippon foundation. Their generous investments have established and transformed P&O Services in South East Asia. While some of the schools and services are new, and there is an expectation for significant further developments, there already is overwhelming evidence of the vast difference this investment has made to many thousands of people.

At a time when the focus of the United Nations and the WHO is on persons with disabilities and their needs, this report outlines how investment can bring about change, and I am sure that this report will be used by many who will plan, implement, administer, develop and fund services for assistive technology provision.

I thank the authors and the researchers for their relentless efforts to bring all the information together and produce a well report which highlights the great achievements as well as exploring potential suggestions for further analysis and improvements.

I commend the report to all who would like to make an impact on assistive technology service provision.

## ACKNOWLEDGEMENTS

The Nossal Institute for Global Health has drawn on the expertise of many people in preparing this analysis. We are grateful to Exceed Worldwide staff and management, ISPO, The Sirindhorn School of Prosthetics and Orthotics at Mahidol University, and Nippon Foundation leadership. Together, they guided our initial thinking about to best use this opportunity to understand impacts of an unparalleled investment in orthotics and prosthetics.

We have also benefited from the generosity of well over 100 respondents.

Our most important respondents were the service users. We acknowledge they are the best custodians of knowledge about the meaning and impact of orthoses and prostheses, and the services through which they are delivered. They gave us new insights. They shared their challenges and frustrations as well ideas to strengthen what is already working. They were generous with their time and honesty. Many welcomed us into their homes or travelled long distances to talk to us. We hope the findings of this report faithfully reflect their stories and insights, and that they will help all stakeholders.

Graduates of training programs shared their reflections and experiences of entering a new profession. They shared their professional expertise and the personal meaning of their training and career development. They did so with generosity and patience, and we are grateful to them for their contribution to our report, and for the work they do.

Sector stakeholders including employers, policy-makers, representatives of Disabled Persons Organisations and other professional groups helped provide new ideas about how orthotics and prosthetics is integrated in national health systems. They offered expertise, helpful critique, and give context and meaning to our interpretations of graduate and stakeholder findings.

Programs staff in all the countries we visited were generous with information and support arranging our field-work. This often took many months of planning without which, this analysis would not have been possible.

The ISPO board and office have supported this work and been a key ally in making the most of a rare opportunity to examine the impact of long-term investment in Prosthetics & Orthotics (P&O) education. We are grateful for their technical guidance, administrative support, and flexibility negotiating challenges of a large program of field-based research.

Finally, most of the work and findings we report on have arisen from the long-term support of the Nippon Foundation. Their financial support and guidance have made a transformative shift in orthotics and prosthetics services possible. They commissioned this report to ensure lessons from their investments could be shared with the international community. Along with the clients and professionals whose stories we share, we are grateful for their commitment to a stronger orthotics and prosthetics profession.



## EXECUTIVE SUMMARY

### BACKGROUND

This report was commissioned to understand the impacts of a Nippon Foundation investment in orthotics and prosthetics training and clinical services in Asia. Three main impact areas were examined. They were; 1) the total number of graduates, their career trajectories and estimates of the services provided; 2) how a new P&O workforce has integrated into national health sectors; 3) the impact on the lives of people who use P&O services.

### WHAT WE DID

This study used mixed methods including document review, developing theories about potential mechanisms for impact and semi-structured key informant interviews. We interviewed more than 100 people, including clients, program graduates, and other stakeholders in the P&O sector between September 2017 and August 2018. Descriptive statistics are used to summarise the main outputs of the investment. Qualitative findings were analysed based on frameworks to understand how the investment intended to influence workforce integration, and how P&O services might impact peoples' lives. Frameworks were drawn from relevant literature, standards and related guidelines, and informed by a social interpretation of the meaning of function and rehabilitation, and how they affect community participation.



## WHAT WE FOUND

### *PART 1 - OUTPUTS*

By the middle of 2017, 576 students from 24<sup>1</sup> countries had graduated Exceed programs, or upgrade programs sponsored by the Nippon Foundation in other schools. A further 192 students were enrolled during 2017.

Women and men were equally represented in enrolments overall, but more women than men had graduated from all programs except the Cambodian School of Prosthetics and Orthotics (CSPO). A greater proportion of men than women completed their studies, and women leave the profession earlier than men.

An estimated 19 men and 4 women with disabilities had completed P&O training.

Among graduates, about three quarters were still working in early 2018. About 1 in 8 (14.2%) had left the profession before retirement age.

Using an estimate based on the probable working life of P&Os and the number of graduates, we estimated that graduates supported by Nippon Foundation in 6 countries had provided more than 3200 years of service, approaching 500,000 individual clinical ‘treatment episodes’. Better tracking of alumni destinations and workforce monitoring arose as an important next step for the governance of P&O.

Overall P&O workforce density, expressed as the number of professionals per 100,000 population, varied from 0.035 in Myanmar and 0.047 in Indonesia, to 0.644 in Cambodia. This represents 1 professional per 2.86 million, 2.12 million and 155,000 people, respectively – highlighting that service levels are low overall, but highly varied across countries. Better monitoring of the workforce, including their location, the services they are providing and the population they serve, arose as an important direction for P&O in the region. Currently, there are very few known (if any) datasets or reliable estimates of the total need.

Assuming current enrolments and attrition rates, the number of graduates in the workforce will double after an estimated 17 years.

Based on current global estimates of need, even doubling the number of staff will not achieve targets in most countries. Further, if current trends continue, it is unlikely a workforce of that scale would be financed adequately.

### *PART 2 - INTEGRATING AN EMERGING PROSTHETICS AND ORTHOTICS WORKFORCE INTO NATIONAL SYSTEMS*

We find that high quality training and direct investments has catalysed new services and a cadre of professionals and leaders, who have rapidly transformed the scope and quality of P&O services in the countries we examined.

Six main drivers or potential barriers to workforce integration were revealed: leadership; modelling services through direct clinical service provision; strategies to support graduates after

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<sup>1</sup> A further 4 students from 4 countries had started but not successfully completed their studies.

their foundation training; formal and informal recognition governance, stewardship and monitoring of the profession; and adequate financing of services.

Graduates recall being prepared for practice, with limitations in their capabilities for some complex clinical presentations and different technologies. There were alternate views from graduates and the workforce about appropriate use of technology and interaction with other disciplines in foundation training, and how they prepare graduates for work.

Upgrade training has been fundamental to transitioning training to national staff, but similar leadership development strategies for clinical services have not been as prominent. Continuing education has been a means of supporting graduates and to build relationships with other professional groups.

Provision of clinical services has driven better access to services and provided options for further clinical training of professionals. However, impacts remain mostly limited to major cities. Other international Non-Governmental Organisations (iNGOs) and national services were expected to provide services using a new workforce, but uptake has been slow, often due to inadequate or insecure financial resources to invest in long-term development of prosthetics and orthotics and related services.

Delays in decentralising services included graduate willingness to work in regional settings compounded by little emphasis and financing for P&O services in regional health services. Other NGOs have resource constraints or emphasise humanitarian crises or conflict areas. Issues are compounded by costs and complexities of travel to large cities for persons with stressed household finances. Solutions like mobile services have been effective but insufficient. Other innovations like remote services, central fabrication and other solutions have not been attempted at scale and could be an important way to drive future reform of P&O services.

While most graduates have felt supported after entering the workforce, and many have enjoyed positive career development, their experiences are often characterised by few job opportunities, uncertain futures, financial pressures, and feeling left out of investments in training leaders. Many report a desire to enter private practice, leaving an uncertain future for public, low-cost services. Especially in Cambodia, there is a risk of high attrition levels, either to the private sector or out of the profession entirely.

Investments in foundation training, ongoing support for graduates and clinical services have been accompanied by a range of efforts to build and strengthen policy and governance of P&O. Measures have included establishing professional associations, advisory boards, accompanying policy change, and others. Overall, formalisation of the profession has been slow. Even where P&O is formally recognised, poor linkages with other sectors of health service delivery are evident in most countries.

Informal measures including ISPO recognition of graduates and ‘normalisation’ of high-quality services have acted as proxy policies. The profession is partly self-regulating, and partly guided by relevant national authorities. High level monitoring and stewardship is limited other than through the training programs, often driven by Exceed as an international partner.

Among the barriers to ongoing impact, adequate financial coverage to sustain existing services and expand services to isolated areas, remains the most pressing. Financial support and models for financing P&O vary widely between countries, but inequities for poorer and more remote

communities are common to all contexts. Except Thailand's insurance scheme, and the emerging scheme in the Philippines, financial models for P&O service have been international support through INGOs and institutional donor funds, government services, and a small but growing user-pay system, including Exceed Worldwide's Social Enterprise model. Exceed is currently exploring a model of private individual donor support of recipients. Most of the approximately 500,000 services provided by graduates were funded by government or other philanthropic donors via other NGOs, representing a very significant financial contribution from both state and non-state actors, which is necessary to sustain or supplement.

Other financing arrangements prominent elsewhere in the health sector like purchasing solutions, dual-practice, equity funds, or 3<sup>rd</sup> party payment or service development grants have not been attempted. Combined with service delivery innovations, those measures could offer efficient means to sustain and expand services.

### *PART 3 - CHANGING LIVES: IMPACT ON THE CONSUMERS OF PROSTHETICS AND ORTHOTICS*

The estimated number of individual services provided by graduates of Exceed Programs with Nippon Foundation's support is around 500,000.

P&O services have a life-changing impact on clients and their families, with access to quality, appropriate and timely prosthetic and orthotic services enabling greater independence, participation and inclusion in all aspects of life.

There are barriers to optimal reach and impact of services for clients. Key challenges include poorly developed co-ordination mechanisms between health care providers and P&O services, a lack of linkages between P&O and other rehabilitation or disability supports, and challenges with transport, accommodation and other costs associated with obtaining care, even when it is free.

While cognisant of potential biases, partly mitigated by our random sampling approach, we find clients were almost universally satisfied with the P&O services they received. Their testimonies reveal positive outcomes for mobility and independence, and better participation across self-care, education, livelihood, household and socio-cultural aspects of their lives. Social-emotional wellbeing and positive impact on families were also reported.

However, referral mechanisms between acute health care providers and P&O services were weak or absent in the countries studied. The result is delayed intervention and potential to adversely affect long term function and wellbeing. In most cases, clients of P&O services found out about services through word of mouth, often through a chance encounter in their community, rather than through established and formalised referral mechanisms. This highlights a need for creating greater awareness of P&O services among health care providers - the likely first point of contact for many clients - and mechanisms to facilitate communication and co-ordination between health care and rehabilitation systems to ensure clients do not miss out on vital services. However, increasing the scale of services will constrain already busy services and staff.

A major limitation of this analysis is that we know little about those in the community who would benefit from P&O services but were unable or chose not to access them. While we find P&O services have a transformative benefit for those who receive them, many barriers were evident.

Our findings are likely to under-estimate the unmet need and barriers for accessing care, especially among marginalised groups and persons living outside major cities.

Outreach teams and pro-active follow up of clients following discharge from acute care are two strategies identified to that may go some way to overcome issues of referral and delayed access to P&O. Currently, outreach services are an important part of P&O services in Cambodia, in Thailand for military veterans, and through other NGOs in different parts of the countries we studied. Access to services was limited for many due to the common barriers to health care experienced by people with disabilities such as cost, location of services, transport and awareness of health needs and services in the community. Reach and coverage of services was therefore simplest for those who live close to services or can access transport and afford the costs of attending services, and who encountered someone who knew about the service.

## IMPLICATIONS

The work of Exceed and its partners, and other training providers that have been part of this investment, with financial support from the Nippon Foundation (and other donors) has resulted in an unmatched scale up of the P&O profession in the affected countries and beyond.

Services provided by graduates of all the training programs studied have a transformative impact on clients.

Training has been effective and built leaders to sustain and grow the teaching programs. Limited sector stewardship and challenges in scaling services might benefit from more emphasis on clinical and health service – rather than educational – leadership. Adapting teaching models and technologies could address coverage issues by targeting training outside major cities. New service and financial models that could address some barriers to impact are available.

The impact of the investment is constrained by poor linkages with other health services. Referrals are disorganised or absent, causing delays, poor knowledge of available services, and sub-optimal use of available services. Effective integration of a new P&O workforce will require new measures to secure durable employment, financing of services, and complementary support to other disciplines necessary for effective P&O care.

There are around 600 new graduates (Dec. 2018)<sup>2</sup> arising from this investment. Crude estimates project a doubling of the workforce by 2035. Unless current barriers to scaling and financing services are addressed, there is a risk of high workforce attrition – diminishing the impact of the investment.

Beyond the coordinating role played by Exceed, at country and regional levels, the sector lacks coordination and cohesion. Routine monitoring of high-level indicators of P&Os status would be a low-cost, high-value intervention shared by civil society, NGOs, and donors.

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<sup>2</sup> Based on projections from 2017 figures and enrolments.



## BACKGROUND

The protracted conflicts experienced in parts of South and South East Asia in the 20<sup>th</sup> century have left a legacy of systems for disability and health services that are not always equipped to meet the need of their populations. In the region, many international organisations were particularly motivated by the injustice of landmines and unexploded ordnance (UXO) and the human cost of the injuries they caused.

Orthoses and prostheses are essential products for many people who experience functional impairment and limb loss, but services are inadequate. Accurate information about the need for orthotics and other assistive products is scarce, often due to poorly developed health information systems and population health evidence concerning health conditions and need for rehabilitation and assistive products, including orthoses and prostheses [1].

The global population is changing – people are living longer, and disease patterns are shifting from premature death to years lived with disability [2, 3] - and from communicable disease to non-communicable disease and injuries. Social and health systems are slow to respond to these population shifts. A thriving middle class has different health patterns and capacity to pay, but the corollary is often widening disparities and inequities where people and populations are left behind from economic growth. This is evident in persistent barriers to inclusion for people with disabilities, despite some gains in recent years.

Specific services for people with disabilities, which include ensuring timely and affordable access to assistive products like orthoses and prostheses, are often especially slow to develop. Rehabilitation services often lag behind other services in the development of health policy and are rarely included in basic health packages. Where services exist, resource and capacity issues threaten quality [1].

The results are clear: there is profound unmet need for assistive products, including prosthetics and orthotics. Estimates of unmet need for assistive products in the Philippines [4], Fiji [5] and Bangladesh [1], are 30%, 85% and 70% respectively. Specific information about unmet needs for prosthetics and orthotics is not available in current literature, mostly owing to the complexities of undertaking the population-based surveys necessary to determine unmet need.

In Low and Middle-Income Countries (LMICs) strengthening assistive product services generally and P&O specifically, has tended to involve international NGOs, often working with a post-conflict humanitarian agenda. Few clinical services or training programs had been developed by or transitioned to national leadership and governance. This is an important and difficult challenge. Because rehabilitation and assistive technology services have not traditionally been considered part of healthcare, they are often under the auspices of social ministries. Creating new budget lines in for services with relatively high consumable costs is often slow. Developing and promoting new laws and frameworks for implementation of rehabilitation is challenging [6, 7], and there are competing demands and requirements for the various aspects of comprehensive allied health and rehabilitation. People who might benefit from services are often disadvantaged and may lack financial resources to access care from the private sector (if one exists), or to meet out of pocket costs. Social health insurance schemes rarely cover these devices adequately.

Operating to address these challenges and unmet needs for care, Exceed Worldwide, with financial support from a range of sources including Nippon Foundation, has evolved from training entry level prosthetists and orthotists in one country, to training in 5 countries, and a range of complementary projects and programs in clinical services and strengthening the profession. Graduates from P&O training programs work in many additional countries, having trained at Exceed-supported programs, and returned home.

The Exceed/Nippon Foundation investment in strengthening the P&O profession is therefore a unique and illustrative example from which the profession and other stakeholders can learn. Understanding the costs, short and long-term effects and future challenges will illuminate important challenges and solutions for continuing to strengthen access to assistive products.

This analysis occurs at a critical phase for P&O. New global trends in assistive products and rehabilitation services tend to call for a wider range of products – spanning mobility devices, sensory devices, seating and positioning, and devices for assisting limited cognition, memory, communication and so on. Perhaps because of high-profile injuries experienced through conflict, landmines and UXO – and international humanitarian law compelling states to contribute to reconstruction and rehabilitation of affected places and populations – P&O is relatively well established compared with other assistive technology services – even if access to P&O care is still almost certainly far too low.

In the future, there may be additional pressures to integrate P&O with other rehabilitation services and embed them more deeply in existing health systems. This occurs at a time when changing population health profiles mean the need has never been higher. It is thus timely to examine what works, where, and what are the challenges for the next phase.

### *EXCEED<sup>3</sup>*

Exceed is a UK-based charity, founded in 1989 as ‘The Cambodia Trust’. It re-branded as ‘Exceed’ in 2014 to reflect its actions beyond Cambodia. It launched its first rehabilitation service in 1992 and the Cambodian School for Prosthetics and Orthotics in 1994. Exceed has now supported schools for Prosthetics & Orthotics in five countries. Nippon Foundation has also supported Mahidol University / Sirindhorn School of Prosthetics and Orthotics in Bangkok, which is recognised as a regional hub for Bachelor-level training, and the only program serving Thailand’s large population. In Cambodia, Exceed also supports rehabilitation centres, community-based rehabilitation activities, livelihoods and inclusive education programs.

Exceed’s work in Cambodia, the Philippines, Sri Lanka, Indonesia and Myanmar supports P&O training, with a range of activities in clinical services, advocacy, standard development and so on, to complement that foundation training. More recently, Exceed has introduced a Social Enterprise approach in which Exceed runs private services and a P&O material and component supply chain, with the intent to return any profits to philanthropic activities. Exceed is an active player in advocacy and developing standards of practice and leads a network of researchers.

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<sup>3</sup> In this report, we variously refer to Exceed Worldwide (the full name of the organisation now), ‘Exceed’ for short, or CT/Exceed, where we are referring to Cambodia Trust’s previous activities.

## THE NIPPON FOUNDATION'S INVESTMENT IN P&O

*“Originally what we wanted to achieve was to help people: not the industry or sector. Not policy. But really just simply the people who needed services. ...So it [sector impact] wasn't the aim, but it was necessary.”*

*Nippon Foundation respondent*

The Nippon Foundation is a Japanese philanthropic Foundation which contributes to social development both in Japan and internationally. Its activities span education, welfare, health and other fields.

The investment in P&O worldwide has included support of staff, scholarships for students, bricks-and-mortar for new schools and related facilities, materials and supplies both for training and clinical services, high-level training for future leaders, knowledge-sharing platforms and other support. Support has been provided to P&O programming in at least 9 countries, 6 of which are examined in depth in this report.

The overall investment of the Nippon Foundation in Exceed have been guided by a comprehensive strategic plan [8], developed by Cambodia Trust management in 1999 and 2000. That strategic plan described an analysis of the situation of P&O education and services across Asia and specified a roadmap of implementation. The strategic plan, particularly its goals and stated logic model informed the program logic used in this evaluation.

## THIS REPORT

This report presents findings of an evaluation of a long-term, multi-stakeholder collaboration to address the chronic shortage of skilled orthotists and prosthetists, and the essential health services they provide.

The Nippon Foundation commissioned this evaluation through the International Society for Prosthetics and Orthotics (ISPO) with the broad aim to learn about the impact of their investments in P&O. The ‘investment’ described here refers to the long-term support of the Nippon Foundation to Exceed Worldwide (formerly Cambodia Trust). The analysis explores the contributions of many other stakeholders, from national Governments, to the service users and their communities.

Importantly, there have been many supporters to the growth of prosthetics and orthotics in the contexts we examined. This study emphasises the role of the Nippon Foundation's support to Exceed Worldwide (and orthotics and prosthetics training in Thailand), but where possible, the contributions of many other stakeholders are distinguished and given due recognition. The Nippon Foundation has also financially supported P&O and related programming in other countries, but they are not directly explored in this evaluation.

The Nippon Foundation's broad objectives for the evaluation were to ensure lessons from around 15 years of investment could be shared with the international community interested in improving access to prosthetics and orthotics services.

Recognising the relative paucity of policy-relevant evidence in rehabilitation [9] and prosthetics & orthotics, this evaluation was situated within mixed disciplines of health systems research, and rights-based disability inclusive development. Ensuring the voices of clients (and potential clients who could not access care) were heard was fundamental to the design and

implementation of the evaluation. Testimonies, triangulated with existing literature and program documentation, form the core of the data used in this evaluation.

Previous evaluations of investments in prosthetics and orthotics have tended to emphasise quality of services and products, often using subjective expertise as the main analytical method. Here, we emphasised understanding effective strategies to introduce and scale services, especially from the perspective of supporting new graduates, and the impact on the end users. We adopted a holistic interpretation of user impact, exploring how function, clinical services, technologies, context and personal factors intersect to impact participation and inclusion. Our methods intended to allow clients to share their own interpretations of the meaning – good and bad - of prosthetics and orthotics services in their lives.

## STUDY AIMS AND OBJECTIVES

This study aimed to understand the overall impact of the Nippon Foundation's investment in orthotics and prosthetics, through Exceed Worldwide and other key stakeholders.

Specific objectives were to:

- Describe the overall outputs of the investment, emphasising the total financial investment, graduates, and estimates of current working situation of graduates and their caseloads
- Investigate the integration of new orthotists and prosthetists in national health and related services; what is the experience of the new workforce, what systems are in place to nurture them, and are they working.
- Investigate the impact of services on the lives of people who use orthotics and prosthetics services.



## METHODS

Research design, frameworks for interviews, and data analysis.

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ခွင့်မပြု။



Image: M. Pryor (2018)

## STUDY DESIGN

Informed by realist evaluation methodologies, the analysis used mixed methods, including desk review of program documents, in-depth semi-structured interviews and focus groups. To guide the development of question guides and primary data collection, a refined program theory of change was developed. This involved three main steps.

1. **A review of program documentation** to inform a preliminary program logic.
2. **A review of literature** to explore potential frameworks to help assess the main intended outcomes and impacts of the investment.
3. **Consultations with Exceed and Nippon Foundation stakeholders** to further test and refine a potential model of how the overall investment might have impacted integration of orthotics and prosthetics workforce into national health and social systems, and to consumer impact through service provision (Figure 1.).

A critical part of the program documentation was the Cambodia Trust 'Master Plan'. The master plan was developed by the then *Cambodia Trust* (now Exceed Worldwide) and used to guide programming. The theory of change and described in that document formed much of the starting point for the analytical framework used here.

The question guide and analytical framework were iteratively refined throughout the data collection process, allowing new theories or unanticipated outcomes to be explored.

As a starting point, to understand the integration of new graduates into their respective countries, we examined how the five main inputs (foundation training, leadership, clinical services, standards, and advocacy) via their various subcomponents, might have led to integration. Our initial conceptualisation of integration explored: access to services for clients, nationalisation of workforce, durable job opportunities and adequate resources for services, and retention of the workforce.

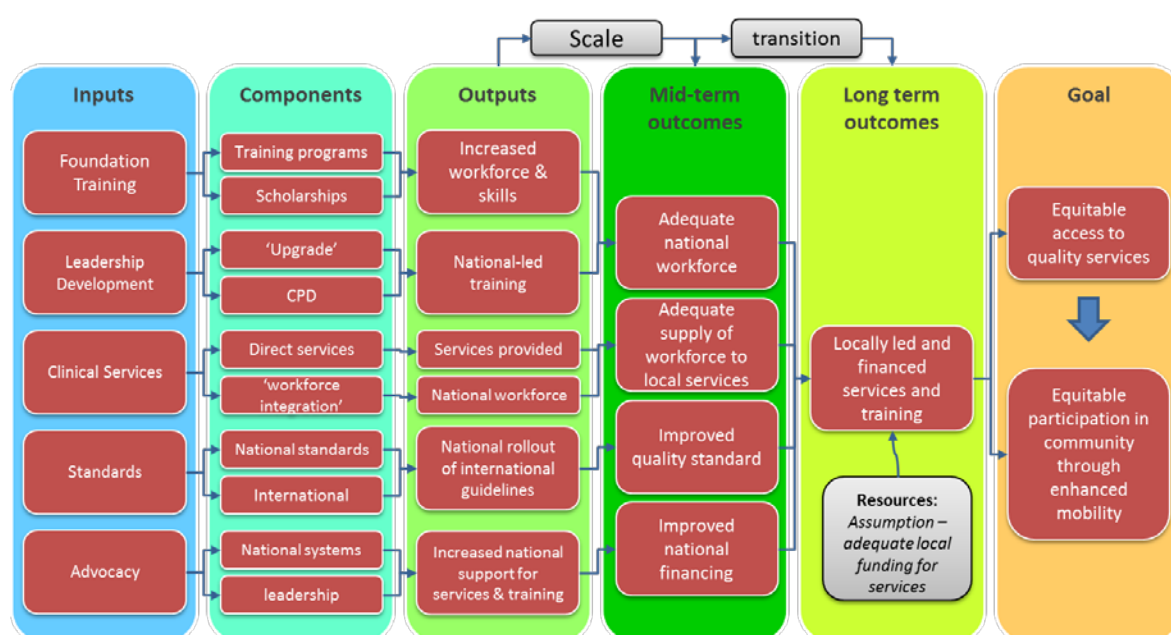


FIGURE 1 - OVERALL INVESTMENT LOGIC



## *STUDY SETTING*

The study was designed to examine the impact of Nippon Foundation's investment through CT/Exceed in Cambodia, Indonesia, Myanmar, the Philippines and Sri Lanka. A further investment in training ISPO Category I baccalaureate graduates in Thailand was also explored. In the case of Thailand, strengthening training had the dual intent of boosting training available for Thai students, while offering a regional locus for high-quality training and leadership development.

Some respondents had also participated in Nippon Foundation supported upgrade programs in Australia and Tanzania. To understand impacts on the Thai P&O sector, we also examined client and graduate experiences in the Thai program. By using a multiple case (country) design, our interpretation of findings and conclusions attributes more generalizability to themes that arise in multiple contexts[10].

## *SAMPLING*

To understand human resources development, we conducted in-depth interviews with stakeholders including graduates, management, staff, DPOs, referrers, duty-bearers, and others. All graduates of relevant programs were included in the sampling frame. We aimed to interview 6-10 graduates per country, purposively sampling from available alumni lists to balance gender, years since graduation and where possible, career destination.

External stakeholders were chosen in consultation with the country programs and Exceed Worldwide management, guided by a list of potential informant types. Between 6-10 sector respondents were initially listed in each country and invited to participate. During in-country work, additional sector informants were identified and invited to participate.

To describe the impact on services, we sourced and analysed available, de-identified, databases of current students, graduates, and clinical service statistics of clinical programs associated with the Exceed training programs and SSPO.

To understand the impact on consumers' lives, we conducted in-depth interviews with current clients of Exceed and SSPO graduates. In all countries except Indonesia, this included services provided directly by Exceed or in partnership with national authorities, and nationally-run services. In Indonesia, interviews were conducted by telephone, and in person at a national NGO in Bali. We used a waiting-room sampling strategy, using all adult (>18y) clients attending during the time of in-country visits as the initial sampling frame. Aiming for between 6 and 10 client respondents in each country, respondents were purposively sampled to balance age, sex, and the types of services used.

Ethics approval was not obtained for field-work in Sri Lanka during the study period. The analysis of the Sri Lankan situation reported here is derived from consultations with Exceed staff and review of available documentation and reporting on the Sri Lankan program and its outcomes.

## *DEVELOPMENT OF QUESTION GUIDES*

Question guides were developed by drawing from current literature on orthotics and prosthetics standards and measures of integration selected from health systems strengthening guidelines. Our definition of integration considered how graduates transitioned into new workplaces and health services environments. We also explored broader concepts of health services integration,

which concerns how a the model of health care and specific health system functions (services) are brought together [11] to provide timely and appropriate care.

Through discussion with key program stakeholders, the question guide and methods were refined further. We used frameworks and standards for health systems strengthening, ISPO standards, and P&O program guides to develop an initial question guide. To appropriately define and understand the concept of integration as it applied to the overall program goals, question guides and working definitions were adapted and refined with the Nippon Foundation stakeholders, then iteratively through the research process.

## WHO WE INTERVIEWED

**TABLE 1 - OVERVIEW OF INTERVIEW RESPONDENTS BY COUNTRY.**

\*Total does not include multiple participants in mixed groups

Respondent type	KH	IN	MY	PH	SL	TH	Global	Total
<b>Consumer</b>								<b>35</b>
<i>Female</i>	4	4	3	2		1		14
<i>Male</i>	2	3	5	5		6		21
<b>Graduate</b>								<b>35</b>
<i>Female</i>	1	4	7	4		3		19
<i>Male</i>	2	1	1	3	1	4		12
<i>Mixed Group</i>	5							5
<b>Employer</b>								<b>9</b>
<i>Female</i>				1		1		2
<i>Male</i>		1	3			2		6
<i>Mixed Group</i>	1							1
<b>Teaching staff</b>								<b>6</b>
<i>Female</i>				1		2		3
<i>Male</i>						2		2
<i>Mixed Group</i>	1							1
<b>Exceed Management</b>								<b>4</b>
<i>Female</i>				1				1
<i>Male</i>			1				1	2
<i>Mixed Group</i>	1							1
<b>Non-Consumer</b>								<b>3</b>
<i>Female</i>	1			1				2
<i>Male</i>	1							1
<b>Other</b>								<b>9</b>
<i>Female</i>			4	1			2	5
<i>Male</i>	2		1				3	3
<i>Mixed Group</i>	1							1
<b>Grand Total</b>	<b>22</b>	<b>13</b>	<b>25</b>	<b>19</b>	<b>1</b>	<b>21</b>	<b>6</b>	<b>108*</b>



## INTERVIEW METHODS

We collected qualitative data during 7 in-country visits and by remote consultations concerning an 8<sup>th</sup> country (Sri Lanka). First, one researcher visited the Nippon Foundation and Exceed management to refine research methods, aims and the conceptualisations of key themes of interest, especially client impact and workforce integration.

Next, 5 in-country visits of around 5 days each, were conducted by either one or two researchers. Visits were scheduled after relevant administrative and ethical approvals and travel logistics were arranged. CT/Exceed staff and SSPO staff in Thailand, appointed a research focal point who supported scheduling arrangements with key sector informants. We recorded field notes and, in some cases, audio recordings, which were transcribed verbatim by the research team.

## VISIT DATES

**TABLE 2 - DATES OF IN-COUNTRY DATA COLLECTION**

Country	Date
Japan	June 2017 3 days
Exceed management	July 2017 3 days, 1 researcher
Cambodia	September 2017 5 days, 2 researchers
Indonesia	May 2018 5 days, 1 researcher
Myanmar	August 2018 5 days, 2 researchers
Philippines	March 2018 5 days, 2 researchers
Sri Lanka	Remote consultations, late 2018/2019
Thailand	June 2018 6 days, 1 researcher

## PROGRAM DATA

Through consultations with exceed staff (and SSPO), templates for graduate outputs and overview financial records were completed. Graduate outputs were verified by cross referencing ISPO evaluation reports and program annual reports where available.

## DATA ANALYSIS

Available output data on clinical services and graduates were compiled, cross-checked with other sources, and summarised using descriptive statistics and cross-tabulation.

Qualitative data arising from key informant interviews, document analysis and focus groups were analysed with inductive and deductive methods. Informed by realist review, theories were formed based on a program logic. We asked;

- *did the intervention have the intended effects?*
- *what are the long-term impacts?*
- *under what circumstances?*

Analysis first involved assigning interview transcripts and other raw data such as program documentation to pre-defined themes based on the refined program logic and initial frameworks. In that process, new themes relevant to the topic emerged. Findings from earlier countries were used to refine question guides for subsequent data collection.

Emerging themes were further classified as positive or negative, or neutral descriptions of events. Relevant passages of transcripts were assigned to multiple themes where relevant, allowing for interpretation of how different themes intersected.

Data were coded separately by one of two researchers, with around 1 in 4 transcripts coded by 2 researchers. Code hierarchies and structures were discussed and refined throughout the coding, analysis and interpretation.

To understand if outcomes were expected or not, we drew on program documentation, especially CT/Exceed's master plan and consultations with Exceed management and the Nippon Foundation. By examining whether some consequences were positive and expected, positive but unexpected, or negative and unexpected, we developed interpretations of how the program of CT/Exceed and others intersected with the local context and conditions to impact workforce integration, and consumers. Our interpretations consider positive and negative consequences, as well as potential 'missed opportunities for impact', arising from testimonies.

Image: W. Pryor

# OFFICE



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## OVERVIEW OF SUPPORT & COUNTRY PROFILES

Overview of the countries we analysed,  
including a snapshot of the main outputs for  
each program.

## *A SNAPSHOT OF OUTPUTS OF 6 P&O TRAINING PROGRAMS IN ASIA*

Table 3 on the next page, summarises the overall financial support, outputs and status of training programs.

Information about graduate demographics, each program was examined to provide an overview of the scale of a new workforce and the clinical services they provide, emphasising services provided directly through the investment.

Sociodemographic information including gender, was not available from all programs. A crude estimate of the years of services provided was computed by extrapolating from data where there was information about the years of service provided by graduates.

There was no available data concerning the clinical outputs of graduates working outside of programs supported by Exceed and its partners, and of SSPO in Thailand. To estimate the number of services provided, we applied a simple estimate of a caseload of 150 clients per working professional per year.

More detailed information about the service outputs was available from programs directly supported by the Nippon Foundation is provided in the Country Snapshot section.



**TABLE 3 - OVERVIEW OF SUPPORT AND OUTPUTS**

	<b>Cambodia</b>	<b>Indonesia</b>	<b>Myanmar</b>
<i>Support overview</i>	Via scholarships for students	~USD\$10.5M	~USD\$3.5M for the school project, and ~USD\$2M For clinical services
<i>Support start and current status</i>	Initial support: 1991. Training program launched 1994	2008 – program handed over in 2018	2014 - ongoing
<i>ISPO recognition</i>	Category II since 1999	Category I since 2012	Category II since 2016
<i>School partner / location</i>	Faculty of Prosthetic and Orthotic Engineering of the National Institute of Social Affairs (Since 2016)	Kementerian Kesehatan RI Politeknik Kesehatan Kemenkes (Ministry of Health, Health Polytechnic),	Teaching program: University of Medical Technology, Yangon (UMTY) Clinical services: National Rehabilitation Hospital & Mandalay Orthopaedic Hospital.
<i>Graduates supported</i>	219. 115 are Cambodian, of whom 76 were working in 2016. 74 (F), 145 (M). From 23 countries.	63 <sup>4</sup> ~70% of graduates and current students are women. All are from Indonesia.	19 Category II (at MSPO) 17 Category II and 2 Category III (CSPO)
<i>Current students (2018)</i>	36; 15 (F), 21 (M)	70; 54 (F), 16 (M)	35; 27 (F) 8 (M)
<i>Estimated graduates still working</i>	169 <sup>5</sup> across all countries 76 in Cambodia	Estimated that almost all are still working.	Estimated that only 1 has left the profession.
<i>Estimated total years of service</i>	1409	273	117
<i>Estimated number of services<sup>6</sup></i>	211,000	41,000	18,000

<sup>4</sup> Until the end of 2017.

<sup>5</sup> Findings from CSPOs alumni tracking registry

<sup>6</sup> Based on 150 major treatments per active clinician, per working year.

TABLE 3, CONTINUED

	<b>Philippines</b>	<b>Sri Lanka</b>	<b>Thailand</b>
<i>Support overview</i>	~USD\$5.6M	~7M USD	~USD\$8.7M
<i>Support start and current status</i>	2012 - ongoing	2005 – Program fully handed over in 2016	2001-2014 Scholarship support through other programs ongoing
<i>ISPO recognition</i>	Category I since 2015	Category II since 2006	
<i>School partner / location</i>	University of East Ramon Ramon Magsaysay	Ragama Rehabilitation Hospital	Sirindhorn National Medical Rehabilitation Center (2001-2005) Siriraj Hospital / Mahidol University (2005-2014)
<i>Graduates supported</i>	38	70	152
<i>Current students (2018)</i>	46; 24( F), 22 (M)		26; 14 (F), 12 (M)
<i>Estimated graduates still working</i>	~Estimated that almost all are still working.	65	Data unavailable
<i>Estimated total years of service</i>	117	525	784 <sup>7</sup>
<i>Estimated number of services<sup>8</sup></i>	18,000	79,000	118,000

<sup>7</sup> Based on estimate from the median years of service from other program graduates

<sup>8</sup> Based on 150 major treatments per active clinician, per working year.

## CAMBODIA

Cambodia has experienced decades of conflict, violence and displacement, including the genocide of up to 3 million Cambodians by the Khmer Rouge regime. More than a decade of civil war followed.

During this period, anti-personnel, anti-vehicle and other unexploded remnants of war left Cambodia one of the most ERW affected countries. After 1991, displaced Cambodians began to return home. Their need to farm heavily mined land, caused staggering loss of life and injuries. The total number of casualties and injuries are not clear but is estimated to be more than 65,000 casualties and 45000 injuries since 1979<sup>9</sup>.

Cambodia Trust was founded in the UK in 1989. Among its priorities was to address the needs of landmine survivors.

The Cambodian activities of Cambodia Trust (now Exceed Worldwide) are the origin of the current programs and Nippon Foundation support to Prosthetics & Orthotics throughout the region.

Initially, Cambodia Trust employed expatriate staff and imported materials to provide direct prosthetic and orthotic care. Responding to a need for Cambodian expertise, they allied with the American Friends Services Committee and collaborated to align methods of teaching for orthotics and prosthetics and to share staff, infrastructure - and modest funds. There was no specific budget for the training. NGOs working at the time nominated staff for training. In early 1994, 12 weeks after preparations started, six men, all Cambodians, started their training.

These were the first students of a program that now spans 6 countries and has been operating for 25 years.

The training was practical, and involved 2 years of classroom training, followed by a year of work, mentored by expatriate clinical supervisors. Despite the attempts to harmonise different NGOs, there were many different approaches. One strategy was to introduce a Board of Studies (BoS) to guide curriculum development and the training. Comprised of P&O experts from different service providers and Government of Cambodia representatives, the Board is still in place today. A proposed next step for the Board of Studies is for it to become an international advisory board

The original goal was to see 150 trained Cambodian prosthetists and orthotists working. By 2016, 131 of a total of 219 graduates were Cambodian, 169 of whom are still working today.

The program has gone through many changes since its inception in 1994. It was among the first programs to be recognised by ISPO, with its first category II<sup>10</sup> recognition in 1999. CSPO recently became the Department of Prosthetics and Orthotics of the Faculty of Prosthetic and Orthotic Engineering of the National Institute of Social Affairs; the first students of the new Bachelor

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<sup>9</sup> [www.the-monitor.org/en-gb/reports/2015/cambodia/casualties-and-victim-assistance.aspx](http://www.the-monitor.org/en-gb/reports/2015/cambodia/casualties-and-victim-assistance.aspx)

<sup>10</sup> ISPO recognition was formally described as category I, II or III, which have been superseded by professional descriptions; Prosthetist/Orthotist, Associate Prosthetist/Orthotist and Prosthetic/Orthotic Technicians respectively. More information is available at <https://www.ispoint.org/page/Accreditation>.

program graduated in November 2017. Category I level training is planned for 2021 if there is funding and interest from the Higher Education Department.

To help transition CSPO management and teaching to Cambodian professionals, Nippon Foundation supported two cohorts of students to undertake a bachelor's degree in Prosthetics and Orthotics at La Trobe University in Australia. Based in Cambodia, with a 3-month practical and clinical semester in Australia, the program used blended learning. Students from Sri Lanka, Laos, Pakistan and Sri Lanka were also part of the program.

CSPO's management and educational program has been under full local leadership since 2012.

### *An overview of services in Cambodia*

Orthotic and Prosthetic services are run almost entirely through a network of 11 Physical Rehabilitation Centres. The centres were established during the 1990s by four main NGOs (with support from other partners). Exceed Social Enterprises provides a private, not-for-profit clinical service, and there are a handful of other options for private services.

In the last few years, international support has been progressively withdrawn from the P&O sector in Cambodia. In 2019, only three major NGOs will remain, and support 6 of the 11 main centres. Others will be overseen by the Persons with Disabilities Foundation and the Royal Government of Cambodia.

### *Policy for prosthetics and orthotics*

National guidelines for Physical Rehabilitation Service were endorsed by the Royal Government of Cambodia in 2005.

Prosthetic and Orthotic services are now overseen by the Persons with Disability Foundation (PwDF), under the Ministry of Social Affairs, Veterans and Youth Rehabilitation, and the Ministry of Economy & Finance. PwDF was established in 2011 and has progressively assumed more responsibility over the network of Physical Rehabilitation Centres.

However, Prosthetists & Orthotists are not formally recognised by government (through registration or licensure), but the transition of the training the National Institute of Social Affairs is an important milestone. By having national recognition of the only training program, it is hoped the profession will be better recognised by government. The current bachelor's degree is formally recognised by the Cambodian Ministry of Education, and the diploma degree it replaced was recognised by the Ministry of Sports, Veterans and Youth.

The plan to establish ISPO Category I training in 2021, in collaboration the University of Health Science (UHS), will align P&O education with national educational and professional frameworks. By doing so, the likelihood of appropriate recognition or licensure for P&Os through the Ministry of Health should increase and may lead to better recognition of the profession within the Cambodian health sector.

## Financing

Since transfer of responsibility of services to PwDF, iNGOs have progressively withdrawn. Some centres operate only with PwDF (Government of Cambodia) financing, while others receive subsidies from iNGOs. In this network of P&O services, services are free for all, including allowances for transport, accommodation and food. Only low-cost, polypropylene technology is available. The MoH supports a national component factory (established and handed over by ICRC), which aims to minimise the costs of materials and components.

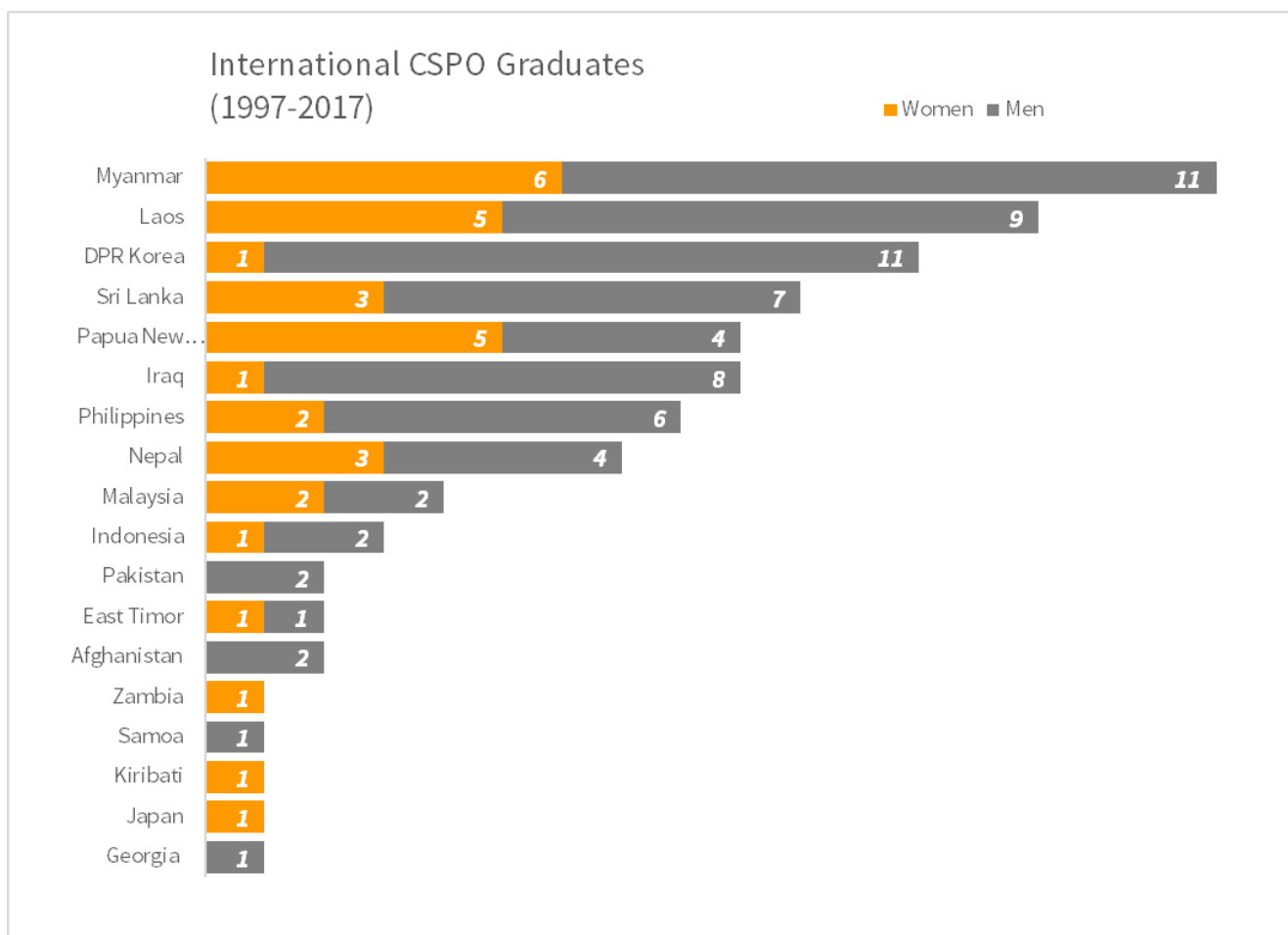


FIGURE 2 - INTERNATIONAL CSPO GRADUATES



## CLINICAL SERVICES

### Exceed's direct services

Exceed directly runs three rehabilitation centres; Phnom Penh, Kampong Som, and Kampong Chhnang.

**4,911** clients were treated in 2016, 652 of whom were new.

**20,563** unique clients were seen by CSPO/Exceed between 2000 and 2016<sup>11</sup>, for prosthetics, orthotics and other assistive products

**10,375** of them were children.

Between 2000 and 2016, Exceed provided

**25,576** unique devices, and more than 17,000 repairs<sup>12</sup>.

In 2015, Exceed Worldwide launched its social enterprise model of services. Exceed Social Enterprises in Cambodia has seen over

**300** clients.

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<sup>11</sup> The earliest reliable records of service outputs start in the year 2000.

<sup>12</sup> Minor repairs are not always recorded: this is likely to be a crude estimate and grossly underestimate the real number of repairs.

### *More than the guy with two boats – Bopha’s story*

In the late 1980s, when Bopha<sup>13</sup> was 8, there was heavy shelling near her school while playing near the side of the road. She and her friends ran away. She became stuck on the opposite side of the road to her friends. While trying to cross over, she was hit by an army truck. Her leg was amputated in a nearby field hospital. It became infected, and she recalls her parents spending all their savings on her medicine. About two months later, she visited a rehabilitation service working through a local temple. After three weeks, she was excited to get her first leg. Made of wood and leather, it was hard and uncomfortable, and couldn’t be adjusted. She tried to use it - but gave up after 3 months.

In 1991, Bopha went to Calmette Hospital, and has been going to CT/Exceed clinics ever since. “It’s hard to remember how many times I have been there!”, she says.

After her accident, Bopha did not return to school. She didn’t work until she was 23, after her mother died. Now, she operates a boat business on the river near her home. On the river, there is an island with vegetable plots. Her clients travel there every morning and evening.

When she needs a new leg, she often waits for a convenient time, where there is not much work.

*“I can make 25USD/day during [festival time] – I don’t want to leave [then]. Another guy, he even had two boats, but I made more than him last year! This is the time to make money. I never married so I can work very hard.”*

Sometimes, including today, her leg gets painful, or broken, so she perseveres. The pain isn’t too bad, and she can manage. Visiting Phnom Penh is 90 minutes away in a taxi, which she can afford without too many worries. Sometimes, she will offer to take other people. She recommends the services to other people. In Bopha’s village, there are people affected by Polio, and children born with limb problems and other impairments. She recalls one woman.

*“I told her to go there, and now she graduated from school.”*

But, sometimes people are angry for recommending such things; they are often fearful that the costs are high, and that costly and dangerous surgeries will be needed. Bopha shares her knowledge of the services she has used for nearly 30 years.

*“When people notice that I have a prosthetic leg and can still drive a boat they say so many times ‘that’s cool!’”*

Now, Bopha tells us that her prosthesis is mostly comfortable, and better than the ones she used as a young girl. But, sometimes she still has pain, and cannot walk a long way if she needs to. Made by a student, the leg she has now is painful, and she will visit as soon as there is a quiet time in her business. Mostly she is happy with the services she gets at Exceed – but

*“one guy, one older guy, he teases me – he says, ‘why do you come back again!’, so I get shy; I don’t want to go back for some time.’*

Bopha’s story is not uncommon in Cambodia. She has experienced costly health services, challenges getting care, and a life of commitment to take time off her work and life, to get prosthetic and orthotic services. Despite the challenges, access to prostheses make a real difference.

*“Without it [the prosthesis], I wouldn’t go out, I would stay in one place. I would be disabled.”*

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<sup>13</sup> Name changed for anonymity



## INDONESIA

Cambodia trust, with the Nippon Foundation and Indonesian partners had been discussing a way to strengthen P&O education in Indonesia since the early part of the 00s. The need in Indonesia was – and is still – very large. A population of well over 260 Million people is distributed over a huge archipelago, without prominent attention to P&O in national health programs. A school in Solo provides Indonesia with P&O graduates, without international recognition, and with unstable levels of international financial and technical support.

After the success of the Cambodian program, The Nippon Foundation was interested to explore options for expanding the program of P&O education support. Indonesia and Sri Lanka were considered. The needs were both high, and there were emerging relationships with relevant national experts and leaders. A pause in ongoing conflict in Sri Lanka created an opportunity to start work there. Finally, after planning during 2006 and 2007, the Jakarta School for Prosthetics and Orthotics (JSPO) was established in 2008.

A facility for P&O education constructed by renovating a nursing school. The program launched under the auspices of Indonesia's Ministry of Health and the *Kementerian Kesehatan RI Politeknik Kesehatan Kemenkes* (Ministry of Health, Health Polytechnic), with technical support from Exceed (then Cambodia Trust) and financial support from the Nippon Foundation.

The original plan in Indonesia took the huge population into account. It was estimated that 7 schools would be needed to approach the need. Today, JSPO graduates are working in Indonesia or traveling abroad. Their well-regarded qualifications and language skills mean they are also sought after in Malaysia, where many graduates are now working.

After the planned 10 years of support, Exceed Worldwide handed over management to national authorities in 2018.

### *An overview of services in Indonesia*

Prosthetics and Orthotics services in Indonesia are sometimes – but not commonly - included in larger public hospitals. There are many small private operations, with variable quality. Large multinational service providers are a major employer and service provider among those with capacity to pay. Some national NGOs provide clinical services. After the 2004 Tsunami, Handicap International supported clinical services and the Solo School for Prosthetics and Orthotics for around 5 years. Exceed's Social Enterprises not-for-profit company has launched services and procurement.

### *Policy for prosthetics and orthotics*

Currently, all graduates with a Bachelor level degree (available at JSPO and in Solo) are eligible for employment under national policies. New national (civil servant) positions are becoming available at hospitals. There is a strong ISPO national member society, and vibrant civil society engagement, largely driven by the medical fraternity.

## *I CAN DO WHAT MY SISTERS DO - PUTU'S<sup>14</sup> STORY*

Putu is 18 years old and goes to boarding school. She was born without a right foot. Her mother recalls a Puspadi Bali, a national NGO's outreach team, coming to her community. They shared information about prosthetic services. Before that, her parents didn't try anything else, assuming there was nothing that could be done.

*"I have been coming here for 16 years, mostly with my parents. I came every 6 months while I was in elementary school. It's easy, there is no problem. The staff answer my questions.*

Her early treatment was mostly physiotherapy, before getting a prosthesis.

*"Before I got a prosthetic, I was kneeling. I couldn't go far. Now [with a prosthesis] I can walk long distances and go to school. If I didn't have that [prosthesis] I would go to school, but probably a special school. My parents would have sent me there, and my activity would have been limited, I might not feel as confident."*

There are no costs to visit Puspadi Bali, which makes accessing the services easy for Putu. She thinks using a prosthesis has made a big difference to her life.

*"I can help my parents – they could go to work without worrying about me. I can do the same things as sisters, and I like to dance. I can dance and play badminton with this prosthetic."*

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<sup>14</sup>Name changed for anonymity

## MYANMAR

Since 2007, only Afghanistan and Colombia have experienced more landmine casualties and injuries than Myanmar<sup>15</sup>. The Myanmar Information Management Unit reports that ‘seven of Myanmar’s 14 states are contaminated with landmines/ERW’[12]. Clearance is slow, and contamination is still growing with protracted conflicts, especially in the eastern states.

But, landmines are only one threat that leads to Myanmar’s high and mostly unmet need for orthotics and prosthetics services. Like other countries in the region, NCDs, road traffic and other accidents, congenital impairments – along with a growing and ageing population – will require a strong P&O workforce to ensure orthotics and prosthetic are accessible for all.

The Myanmar School for Prosthetics and Orthotics illustrates how the Nippon Foundation is not only a donor, but a key player in the bilateral relations necessary to launch and steer programming. The Government of Japan has appointed Nippon Foundation’s Chairman, Mr. Yohei Sasakawa, an honorary Goodwill Ambassador to Myanmar. Experiences from other Nippon Foundation supported P&O training meant the Nippon Foundation could confidently propose support to P&O education as a goodwill gesture.

To support Myanmar authorities to tackle the challenges for providing P&O care, Exceed Myanmar was established in 2015.

It’s first major program – a School of Prosthetics and Orthotics, was launched at University of Medical Technology, Yangon (UMTY) 17<sup>th</sup> January 2015. Financed by the Nippon Foundation, this school is a collaboration between the Ministry of Health Myanmar, Exceed Worldwide and UMT-Yangon.

The P&O program at UMT-Yangon offers 3-year training with a 4<sup>th</sup> year clinical internship at the National Rehabilitation Hospital. In 2016, ISPO recognised the program as a Category II program. First year subjects are taught alongside other health sciences disciplines. The program can accommodate up to 16 students each year.

### *An overview of services in Myanmar*

Exceed Myanmar supports the National Rehabilitation Hospital’s prosthetics & orthotics department, and the prosthetics and orthotics clinic at the Mandalay Orthopaedic Hospital.

ICRC and its partners (Ministries of Health & Defence, Myanmar Red Cross), the Myanmar Military and some private providers also provide prosthetic and orthotic services. ICRC supports programs in 4 sites, and the production of feet at the National Rehabilitation Hospital in Yangon. In 2016, ICRC in Myanmar reported treating 3,370 clients across their 4 sites, including 237 new prosthetic and 57 new orthotics orthotic clients.

### *Policy for prosthetics and orthotics*

Despite the long-term commitment of National authorities and ICRC, P&O is still poorly understood by people in Myanmar. Within the health sector, there is good support, but no formal recognition of the profession. Among the graduates of the MSPO program who are working in government services, most occupy posts of nurses, physiotherapists or other health disciplines, since P&O is part of health services staffing lists.

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<sup>15</sup> Landmine Monitor – the-monitor.org, cited in Myanmar Information Management unit infographic



### *Financing*

P&O services provided at the MoH and Ministry of Defence hospitals are financed by the Government of Myanmar. At the National Rehabilitation Hospital in Yangon, and Orthopaedic Hospital in Mandalay, services are currently subsidised by Exceed, with Nippon Foundation financing. Services provided by ICRC are free of cost and funded by ICRC from their institutional funds.

### *Exceed's direct services*

Between 2013 and 2016, the National Rehabilitation Hospital provided<sup>16</sup>

**7700** total products

Comprising nearly

**4000** orthoses,

more than

**2100** prostheses, and

**1600** other assistive products

And recorded around

**600** repairs.

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<sup>16</sup> Data from Myanmar do not allow for reporting of the number of individual beneficiaries

## TWO HANDS FOR PRAYING – DAW SANDA’S STORY

Daw Sanda<sup>17</sup> was working at her job in a machinery workshop when she sustained an injury to her right hand that resulted in amputation below the elbow. At 41 years of age, Daw Sanda was a busy, independent woman – working, caring for family members, active in her community.

After her injury she was sad and feeling a loss of her independence:

*“Before I was doing everything for myself. Now I feel shy about my injury and I can’t do anything. I feel sad. Before if I wanted to eat I would go out to buy something to eat but now I wait in the house for someone to bring food to me.”*

*“I was a right-hand user, now I am trying to use my left hand to do things. But it takes a long time, for example to do the ironing, the cooking. I cannot do like I did before.”*

In the months following her injury, Daw Sanda relearnt how to do many of her daily activities with her left hand, but there was an important part of her life weighing on her mind.

*“In the Buddhist religion you must pray with 2 hands. Now I have one hand I cannot pray.”*

Then she came to the rehabilitation hospital where she met other people with injuries and found she could get a prosthetic hand. This has lifted the weight off her mind and helped her regain her sense of self and feel able to participate in the things that are important to her.

*“Now I am happy I will get the artificial hand, so I can pray again. Since I come to NRH and saw lots of people who have injuries and have lost more than me, I realise I can wear a long sleeve shirt with my artificial limb and no one will notice that I have lost a hand. I feel happy,”*

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<sup>17</sup> Name changed for anonymity

## PHILIPPINES

In the Philippines, the prosthetics and orthotics sector is changing rapidly. Until quite recently, there were no active plans for the evolution of P&O services. Local service providers were mostly informally or self-trained, using ad-hoc components.

Orthotics and prosthetics services are mostly needed by people with NCDs, neurological impairments or road traffic accident survivors, but recent high-profile events like conflict in the south of the Philippines, the 2010 Bar Exam bombing and Typhoon Yolande/Haiyan in 2013 have raised the profile of prosthetics – and to a lesser extent, orthotics – in the national psyche.

To address the poor quality and shortage of services, Philippine authorities started a more formal response by supporting a cohort of young Philippine people to study in Cambodia. The first 3 graduates returned to the Philippines in 2007. Around that time, efforts to introduce a national training program were not successful, mostly since the necessary start-up financing for materials, equipment and expertise, could not be found. Based on a Physicians for Peace feasibility study, Exceed's planned to launch a school in the Philippines. At first, the school didn't proceed; despite the obvious importance of investing in the Philippines, other countries had to be prioritised. Both Nippon Foundation support and Exceed's expatriate expertise were occupied by other projects.

But later, after the Sri Lankan and Indonesian programs were launched and working effectively, the Nippon Foundation sought a 4<sup>th</sup> program to support with Exceed and returned to Philippines concept. There were strong networks, and trusted partners and collaborators in place.

Through a collaboration between University of East Ramon Ramon Magsaysay, Cambodia Trust, and the Nippon Foundation, The Bachelor of Prosthetics and Orthotics at the (UERM) commenced for the 2011/2012 academic year, at a new school known as the Philippines School of Prosthetics and Orthotics (PSPO).

### *P&O services in the Philippines*

Nippon Foundation/Exceed supported graduates include 8 graduates of the CSPO program in Cambodia. By early 2018, 38 new professionals had graduated from the PSPO program at UERM.

Several NGOs provide prosthetics and orthotics care. A few recent PSPO graduates are now working with NGOs. Other people providing P&O services have on-the job or other informal training.

However, much remains to be done. Graduates report challenges finding work. Some work in unpaid or informally paid environments in anticipation of a long-term job in district hospitals. Others are employed as other nurses or therapists, as the P&O profession is not yet officially recognised in health services structures. Public P&O services are progressively scaling up, but are threatened by the new professionals finding opportunities abroad.

A lack of centralised information about current P&O services other than the destination of recent graduates makes it difficult to summarise experiences of people in isolated regions of the Philippines. However, it is safe to assume services are very poor or non-existent outside of major urban settings – and many of those remain under-served.

Exceed Social Enterprises has been operating in the Philippines since 2015, providing clinical services and equipment and supplies.

### *Policy for prosthetics and orthotics*

Until recently, there has been no national plan for developing orthotics and prosthetics services. A national steering committee has been established alongside the Philippines national health insurance program, known as Philhealth, to guide the evolution of P&O services. Among the main challenges is that P&O professionals are not officially recognised. This creates problems accessing the Philhealth packages for reimbursement, since healthcare providers are required to be certified by a national body.

### *Financing*

Today, some prosthetics services are part of national health insurance schemes. The national insurer worked with global suppliers to seek import high quality components at reduced prices, by purchasing in bulk, but whether that program has been effective is not clear. There is a national steering group, guiding decisions about the future of prosthetics and orthotics.

Anecdotal evidence suggests that an emerging middle class, often supported by family diaspora and remittances, often travel abroad for care. Other reports suggest that informally trained, or self-trained people are providing orthoses and prostheses, but that quality of the fit and components is poor at best.

The recognition of prosthetics in the Philhealth national insurance scheme is a unique achievement in the region, despite remaining challenges. Alongside the Philippines School of Prosthetics and Orthotics, health insurance for prosthetics has been an important part of reforms to national P&O services. A more comprehensive analysis of the effectiveness of P&O is outside the scope of this evaluation, but there are mixed reports of how PhilHealth is working for prosthetics care. Challenges included the eligibility criteria and support for repairs and replacements of devices.

## THE FLAT TYRE THAT CHANGED EVERYTHING – GRACE’S STORY.

Four years ago, a month after her 2<sup>nd</sup> child had arrived, Grace’s<sup>18</sup> leg was amputated above her knee. A blood clot had been misdiagnosed. Inadequate treatment meant an amputation was needed. No options were discussed: Grace was simply told that her leg would kill her unless it was amputated

After her surgery, nobody told Grace about options for prosthetic care, or even basic rehabilitation and assistive products. Accessing basic care took ingenuity and help from her community:

*“No, they just sent me home. The company that my husband was working at gave [crutches] to me.”*

But, for Grace to learn about her options, it took a flat motorcycle tyre:

*“...there is a guy in a vulcanising shop, and I went there to get a tyre. That guy was an amputee, and he told me about this place [UERM/PSPO]. He made the referral and gave me a number. He saw me with no leg and he told me [about services here]. I came here, and then the wound was not healed yet. They told me to rest and wait, and it was 4-5 months to wait before it completely healed, before they scheduled an appointment for my prosthetic plan.”*

Eventually, her prosthesis and exercise plans have made a difference. Grace says:

*“My self-esteem was very low at that time [after amputation surgery], so it helps me know that this place is here, and I can come to get a prosthetic and I have hope again.*

*As a mom, I can do chores at home - I can still walk if holding something, but I can do what I need to do. [My children] are 5 and 2 years old, and 6 months. It would be very difficult without prosthetics - I can do whatever I want. I can do it all, without help. If my husband is working I can take care of things. To leave the home, sometimes he has to help me, it depends what I am doing. If it is one ride, not far, I would be able to do that...”*

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<sup>18</sup> Name changed for anonymity



## SRI LANKA<sup>19</sup>

After the Cambodian School for Prosthetics and Orthotics, the Sri Lankan School for Prosthetics and Orthotics was the Cambodia Trust/Exceeds second major collaboration on a training program.

Links between the Cambodia Trust, the Nippon Foundation and Sri Lanka commenced many years before a training program was launched. In the late part of the 1990s, the Cambodia Trust explored how it might support the development of Prosthetics & Orthotics in Sri Lanka, driven largely by the obvious needs emerging from the civil war, which had begun some 15 years earlier.

Some low-level P&O training had existed in the past, but the need arising from protracted civil conflict was not being met. The Sri Lankan Armed Forces provided P&O services and recognised a need to update its capabilities to address the needs of injured personnel. By 2005, five Sri Lankan Armed Forces personnel had graduated from the Cambodian School for Prosthetics, and formed the basis of ongoing relations between Sri Lanka, the Cambodia Trust/Exceed, and the regional prosthetics and orthotics sector.

At the same time, planning was underway between the Cambodia Trust and the Sri Lankan Ministry of Health to introduce new P&O professionals into the Sri Lankan health system. A 3-year, category II training program, technology transfer and upgraded clinical services were established in 2005. After a challenging period of teaching in hot, poorly equipped shipping containers, a new, purpose-built Training centre – The Sri Lankan School of Prosthetics and Orthotics – was built and launched at the Ragama Rehabilitation Hospital. The SLSPo also hosted a Centre of Excellence for P&O. Further clinical services were planned to be integrated with existing medical and other health services in Sri Lanka.

After more than 10 years of collaboration, the SLSPo was officially handed over to the Sri Lankan Ministry of Health in 2016. It was the first program launched by Exceed with Nippon Foundation support to be successfully handed over to national authorities. Today, SLSPo continues to strengthen Sri Lanka's P&O workforce as an ISPO Category II recognised program.

### *P&O services in Sri Lanka*

The first Sri Lankan prosthetics and orthotics professionals were Sri Lankan Army personnel and 5 civilians who graduated from CSPO in the first part of the 00s.

As new graduates have entered the Sri Lankan workforce first through CSPO and then SLSPo, they have progressively been appointed in national hospitals. Early graduates met challenges with government employment. Recognition of P&O in the Sri Lankan health personnel cadre took several years. Many graduates were employed directly by NGOs, especially in the northern part of the country, which was often still in active conflict until 2009.

Today, it is estimated that at least 65 of SLSPo's 70 graduates and 10 graduates from CSPO are working across the Ministry of Health, the Sri Lankan Army, and in private practice. Dual practice – where professionals run a private service as well as working for the Government, is relatively

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<sup>19</sup> Approval for field-work was not provided in the time available for reporting. Findings are based on desk-based analysis of available documents, remote consultations

common in Sri Lanka. Two SLSPo graduates are known to be working in P&O outside of Sri Lanka.

### *Policy for prosthetics and orthotics*

Health professionals in Sri Lanka are recognised through a cadre system, wherein a national quota for health professionals is determined and allocated to hospitals. Prosthetists and Orthotists are recognised with a similar status to other paramedical or allied health staff, like physiotherapists. The SLSPo diploma program is recognised by the MoH as being the minimum entry to the national cadre.

### *Financing*

Through the national hospital system, prosthetics and orthotics services are provided free of cost. The growth and volume of private practice demonstrates that individuals are willing and able to self-finance value-added services through private practice. The Ministry of Defence is a very significant contributor to addressing the needs, providing free services to current and veteran personnel and their families, free of cost.

### *THEY UNDERSTAND PEOPLE NEED SERVICES – ANANDA’S<sup>20</sup> STORY*

Ananda joined the Sri Lankan army in 1995 and trained as a medical assistant. There was a small P&O service without professionally trained staff. Army leadership recognised a need for clinical and professional excellence to service injured army veterans. Building on his nursing training, Ananda was sent to Germany for a 6-month technical training program in P&O. At the same time, the Army collaborated with the University of Sri Lanka to have Ananda and others join anatomy and physiology lectures to build their expertise, anticipating future need to strengthen the P&O and rehabilitation workforce.

A chance encounter between The Cambodia Trust leadership and a Sri Lankan Army official led to Ananda obtaining a scholarship to attend CSPO, where he finished category II level training in 2002 as the first of many Sri Lankans to study P&O abroad. Later, Ananda obtained a further Nippon Foundation scholarship to obtain the category I bachelor of prosthetics and orthotics degree, through e-Learning at La Trobe University. He studied with a cohort of 12 students in Cambodia and visited Melbourne for a 3-month intensive training semester. Graduating in 2007, he returned to Sri Lanka and his Army responsibilities where he worked until 2018 when he retired as senior P&O and head of the department of P&O at the Sri Lankan Army Veteran’s Hospital.

Ananda recalls the enormous need for P&O within the Sri Lankan Army;

*“There are 9000 affected soldiers including a few new ones from road accidents and diabetes. Most are aged between 25 and 35 who will live for many years in future. Last few years they expanded [P&O services], like new workshop. We have more than 20-25 patients for day, for something new, or repair.”*

In his role as a senior P&O, Ananda was influential in the evolution of services in Sri Lanka and describes the value of high level training.

*“One [MSc graduate] is not 100% working with the patients. He’s the rehabilitation coordinator, working with doctors, PTs, OTs, and P&Os. That is working well because in SL we have lots of rehab people, so he is coordinating across that group. “*

Ananda’s career evolved in parallel with new professionalism for Sri Lankan P&O services. He observes changes in quality of the clinical services, and conditions for staff;

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<sup>20</sup> We use Ananda’s real name at his request.

*“[Before new training for Sri Lankan P&Os], alignment wasn’t correct. It wasn’t even 70% ok - it was 50. They used to direct according to hand skills, but we introduced modular things and fixed alignment, modified things. We modified equipment and found that alignment is better and accuracy increases.*

*People were working in harsh environment [and] didn’t know about safety, so we changed practice like that. Safety equipment and safety procedures and then the whole workshop into a more professional one, with safety [equipment]”*

Like many Sri Lanka P&Os, Ananda describes the active and growing dual-practice sector, where professionals have dual roles in public and private practice, using low-cost ingenuity to generate business;

*“Actually 40% of PO are working in army at the same time as providing a private service to direct pay civilians. After 5 o’clock, Saturdays like that. Like me, I had a private workshop, I worked as a private PO since 2002 like for me, I have around 300-350 patients in that workshop. What we did, we didn’t buy machinery from big companies. We found information from the book and made the equipment locally. Like vacuum and oven and all that stuff, you can buy a lot from the market. For a router we made from things from local market, people can do that.”*

Today, with a strong workforce of Sri Lankan P&Os working for, the Army, Ministry of Health and the private sector, Ananda has retired from the Army, and works as a clinical mentor for Exceed, supporting post-graduate interns from PSPO.

When reflecting on the motivation of Sri Lankan authorities to strengthen P&O, he responds simply;

*“They [government and leadership] understand that people need services.”*

## THAILAND

During the early part of the 00s, recognising the unmet and growing need for prosthetic and orthotic services in South East Asia, Japanese P&O and rehabilitation sector leaders had wanted to collaborate and build a regional network of prosthetics and orthotics professionals, and high-quality training program somewhere in the region. Their vision was for a high quality, Bachelor-level training program.

Japanese and Thai rehabilitation experts from Hyogo Rehabilitation Centre in Japan, and the Sirindhorn National Medical Rehabilitation Center respectively, were already collaborating on rehabilitation medicine. Previous P&O training in Thailand had ceased in 1999 largely due to the difficulties finding expertise to provide quality training. There was a high need for services, existing research expertise, and with potential for component manufacturing. Thailand was an obvious choice to invest in a training program that would benefit Thai people, and had potential as a regional hub for prosthetics and orthotics.

Initial efforts for Japanese financial support were not successful. The Nippon Foundation was approached, and agreed to support the program, recognising the opportunities for the region, for Thailand, and the reputation of the Thai collaborators.

In 2001, a collaboration towards a 4-year baccalaureate program was launched at Sirindhorn National Rehabilitation Centre, building on existing shorter-term training programs.

The Nippon Foundation supported expatriate salaries, new equipment, and grants for 4 Thai students to pursue P&O education abroad. Later, major capital works were financially supported by Sirindhorn National Rehabilitation Centre and Siriraj Hospital, with contributions from the Nippon Foundation at different phases.

The initial program was taught at the Sirindhorn National Rehabilitation Centre under the auspices of the Ministry of Public Health (MoPH), with curriculum support from Mahidol University. Over time, the combined teaching across multiple sites and faculty was rationalised to harmonise and improve quality. Later, the program was moved to Mahidol University, and a training campus, now the Sirindhorn School of Prosthetics & Orthotics, was acquired and renovated. The training prog

The early international intakes included students from Nepal, Pakistan, Vietnam, and the Philippines. Subsequently, the Nippon Foundation has supported students studying at SSPO from Sri Lanka, Indonesia, Cambodia, and Myanmar, while further students from while further students from Sudan, Rwanda, Japan, Bangladesh, Nepal, Myanmar, Vietnam, Laos have studied P&O at SSPO with other financial support. An exciting recent development saw the Thai Ministry of Foreign Affairs offer a scholarship for Senegalese student.

More recently, SSPO and Mahidol University have collaborated with Human Study e.V., a German-based NGO, to provide blended distance learning upgrade program, where students complete e-learning and guided clinical practice, before attending Bangkok for on-site examinations. A 'Centre of Excellence of P&O' is collocated at the SSPO campus, providing high-end clinical services and clinical learning opportunities for SSPO students.

### *P&O services in Thailand*

P&O services in Thailand are provided by public hospitals, national and international private companies, and by military hospitals. The Ministry of Defence has implemented a state-of-the-art mobile service involving a highly modified bus operating as a fully equipped mobile clinic, serving the needs of Thai veterans and their families.

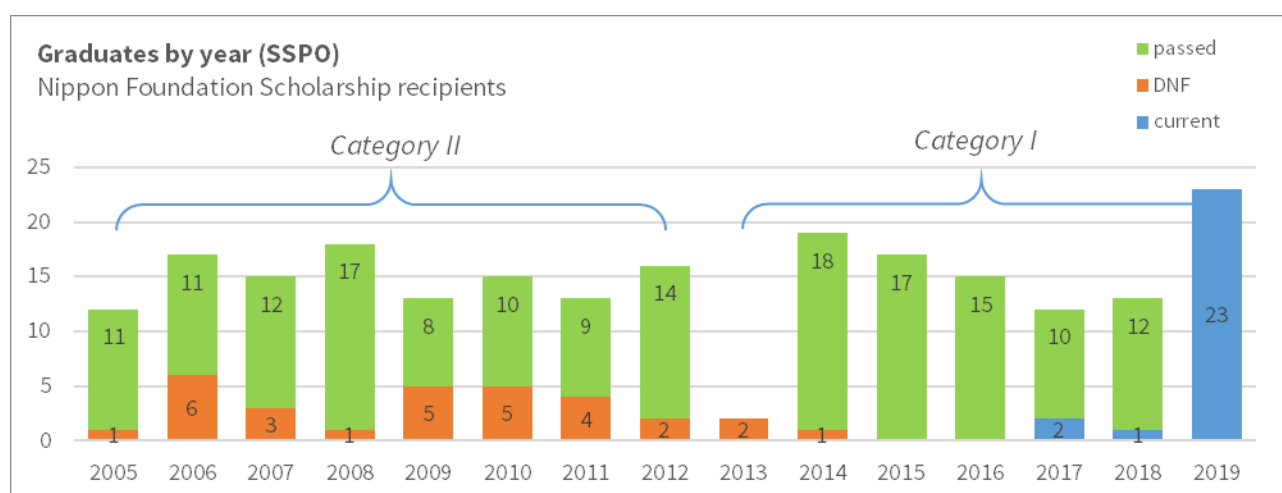
The Sirindhorn School of Prosthetics and Orthotics provides clinical services, which have a dual role of providing care to the community and providing clinical experience opportunities for students.

### *Policy for prosthetics and orthotics*

Since the introduction of a Bachelor program in Thailand, a national licensure process requires a bachelor's degree as a minimum requirement for independent clinical practice. P&O professionals are not required to work under direction of a medical doctor, though in practice, many do. Previously, existing technicians sought a process for recognition of prior experience, but this has not been adopted by Thai authorities. The introduction of Bachelor level graduates has changed how P&Os can be employed by the MoPH, since it was difficult for health professionals to be appointed without at least bachelor-level qualifications.

### *Financing*

Thailand's national health insurance scheme offers roughly US\$220 for exoskeletal transtibial prostheses, US\$400 for endoskeletal, and US\$900 for transfemoral prostheses. Orthotics are funded according to a schedule of services, which is reported to be adequate for most needs. The flat-rate for prosthetic services is described as challenging for more complex prosthetic needs, since \$220 is not enough for more than the most basic components. Consumers can 'top-up' from their own pocket, but many are financially unable to do so. Ministry of Defence clients are provided a fuller range of technology options at no cost. Private patients have a mix of health insurance and out-of-pocket payments.



**FIGURE 3 - GRADUATES BY GRADUATION YEAR, SSPO**

Notes: Includes graduates of both 2-year upgrade and full 4-year program.



## *I'M NOT SURE IF IT'S JUST HARD HERE – AMIT'S<sup>21</sup> STORY*

After leaving school in Nepal, Mr. Amit went to India for 3 years to study a private Bachelor of P&O program. An orthopaedic surgeon had told him about unmet needs for Nepalese P&O services and professionals. Returning home, he joined the Army, who had established P&O services, where he worked for 5 years.

In that part of his career, Amit observed issues with quality and practices, and was looking for ways to build his own skills so he could contribute to the professionalisation of P&O.

*"I have seen lots of things that are not following basic protocols, alignments, procedures, and professional approach, it is not met by the patients and when I see the devices, they are not up to the level of the standards."*

After learning about Nippon Foundation scholarships at an ISPO conference, the Category I program at SSPO present an opportunity, but a difficult personal choice.

*"I did not have support from the army to do the Cat I. Nippon funded that. I could not go back to the army. That was a difficult choice, I had to decide so quickly. They were going to make my job permanent if I stay for one year in the army."*

However, for Amit, upgrade training was an opportunity, and for him, he felt the risks were worth it:

*"Before I went to Thailand I thought a lot about these things, the problem here is developing career, and getting knowledge, so that was a big opportunity from NF to upgrade the knowledge and skills. So obviously if I got experience and skills I [would have] confidence to do anything if I do that course".*

Today, Amit works in his own private practice, leads a national association, and is involved in several international collaborations. Most of his patients are orthotic patients. Money is tight; after paying the rent and staff salaries, the income he receives from his patients is almost always gone.

*"There is enough. No profit, no loss"*

While Amit recalls that his training and previous experiences were adequate to assume new responsibilities in his business and in strengthening P&O in his country, there were a few major hurdles. First was his inability to find an appropriate job, despite his new qualifications:

*"When I [graduated] I [applied for some jobs], but it was difficult to find a job for P&O here. Organisations here are not aware of the Cat I educations and the level of the practice in the field. That is why it hard to find a job if you have the Cat I.*

*There was advertisement for PO [through an iNGO], which [specified Cat I was a requirement] I think they were confused with the education; they hired [someone else] with bachelor's degree but no Cat I. Of course, that was frustrating, personally. In that 1 year I was looking for the job, I was dependent on my wife. I wasn't worried, but it wasn't easy to survive"*

Amit reports many ongoing challenges for clients in his country, but using his experience and global outlook, works towards solutions.

*"Thinking about people living outside of cities, it is impossible to access services, HI has the satellite centres, that is good, but for orthotics it is very difficult, and people still don't know what they need. And those orthotic services are not available."*

*"I don't know about practices and challenges of students in their own countries, like I am not sure if it is just Nepal where it is hard to survive. I am not sure about the knowledge and how to utilise it, so I think I always ask the international stakeholders is there anything we can do together."*

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<sup>21</sup> We use Mr. Amit's real name at his request.

# FINDINGS

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## *ON ATTRIBUTIONS*

We use attributions to illustrate the main themes in our findings and to give voice to the people we have spoken with. Our choice of quotes tries to represent a balanced voice of women and men, different stakeholder groups, and countries.

Sometimes, we intentionally obscure respondent characteristics in quote attributions to avoid betraying their anonymity. Especially for respondent types with just a few people, it is very likely that some readers could identify the respondents. We sought to minimise that possibility by obscuring information where it did not directly contribute to our interpretations.

## PART 1 – GRADUATES AND THE SERVICES THEY PROVIDE

Overview of new professionals and clinical services provided through the investment

Image: W. Pryor (2019)

## *TOTAL NUMBER OF STUDENTS SUPPORTED*

Table 4, below, summarises the estimated total number of students supported through the investment. 773 students had directly enrolled in CT/Exceed supported schools and upgrade training.

The number of students and graduates has scaled over time. Figure 5 shows the number of students who passed, did not finish or who are still studying for each year since 1997. The number of students enrolling and graduating grew as new programs were set up (see country snapshots).

## *COMPLETION RATES*

Among all students who had enrolled across all the programs and countries we studied, including related enrolments in Tanzania and Australia, 576 had passed and 173 did not finish, which represents a crude 69.5% overall pass rate. At the end of 2017, 213 students were enrolled.

## *WHO PAID?*

### *Nippon Foundation sponsorships and indirect financial support to students*

By the end of 2017, 534 students supported by the Nippon Foundation, 403 of whom had passed or were currently studying. This figure represents both direct support of students, and indirectly through overall support of training programs. These figures recognise that students in the Philippines and Indonesia also pay fees, while the Nippon Foundation supports the program overall, and students through a stipend and living costs.

### *Other sponsorships*

New training programs created opportunities for other sponsors to support students gain qualifications in P&O.

By the end of 2017, 239 (including 19 who self-funded) students had been sponsored by other sources, among whom, 185 had graduated or were currently studying. Of these students, 220 studied at CSPO, representing 65% of the total income of CSPO in that period.

A further 166 Thai students graduated from SSPO without international sponsorship.

**TABLE 4 - TOTAL ENROLMENTS – NIPPON FOUNDATION AND ALL OTHER FINANCIAL SUPPORT**

Notes: Excludes 166 Thai students/graduates who received no international financial support.

	Women	Men	Unspecified	Total
<b>NIPPON FOUNDATION</b>				<b>534</b>
<b>CSPO</b>	<b>23</b>	<b>27</b>		<b>50</b>
DNF	4	2		6
passed	19	25		44
<b>JSPO</b>	<b>59</b>	<b>29</b>		<b>88</b>
current	11	4		15
DNF	7	3		10
passed	41	22		63
<b>La Trobe</b>	<b>4</b>	<b>4</b>		<b>8</b>
DNF	1			1
passed	3	4		7
<b>MSPO</b>	<b>10</b>	<b>1</b>		<b>11</b>
current	10	1		11
<b>PSPO</b>	<b>34</b>	<b>29</b>		<b>63</b>
current	1	1		2
DNF	12	11		23
passed	21	17		38
<b>SSPO</b>	<b>25</b>	<b>41</b>	<b>118</b>	<b>183</b>
DNF	1	3	26	30
passed	23	37	92	152
<b>SLSPO</b>	<b>31</b>	<b>39</b>	<b>61</b>	<b>131</b>
DNF			61	61
passed	31	39		70
<b>OTHER SPONSORS (all programs)</b>				<b>239</b>
current	<b>7</b>	<b>7</b>		<b>14</b>
DNF	13	22		35
passed	58	132		190

**TABLE 5 - ORIGIN OF GRADUATES BY TRAINING PROGRAM**

Reports only students who passed by the end of 2017

<b>Program</b>	<b>Women</b>	<b>Men</b>	<b>Unspec</b>	<b>Total</b>
<b>CSPO</b>	<b>74</b>	<b>145</b>		<b>219</b>
Other <sup>22</sup>	5	8		13
Cambodia	41	74		115
DPR Korea	1	11		12
Georgia		1		1
Iraq	1	8		9
Laos	5	9		14
Malaysia	2	2		4
Myanmar	6	11		17
Nepal	3	4		7
Papua New Guinea	5	4		9
Philippines	2	6		8
Sri Lanka	3	7		10
<b>JSPO</b>	<b>41</b>	<b>22</b>		<b>63</b>
Indonesia	41	22		63
<b>La Trobe</b>	<b>6</b>	<b>14</b>		<b>20</b>
Pakistan	1	3		4
Cambodia	4	6		10
Laos	1	2		3
Sri Lanka		3		3
<b>PSPO</b>	<b>21</b>	<b>17</b>		<b>38</b>
Philippines	21	17		38
<b>SSPO</b>	<b>23</b>	<b>37</b>	<b>92<sup>23</sup></b>	<b>152</b>
Indonesia	5	8		13
Pakistan		9		9
Cambodia	9	5		14
Nepal		3		3
Philippines	2	3		5
Sri Lanka	6	8		14
Vietnam	1	1		2
Thailand			92	92
<b>TATCOT</b>		<b>2</b>		<b>2</b>
Cambodia		2		2
<b>SLSPo</b>	<b>31</b>	<b>39</b>		<b>70</b>
Sri Lanka	31	39		70
<b>Grand Total</b>	<b>196</b>	<b>276</b>	<b>92</b>	<b>564</b>

<sup>22</sup> Afghanistan, Timor Leste, Indonesia, Japan, Kiribati, Pakistan, Samoa, Zambia<sup>23</sup> Sociodemographic characteristics not available for graduates/students before 2010.



## GENDER

Among successful graduates for whom gender information was available, 325 (57%) were men and 245 (43%) were women (Figure 6). A further 179 did not have gender information available.

Women (83% completion) completed their studies slightly less frequently than men (86% completion). More women than men had participated in all the programs except CSPO, where twice as many men than women had enrolled, and at SSPO, which had about 20% more male participants – mostly due an imbalance arising from Pakistan, where no women had enrolled at SSPO.

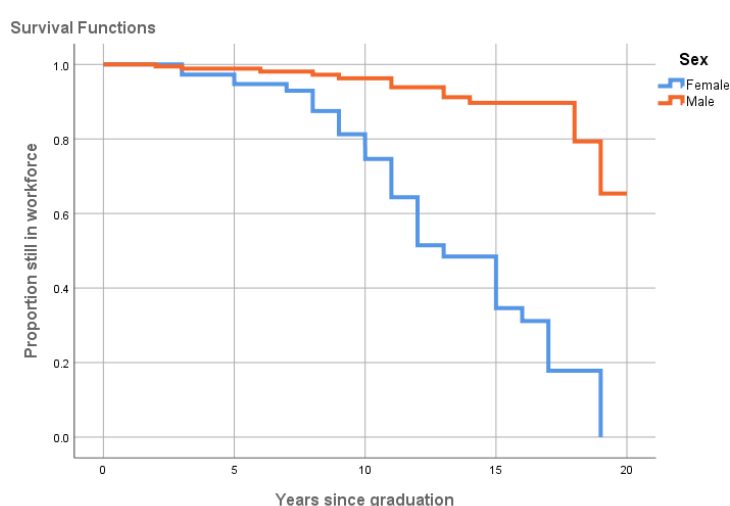
## GRADUATES WITH DISABILITIES

19 men and 4 women who identified as persons with disabilities had completed courses (Figure 7). As data for disability status were incomplete, this is an underestimate of the total number of persons with disabilities to enter the P&O workforce.

## WHERE ARE THEY NOW: GRADUATE DESTINATIONS

Table 6 outlines destinations of graduates, according to alumni surveys conducted by the schools. 256<sup>24</sup>, or about three quarters of students who passed, were still working and a further 22 were participating in internship programs or about to start them. 49 (14.2%) had left the profession. 6 men had passed away, 3 had gone abroad, 1 retired, and the status of the remaining 16 (and all SSPO graduates) were unknown.

Data for the year of leaving the profession was not available, so it was not possible to estimate years of work before departing the workforce, limiting the precision future workforce estimates. However, we computed crude survival times for women and men to estimate the number of years of services among graduates for whom gender was recorded. Women (unadjusted for other factors) left the profession faster than men. The mean time of service given among those who left the profession (among those who passed their studies) was 13.34 years for women and 18.0 for men ( $p < 0.000$ ), and 16.9 overall.

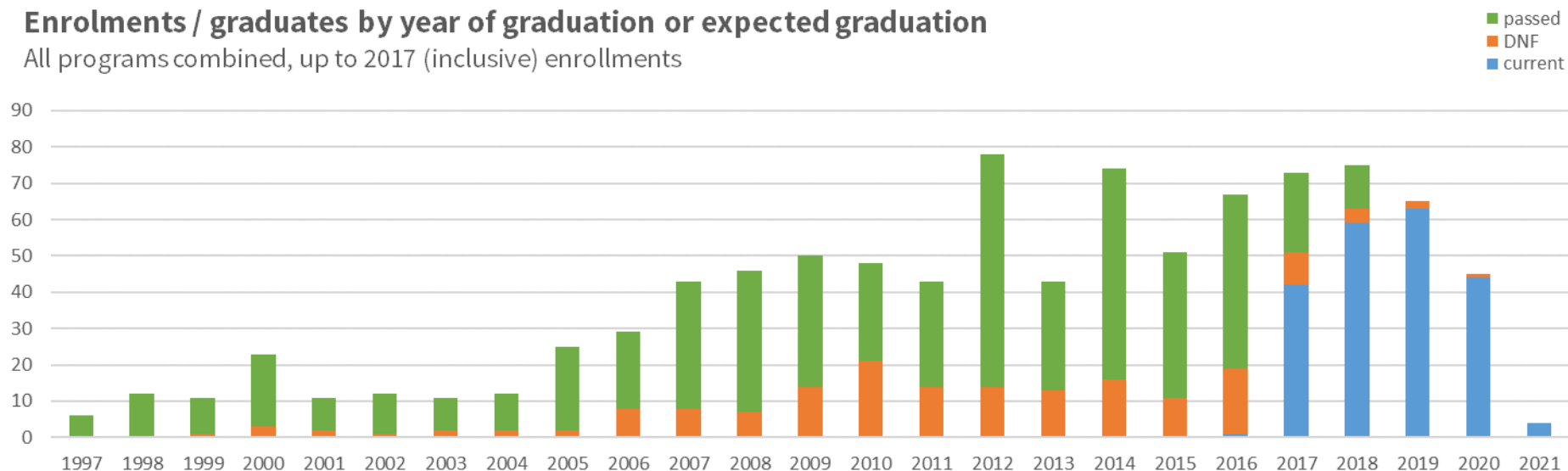


**FIGURE 4 - SURVIVAL PLOT OF TIME UNTIL LEAVING THE WORKFORCE FOR MEN AND WOMEN**

<sup>24</sup> Does not include SSPO graduates – no graduate destination data was available.

## Enrolments / graduates by year of graduation or expected graduation

All programs combined, up to 2017 (inclusive) enrollments

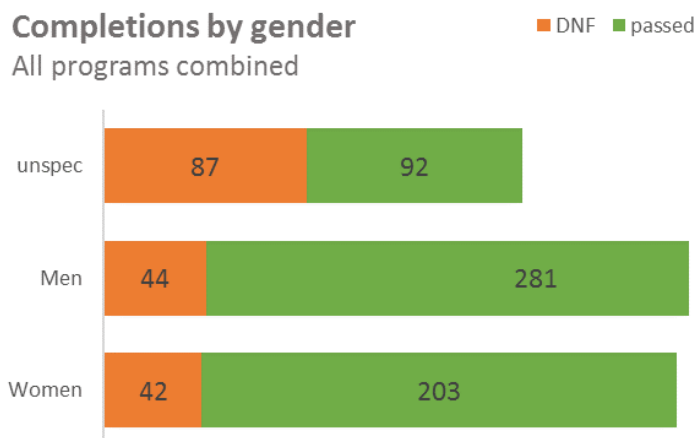


**FIGURE 5 - STUDENTS PER YEAR, ALL EXCEED-SUPPORTED PROGRAMS COMBINED**

Excludes domestic SSPO students and graduates (reported on page 34)

### Completions by gender

All programs combined



### Graduates with disabilities

All programs combined

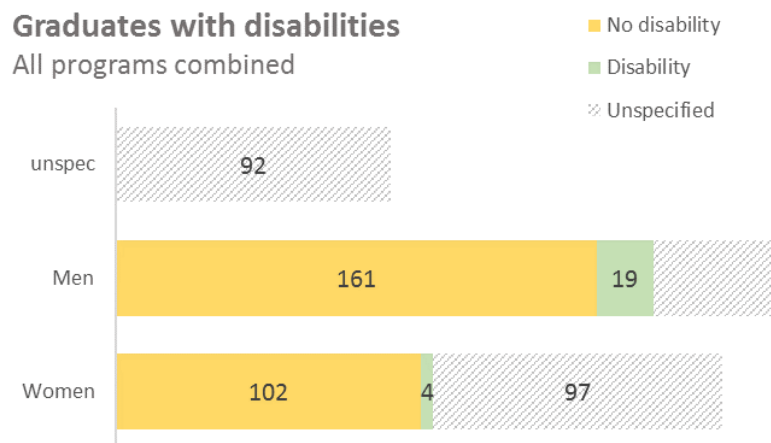


FIGURE 6 - PROPORTION OF COMPLETIONS BY GENDER

FIGURE 7 - PROPORTION OF GRADUATES BY DISABILITY AND GENDER

TABLE 6 - GRADUATE DESTINATIONS BY PROGRAM

Among graduates who passed, among available alumni data.

	CSPO		JSPO		La Trobe		PSPO		SSPO		TATCOT		SLSPO		Total	
	n	%	n	%	n	%	n	%	n	%	n	%	n	%	n	%
<b>Left</b>	<b>50</b>	<b>23%</b>	<b>3</b>	<b>5%</b>	<b>1</b>	<b>5%</b>	<b>1</b>	<b>3%</b>	<b>18</b>	<b>11%</b>			<b>8</b>	<b>11%</b>	<b>81</b>	<b>14%</b>
deceased	6	3%													6	1%
left	43	20%	3	5%	1	5%	1	3%	18	11%			8	11%	74	13%
retired	1														1	0%
<b>Working in PO</b>	<b>169</b>	<b>77%</b>	<b>51</b>	<b>81%</b>	<b>19</b>	<b>95%</b>	<b>14</b>	<b>37%</b>	<b>40</b>	<b>24%</b>			<b>46</b>	<b>66%</b>	<b>341</b>	<b>60%</b>
Went Abroad							2	5%					2	3%	4	1%
Working	169	77%	51	81%	19	95%	12	32%	40	24%	2	100%	44	63%	337	59%
<b>Other status<sup>25</sup></b>							<b>22</b>	<b>58%</b>					<b>15</b>	<b>21%</b>	<b>37</b>	<b>6%</b>
further study													2	3%	2	0%
Looking for work in PO													8	11%	8	1%
Intern							22	58%							22	4%
<b>Unknown</b>			9	14%			1	3%	106	65%					116	20%
<b>Grand Total</b>	<b>219</b>	<b>100%</b>	<b>63</b>	<b>100%</b>	<b>20</b>	<b>100%</b>	<b>38</b>	<b>100%</b>	<b>164</b>	<b>100%</b>	<b>2</b>	<b>100%</b>	<b>65</b>	<b>100%</b>	<b>571</b>	<b>100%</b>

<sup>25</sup> Reflects people likely to work in P&O in the future

## WORKFORCE SATURATION

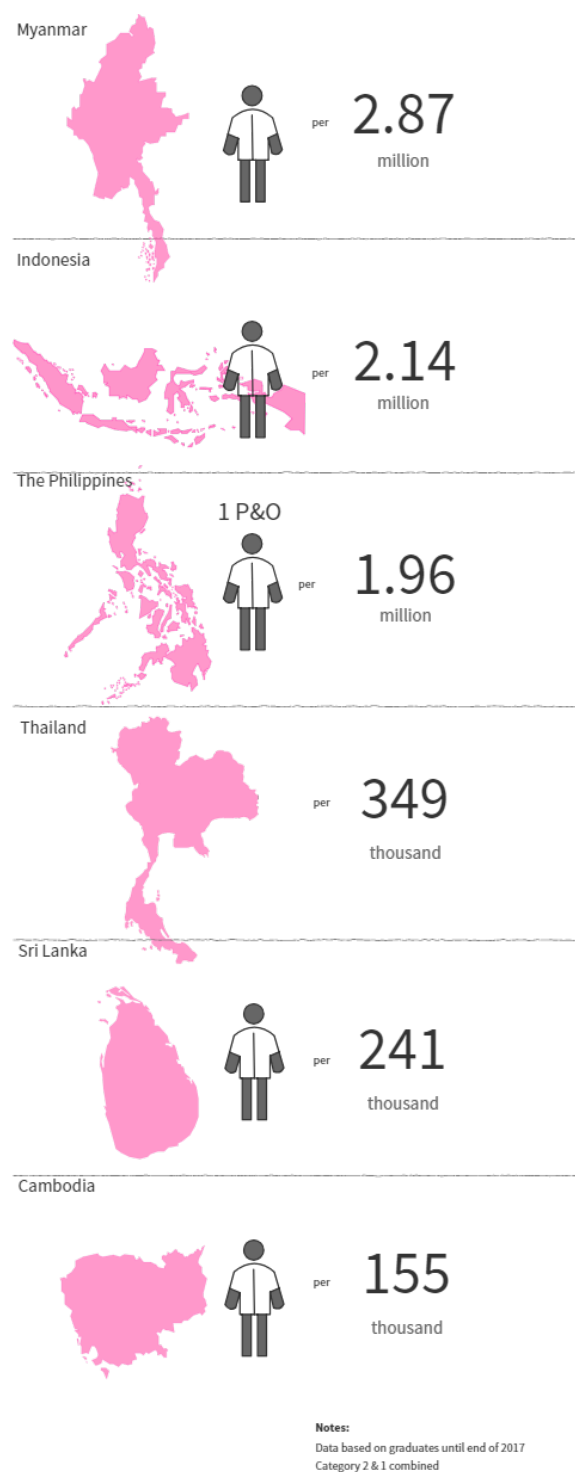


Table 7, below, summarises estimated professionals working in the main CT/Exceed supported countries. The per capita ration of P&O professionals based on the data available range between 0.035/100,000 in Myanmar (1 practitioner per ~2.9 million people), to 0.64/100,000 in Cambodia (1 practitioner per ~155,000) (see Figure 8.)

**TABLE 7 - ESTIMATED<sup>26</sup> PROFESSIONALS WORKING IN MAIN CT/EXCEED SUPPORTED COUNTRIES.**

Country (Pop M)	Estimated working P&Os, 2017		
	Cat I	Cat II	Total
Cambodia (14.4)	17	76	93
<i>Per 100,000 popn</i>	0.118	0.526	0.644
Indonesia (231.6)	54	54	108
	0.023	0.023	0.047
Myanmar (48.8)		17	17
	0.00	0.035	0.035
Philippines (88)	37	8	45
	0.042	0.009	0.051
Sri Lanka (19.3)	24	65	89
	0.14	0.58	1.03
Thailand (69.4)	99	100	199
	0.14	0.14	0.29

**FIGURE 8 - SATURATION OF PROFESSIONALS IN EXCEED/NF SUPPORTED COUNTRIES.**

<sup>26</sup> For simplicity, this table estimates 80% of all graduates were currently working at the 2017 cut-off date, which was based on data for whom the working status was available. Future estimates will need to account for mean 'separation' rate, or the estimated time for a graduate to leave the workforce.

## THE FUTURE WORKFORCE

As the 213 students currently studying at the end of 2017 enter the workforce, even with retirement of existing staff, the total workforce will grow rapidly in coming years. Using crude extrapolations based on mean time until workforce ‘separation’ of 17 years, a pass ratio of 0.8, assuming current enrolments stay constant, by 2025 there will be approximately 625 professionals working – about a 40% increase. The number of professionals working across the region in 2017 (447) would double after by 2034, or about 17 years.



*Assuming constant attrition and enrolments, the number of graduates will double after 17 years.*

Even in countries like Cambodia, Sri Lanka and Thailand where the number of P&Os is high relative to the other countries, figures fall below recommended levels<sup>27</sup>. Based on current global estimates of need, even doubling the number of staff – which will take nearly 2 decades to achieve, will not achieve current targets.

These estimates of current and projected saturation should be informed by reliable information about the need for services, and the geographical distribution of the workforce and services, but this information is not currently available.

The rapid scale-up of qualified professionals implies enough jobs, supportive workplaces, resources – and demand – are needed. The next part of this report explores how this new and growing workforce is integrated into national systems.

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<sup>27</sup> An overview of Australian states and comparisons with global estimates is available at <https://www.aopa.org.au/documents/item/212>



## PART 2 - WORKFORCE INTEGRATION

### How are new prosthetics and orthotics professionals integrated in national systems?

*“There are unlicensed practitioners. People have experienced ill-fitting devices so the impact of that is not very good. I hope in the future this will change. Prosthetics is a part of peoples’ life. They use it every day, so they should be provided by a registered prosthetist.”*

*Graduate (F), Philippines*

*The current labour fee is not much. 15 years ago PO earn a lot compared to factory worker. Maybe 4 times as much. Now the PO will earn similar amount to factory worker even though they need to study 3-4 years compared to no study for factory worker.*

*Graduate (M), Cambodia*

*“Even medical professionals, they don't know, they don't know. They thought P&O means like Piano. They say, ‘I didn't know that about you!’”*

*Employer (M), Myanmar*

Image: W. Pryor (2018)



## OVERVIEW: UNDERSTANDING IMPACTS AND LOST OPPORTUNITIES IN WORKFORCE INTEGRATION

Based on the testimonies recorded in semi-structured interviews, this section examines how the main project inputs have worked and considers how they might have influenced workforce integration.

### FOUNDATION TRAINING

Foundation training, informed by ISPO's guidelines and recognition process for training orthotists and prosthetists, has been at the core of the investment. Findings from part 2 demonstrated that CT/Exceed supported programs, SSPO, and contributions from many other stakeholders have rapidly scaled up the number of graduates of recognised programs and has been associated with rapid scale-up of services available.

The CT/Exceed program design outlined two main dimensions of its approach to providing training; scholarships and using high quality training based on international standards.

Beyond these *expected* pathways to impact of training, the next section also explores how the narratives revealed impacts and challenges associated with of the structure of training, links to other professions, and technological choices.

### Scholarships

Scholarships and other means of subsidising the costs to prospective students was used as a way of increasing interest, likelihood of completion, and overcoming some of the risks of students enrolling in a discipline without a certain future, especially in early years;

*"There are lot of benefit – allowance, accommodation so I don't have to pay for uni and daily expenses."*

CSPO Graduate (M), Cambodia

*"One of my sister who is affected by cerebral palsy and came into the clinic. I saw the people who were casting. I thought it would be very hard to study. In 2002 I study accounting at Uni, 1 year is more than 300USD and this was a lot for my father. I saw that PO study was free and I wanted to save money for my father and sister. So I apply to CSPO where I receive 70USD/month. This was a big impact for my parents and sister."*

CSPO Graduate (M), Cambodia

And in countries with an emerging P&O sector;

*"I never heard of PO before, of all of this. I found a newspaper in the rubbish bin and there is an advertisement of a scholarship through the hospital. I just applied on that. I arrived in Cambodia without any knowledge."*

CSPO Graduate (F), Samoa.

Scholarships have also been a major part of the strategy to develop leadership. This has been effective. The effects were both direct, through kickstarting national leadership;

*“So obviously if I got experience and skills like ISPO so I had the confidence I can do anything if I do that course, so there are few people related to prosthetics in this country, I can advocate and show, so that’s why I chose the cat 1”.*

*Scholarship recipient, CSPO and SSPO graduate (M), Nepal*

..and through longer-term development of nationally-led training programs. First through an upgrade training program through La Trobe University, Australia, and later through the SSPO Category 1 upgrade program.

*“14 years ago I got a scholarship from Nippon foundation who collaborated with Sirindhorn centre and Mahidol university. They joined together to start SSPO. Later, I went to study abroad [to Cambodia/Australia] and came back in 2008 and started as CPO. Before I went, they wanted me to come back to teach in school.”*

*Graduate SSPO, La Trobe (M), Thailand.*

*“Foreign experts from Japan came but this was not a sustainable approach, only short-term involvement and expensive. So therefore CSPO want to train local people. This was a huge success and spread to have regional and global reach.”*

*Graduate CSPO/La Trobe (F), Cambodia.*

The availability of recognised training programs has also catalysed scholarships from other organisations, who recognised:

*“For quality and long-term sustainability (one of the pillars of ICRC strategy), providing training for high quality services it is the best option to send them to Bangkok; it is the nearest school for Cat 1 qualification.”*

*ICRC respondent*

## Internationally recognised training

Training based on international standards was used with the intent to ensure quality and accountability.

Doing so meant that training in P&O was unexpectedly challenging for some students. One graduate explained;

*“I was really afraid that I could not do all the 27 devices. You know, I am slow, that’s why I was really afraid of that, in my life that was the hardest. I mean difficult good - they train us very much. So that was good.”*

*Graduate MSPO (F), Myanmar*

The overall impact of using high-quality training can be understood in several ways. Graduates reflected on the practical training, good faculty, user-centredness, and, feeling prepared for work;

*“I liked studying there because they don’t just give theory, they give practical to the patients, so I have more experience to make the devices.”*

*Graduate, JSPO (M), Indonesia*

*“I think I am lucky to be PO. Because when I studied, our teachers are good. They treat us warmly, they treat us very well as our family. “*

*Graduate MSPO (F), Myanmar*

*“We find out how to make the adjustment, if we communicate with the client we understand their need and they will wear the device.”*

*Graduate, JSPO (M), Indonesia*

*“The program prepared us well for patients, because we handled patients from the 3<sup>rd</sup> year so we can handle patients by ourselves. The program was very hands on, so we are well prepared for that.”*

*Graduate, PSPO (F), Philippines*

The strategy of high-quality training based on recognised standards required international trainers to be used, and for competence in English language. Combined with the strategy of regional exchange and using long-term exchange to build learning and teaching skills in potential future staff, had positive results according to the respondents. Positive outcomes included an incentive to improve language skills which was seen to have other benefits, and many graduates reflected positively on the quality of the training compared with other career paths they might have chosen;

*“Luckily the expats didn’t speak Thai, so we had to adapt. Some people did not adapt, not everyone have good English. Finally, they can read, can speak English.”*

*Graduate, SSPO (M), Thailand*

*“In our country, teaching system is very different than other countries, we have to learn from remembering, we don’t have much understanding. But when we learn from foreign teachers we learn how to think, understand, not just memorise.”*

*Graduate MSPO (F), Myanmar*

Respondents also reflected on several issues arising from the level of training, and the methods used to implement it. Many related to workload in comparison with other programs;

*“We could not take a leave, cannot leave the school. For other majors, it was easy.”*

*Graduate, MSPO (F), Myanmar*

Others reflected on challenges arising from the need for clinical training, but challenges accessing suitable workplaces. One graduate from the Philippine reflected;

*“We need to get new patients, so you don’t see the same patients over and over. Other patients need the opportunity to be the model patient. Some patients come to change their device every year which is not really needed.”*

*Graduate, PSPO, Philippines.*

Despite advantages of the regional exchange of staff and lecturers, some concerns about their experience was identified;

*“The local professors should continue to do professional development and have more clinical exposure of patients.”*

*Graduate, PSPO (F), Philippines*

*"I think the [teaching staff], they need more skills and experience. Like in Cambodia... teachers were European. Assistant lecturers were a mix. But here.. teachers were Cambodian, they are great they have good skills but.. you know teachers need good experience and skills"*

*Graduate, MSPO (F), Myanmar*

Some observations reflected challenges implementing standards when other stakeholders are involved. One respondent, observed;

*"We recommend that the students have some classes together, this will impact on their respect and knowledge of each other when they are working. They [Exceed] were open to this but nothing is happening... You also need to leverage what you have – this is a place where there is another rehab profession which is not always the case, why not leverage off that and promote it to work together?"*

*International agency employer*

When asked to comment on quality and design of training programs, concerns about level of training, links to other rehabilitation professionals and a wider range of rehabilitation concepts in training were raised;

*"ISPO wanted us to have category 1 training, we only wanted category 2 – is more complex than what we need for our socioeconomic needs of this country."*

*National health service employer*

*"[They should] expand the program to also provide training for Cat 3. And to also be less rigid into PO, but more links between the training and the service provision for rehab more broadly, not just focused on the devices."*

*Employer, Myanmar.*

*"..before we had category 1, we had technicians who worked in this field for a long time, and are working in provinces.. but [later] because of licence they could no [treat clients]..So that is about increasing number and serving the need."*

*Graduate & Staff member (F), SSPO*

## Issues with foundation training

### Technology

Training in orthotics and prosthetics involves making choices about what technologies to use in training, and when and how alternatives should be introduced. Graduates and decision makers from most of the countries studied reflected on how those choices have potentially constrained the impact of P&O training.

The challenge for P&O education is reflected by the finding that respondents suggested both higher *and* lower technology choices are needed.

*"And if we could provide the simple things, the cheaper things it would be better."*

*Graduate, PSPO (F)*

*"Students should have experience in all materials even those not ideal so know advantages and disadvantages of each."*

*Sector informant*

*“They need to update what is happening in PO outside Indonesia – other components. We only learnt about some components and companies, we didn’t learn about all of the ones that are available.”*

*Graduate JSPO (M)*

*“The 5-year program lacks the technology that we need for the outside world, so the PGI helps with that.”*

*Graduate, PSPO (F)*

Findings also indicated that many of these issues of technology choices are known and considered by training providers, often as part of ISPO evaluation processes. Nonetheless, graduate and stakeholder reflections describe how the results may be a constraint to offering choice and advanced function through high-end products and technologies, and scale through application of lower-cost materials.

### Training structure

Findings revealed similar tensions concerning the level of training as observed in technology choices. Some respondents, particularly, graduates, called for higher level training. This was expressed through calls for specific course content and facilities:

*“The facilities could have been better – in the last year we had research to do but the facilities like the gait lab was lacking for us to get the information.”*

*Graduate (M), Indonesia.*

*“In PGI [post-graduate internship] – would have been better if we could get knowledge about how to build and manage our own workshop/clinic – how to fund it, how to staff and manage it, how to cost devices.”*

*Graduate (M), Philippines*

Whereas, as explored earlier, employers were more likely to remark on the challenges of balancing high-quality training with strategies to expand services at local levels.

Some respondents reflected on the situation for P&O overall, and how it will continue to be relevant in the future;

*“We must re-evaluate our needs... we need to transition [P&O models]. Diabetes, road accidents, things like limb salvage and so on are shifting the demography. [So to use the investments effectively we must] teach medical doctors about P&O (can we extend to other assistive products). This relates to UHC and things like expansion of insurance coverage and integration, as well as referrals.”*

*Adviser to a training program.*



## LEADERSHIP DEVELOPMENT

Along with support to clinical services, leadership development was among the earliest Nippon Foundation contributions to P&O. They offered financial and technical support to the redevelopment of P&O training in Thailand, with a view to strengthening service locally, as well as offering degree-level training for regional professionals, in a reputed university environment.

Continuing Professional Development or Education (CPD) has also been a prominent part of leadership development.

The intent was to invest in a few, to continue impacts over time:

*“We always have a limit. We can never respond fully to all needs. So, we look at most effective ways to spread knowledge, technology, experiences. That's why [we support] leaders who can teach others. We cannot think of 100 people at one time, but we can invest in 10, who affect 10 more, over 10 years. That is the way we have been doing in other programs.”*

*Nippon Foundation respondent.*

*“To get good clinical services, you need to have people employed. That affects awareness [of P&O], and leads to policy, through new decision-makers and influence.”*

*Exceed management respondent.*



## Upgrade training

The leadership investment strategy has achieved the intended impact of gradual nationalisation of P&O training. The Cambodian and Sri Lankan and Indonesian P&O programs are staffed entirely by national professionals with ISPO Category I, Bachelor level training.

Staff at the programs in Myanmar and Philippines, as of 2017/18, were largely graduates of other regional programs, with Bachelor-level, Category I training from either Australia, Tanzania or Thailand, with other expatriate staff, mostly from Scandinavian countries, the UK, Australia, and Japan. As regional expertise has grown, experts from further afield have progressively reduced

One professional recounts her career trajectory, which is illustrative of the experience of people who have been involved in international upgrading and Exceed teaching programs:

*"I graduated in 2000 and worked in the [Cambodia Trust] clinic as PO Cat 2 for 4-5 years, then joined upgrade course at CSPO/Latrobe, to become Cat 1. [Then I] become Lecturer intern, worked at SLSPo in Sri Lanka for 1 year and came back to teach at CSPO."*

*Graduate, CSPO & La Trobe (F), Cambodia*

Exceed and SSPO testimony, based on student databases and individual accounts from staff, revealed that of the 33 students who had participated in these upgrade programs by the end of 2017, 3 did not complete their studies, and 2 had left the profession. Of those remaining in the profession, most are in teaching roles. Only about 4 or 5 are in clinical roles; some for government agencies, and some in private practice (both for profit and not for profit).

Concerning the perceived benefits of upgrade training, graduates mostly reflected on clinical specialisations, research, and opportunities for peer-led training at country level;

*"We get referral from other centres, particularly spinal cases and other complex cases."*

*Graduate, CSPO & SSPO (M), Cambodia*

*"The knowledge we didn't get at SLSPo, the advanced theories, like research, we learned how to do a research project, I didn't have any idea about that before, so just how to do that. The advanced things, like spinal too. We did all that in a scientific way, we learned."*

*Graduate, SLSPo, SSPO (M), Sri Lanka*

*".. research is also useful, I did a group work on one of the requirements by Master's program... I can show undergrad research project so that helped me a lot, so I could submit research project."*

*Graduate (M), SSPO, Thailand*

*"Every year we have a meeting. We share new ideas and knowledge. Annual meeting for PO grads – organized by CAPO members."*

*Graduate, (F), Cambodia*

Compared with graduates, employers reflected more on the benefits of upgrade training for leadership and sustainability. One employer illustrates:

*“From the staff side, they get to benefit from what the graduates learnt in 4 years at JSPO. And the graduates get the more practical skill.”*

*Employer (M), Indonesia*

*“For quality and long-term sustainability, providing training for high quality services it is the best option to send them to Bangkok, it is the nearest school for Cat 1 qualification.”*

*Non-Government Employer*

Offering pathways for upgrade training seemed to have unintended positive benefits associated with competitive opportunities for training and scholarships – and the personal experiences of travel abroad – have probably incentivised good performance and retention;

*“After 5 years I hope I will be working at the UMT as a lecturer. So I have to do one more year here, and then if I pass, I would be a student at the Bangkok for that.”*

*Graduate (F), MSPO*

Further, exposure to tertiary education has created opportunities for cross-disciplinary learning, evidenced by several graduates completing higher degrees in other disciplines.

*“I [will start a Master’s in engineering], so those pre-requisites I had, so I am eligible for the Master’s program, so without going to SSPO I would never have been able to complete those prerequisites for masters.*

*Graduate (M), Indonesia*

Beyond Bachelor-level training, there have been no formal opportunities for higher-degrees through the investment. One senior staff member notes:

*“And according to our quality framework, the teacher of the bachelor level must have Master degree. So, if they [The Nippon Foundation] wanted to support those schools in long term there should be Master [higher degree opportunities for P&O graduates], there is no need to send student to here if they have masters graduates over there.”*

*SSPO respondent*

There is appetite for higher-degrees. Recent graduates from the Philippines and Thailand in particular, are either currently enrolled or exploring higher education options.

In the Philippines, self or family financial support was common, whereas in Thailand, both self and SSPO/Mahidol sponsored financing was used for both formal programs, and leadership development;

*“We also have scholarship we can ask from faculty or school to go abroad to see how, or gain clinical experience from another country, so I have been to USA for 2 weeks.”*

*Faculty (F), SSPO, Thailand*

*“For me, I will do PhD, I did master already in medical engineering - I am interested in about biomechanics, learning about that, because I want to learn something that would be support, would be different from the pure PO, we need to study other things that can support.”*

*Faculty, SSPO (M), Thailand*

## Continuing Professional Development

CPD has been an important part of the overall program logic, used to build on and reinforce foundation training. CPD has mostly taken the form of semi-formal mentoring through expatriate staff and supporting participation in training events. The support has mostly been subsidising costs to new professionals and supporting new professional associations to host the events. Other longer-term development opportunities like staff exchanges have arisen outside of the main TNF investment;

*“Then I went to Japan for 9-month training on high-end components to bring back experience to the school.”*

*Staff, (F), CSPO*

CPD was perceived to have positive effects, from supporting introduction of new skills and knowledge in workplaces, transferring knowledge within and between professionals, developing specific clinical expertise – particularly modern components and techniques, and promoting a sense of self-learning;

*“We also presented our research in South Africa and South Korea, this opens connections and potential opportunities. It was useful for me – it helped me realise other things that I didn’t learn from the text books.”*

*Faculty, PSPO (F)*

Both employers and graduates/professionals reflected that CPD was not a burden, and worth the effort and costs;

*“ISPO helps us to maintain our knowledge. We pay for the membership ourselves, it’s not very expensive.”*

*Graduate (F), JSPO, Indonesia*

*“[national NGO] will continue to give the graduates support to develop their skills – for example online.”*

*Respondent (M), Indonesia*

*“[CPE activities] ..draws doctors, nurses, physiotherapists in, they exchange cards, creates an awareness of a professional out there that you can turn to. Those courses have been excellent for that and that will continue. They move into a more sustainable model. The last one in Indonesia had 300 people and has funded the local society for 2 years. It’s good.”*

*Exceed Management*

## Issues with leadership development

Leadership development through formal upgrade and continuing education has resulted in nationalisation of most training programs, high-quality education foundations for a new profession, knowledge transfer, and new clinical specialties. It may also have incentivised performance through some competition between graduates for limited scholarship places.

Findings suggest some implementation challenges in the leadership development strategy. Respondents shared their perceptions of equity in allocation of scholarship opportunities and an imbalance between training expectations and opportunities for advancing careers after making that commitment.

*“I did not do well and did not get my degree and came back to same salary.”*

*Graduate (M), Cambodia*

Several responses concerned potential for dual-practice, where professionals might offer private services as well as continuing their role in public service provision;

*“If there are high quality staff they may have the option to supplement their income with private services and so stay in the profession. There is a need for private services. There are pros and cons to having staff working across private and public sectors.”*

*Employer, Myanmar*

*“In Sri Lanka, we have [people] using central fabrication. They can go into private practice without \$10,000 minimum set-up. They will keep providing a public service as well. The foundation of a blended practice in service delivery comes from kudos you get working in private sector.”*

*Exceed management*

Challenges in accessing benefits of leadership development seemed particularly acute for graduates working in clinical (rather than educational) settings.

*“After 2 years’ experience here, some will go to Thailand for category 1. But for me, there was nobody here to take care of the management, so for me, I cannot go.”*

*Graduate, (F), Myanmar*

*“There are no Cat 1 people here (the senior clinician)”*

*Graduate, CSPO (M), Cambodia*

*“..but now that opportunity [to join CPD] is not there for PO, because the organisation says they will lose their time to do the work, so the skills go down. I feel previously there was close collaboration between [this NGO] clinic and school but now the management just thinking only the time with the clients and the statistics.”*

*Graduate, CSPO (M), Cambodia*

As reported earlier, some respondents described a potential issue for strengthening and nationalisation of the profession. Higher degrees, beyond bachelor-level training, had not been made possible through scholarships or leadership investments. Some students had been funded through Mahidol/SSPO in Thailand, and others self-funded. One simply reflected;

*“There are no formal pathways for post grad study.”*

*Graduate, F, Philippines*

Another illustrated how higher degrees in disciplines other than P&O might be simpler or more affordable;

*“In 2018 I didn't apply for the prosthetics masters because I might find financial difficulty, so applied here for engineering in Indonesia.”*

*Graduate, SSPO, Indonesia*

Findings also revealed some potential issues with what might be termed ‘2<sup>nd</sup> generation’ P&O professionals. This was particularly evident in Cambodia, where there has been a longer international collaboration than in other countries. One respondent working in a clinical leadership role described emerging tensions between the new and old generations;

*“There is no relationship between different PO. We don't know each other like before. The new graduates speak better English, it is now a more international course. It is now a discrimination and the senior PO feel isolated from the younger people and the profession. In my discussion other people think the same. The new POs are the international ones. They communicate less with the older ones. So, we didn't work with each other, that is the reason.”*

*Graduate, CSPO (M), Cambodia*





## *CLINICAL SERVICES*

The origin and primary purpose of the Nippon Foundation's investment in P&O was to address the chronic shortage of basic services. To build a local and sustainable workforce, services have been provided in tandem with training programs.

For both Cambodia Trust/Exceed and Mahidol/SSPO<sup>28</sup>, clinical services are a deliberate strategy to complement training, while providing much-needed subsidised, quality services to the local community. In the medium-to-long term, the goal of strengthening training, leadership and the P&O sector overall, was to work towards an adequate national workforce with the means to provide quality, accessible services.

Strengthening clinical services has involved direct provision of services through CT/Exceed rehabilitation centres or clinics, and activities aimed at supporting new graduates entering the workforce. Other program activities like advocacy, promoting quality standards, and CPD, also relate to the development of clinical services; those themes are explored elsewhere.

This section examines how clinical services have impacted the availability of P&O care. We emphasise two key aspects of availability of services. The first explores issues related to decentralisation and coverage of services, including working conditions for new professionals. The second is the effectiveness of direct workforce integration strategies, such as mentoring, and graduate reflections on their own preparedness for work.

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<sup>28</sup> SSPO clinical services have not been part of the Nippon Foundation investment in Thailand, so results here emphasise the clinical services of Cambodia Trust which have been part of the overall investment, but also explore other clinical services and how they have contributed to professional integration of P&O.



## Coverage: Accessible and affordable services in the right places

In all the countries we examined, P&O services have undergone very rapid changes after the launch of CT/Exceed supported teaching programs. In developing and refining the program, CT/Exceed and Nippon Foundation took a pragmatic approach;

*“It is too much to ask in 10-20 years to imagine deep community access. This is related to the leadership, which we have been deliberate about. The regional network and leadership is there to be used. we need to build on that.”*

*TNF respondent*

Sector stakeholders recalled services provided by either untrained artisans or after short courses ranging in length from weeks to months. Self-made devices were common, and still seen in some areas. One graduate recalls;

*“We did 80 mobile clinics and we still find people using bamboo. Those are the people missing out, those people who don’t have the information. People who think they have to pay, need money, like that. They don’t know their rights.”*

*Graduate (F), Thailand*

Despite the changes, many stakeholders reflected on the persistent challenges for providing enough P&O care<sup>29</sup>(see also part 3), illustrated by one Cambodian woman’s story;

*“It takes about half a day to get there and back to the centre. But [she needs] someone to go with [her]. [Her] father is not always available”*

*Carer of client (F), Cambodia.*

A prominent theme emerging was the challenges of accessing services outside of major cities. Looking at reasons for challenges of coverage of rural settings revealed three main issues; knowledge of clients and health providers, P&O service models, and issues related to the new P&O workforce providing care in rural or regional settings.

There was evidence that knowledge of P&O has improved, both in health professionals and in the general community, but that there are still persistent issues about knowing who might benefit from P&O care, and how it can be provided.

This theme is explored from both supply (other health professionals and authorities), and demand (client) sides in subsequent sections.

## Service models

Challenges providing enough care were also attributed to the way services were structured. Respondents described challenges accessing or providing services;

*“There is not really access to any rehab medicine in the provinces, maybe in the capital of the province.”*

*Graduate (F), Philippines*

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<sup>29</sup> See section 3 for a fuller exploration of client testimony.

*“Firstly, I was supposed to get a prosthetic leg at Sara Buri hospital, but at that time the material was not available, so I went Gangkhon. They made it there, but that's the one I didn't go to collect.”*

*Client (M), Thailand*

*“Transport is difficult, there is no workshop over there. They have to come to Yangon, the family have to come and stay at the hospital, there are transportation costs, and foods. But the service is free, right. There is daily life though, you know.”*

*Graduate (F), Myanmar*

Choices about the distribution of services intersect with poor knowledge about P&O and perceived service quality and range, causing clients to circumvent appropriate nearby services;

*“You know the new centres open in Nichina, Janyo, Mandalay. But most they come here [to Yangon] because they don't know about the information for the new centres. If they knew they would come. The new centres, they cannot provide for all. Some centres are doing for prosthesis only and don't have the knowledge for some patients.”*

*Sector key informant (M), Myanmar*

By contrast, some respondents reflected the impact of remote services on clients;

*“Some patient still do not come to clinic so we have outreach services. They have mobile workshop, to do mobile service and minor repair.”*

*Professional Association Representative (focus group), Cambodia*

*“..Here a lot of people have a device, but they don't work well, and they don't use them. They don't fit, they keep it, don't use it. This [mobile services] is the door to access the patients. I know that many patients that need the services it is easier to get it, I can contact to them in their homes.”*

*Graduate (M), SSPO*

Clients described how issues of access and location of services intersected with challenges with transport to major cities;

*“I can travel to Phnom Penh via moto taxi or with friend. I have difficulty entering public bus. Cost is lower if moto driver knows me”*

*Person with disability not using services (M), Cambodia*

*“If [I need] a repair I might not need to stay but if it's for a new device then I may have to stay waiting for delivery. I get casting and go home, comes for fitting, then returns for the delivery which can often need her to stay overnight.”*

*Client (F), CSPO, Cambodia*

Few respondents could identify truly centralised planning for the future of P&O services. This seemed to arise either because there was no clear delineation of responsibility in relevant national line ministries, or because leadership and governance for P&O was mixed; shared between training programs (and Exceed), service providers, health service planners, and sometimes key government officials or departments. One response illustrates issues with oversight and planning distribution and governance of P&O. This theme is examined further later.

*“We are worried about the handover [from NGOs to National Governance]. There is no written down plan. They need minimum package of PO services. At the moment they [National agency with oversight for rehabilitation] don’t care if in 10 years there is 1 PO in one [rehabilitation centre].”*

*Respondent, Cambodia*

Recalling the overall program logic, many of these challenges were anticipated.

*“It is too much to ask in 10-20 years to imagine deep community access. This is related to the leadership, which we have been deliberate about. The regional network and leadership is there to be used. We need to build on that.”*

*TNF respondent*

*“Exceed has tended to focus on getting a core to the country provision established and set up. Other organisations have tended to deal with the periphery. In Cambodia, it has worked quite well. Also, Sri Lanka, there is a very nice geographical spread of functioning centres, some NGO, some Government and some private sector.”*

*Exceed Management*

Some emerging technology solutions and service models are framed as potential solutions to expanding services to under-resourced areas;

*“.. a mitigation [of challenges providing service in regional settings] is central fabrication. [Through] economies of scale, [and by addressing concerns of] the hospital administrator who would otherwise be horrified with plastic waste and dust and noise and smells of a prosthetics workshop.”*

*Exceed management*

## Graduate willingness to work in regional settings

The previous sections explored how location and models of service provision have been constraints to adequate coverage of services. Here, we examine how the behaviours and expectations of the workforce are a constraint to impact of training and workforce development on availability of services.

In all countries examined, stakeholders suggested that graduates tend to seek jobs in larger urban centres;

*“..especially here in Mindanao, most of the students and graduates come from Luzon so want the jobs within that area also. So, I would love to encourage students from Mindanao, they can serve here”*

*Graduate (F), Philippines*

*“Students also do not like to go to rural area or provinces. They want to stay in the big city. I have 3 positions available but cannot fill because they only want to work for private sector. There they have high tech machines and tools, that is better for them.”*

*Professional association representative, Thailand*

In Thailand, salaries are more regulated and defined than in other countries, including for professionals working in regional settings.

*“In big provinces, hospitals, they have the position with same standard salaries. But someone who stays who has a home town around that place they might choose, but my family for don’t want to move to the countryside.”*

*Graduate (M), Thailand*

This offers an interesting comparison with other countries, and reinforces that graduate choices are probably not only about remuneration. There may be a more complex scenario, where graduates might be willing to work in regional centres, but they perceive the likely support and opportunities to be fewer than in major cities.

An Indonesian respondent gave an illustrative account of the issue;

*“..There are not so many opportunities available there [regional cities]. If the Ministry of Health was aware of the need, they could create opportunities there outside of Jakarta or Java island, our students might be attracted to that. Graduates working in smaller cities are not really um, getting the same level of support, the government is not paying as close attention to supporting them.”*

*JSPO staff, Indonesia*

Other issues that affect graduate willingness to work in regional settings relate to other workplace issues and how they might be compounded in regional settings. In Cambodia, for instance, progressive withdrawal of international support was a factor;

*“The staff that only get [national salary, not international supplement] will not stay here because nothing. No responsible on his job because of the salary.. I heard [regional centres] would close but they didn’t. but now I heard that there is only 2 more years [of international support]. They cut small part bit by bit.”*

*Graduate (M), CSPO, Cambodia*

In Thailand, issues related to ‘legacy’ or ‘grandfathering’ of technicians was raised.

*“One [graduate] went to her home town, but had to work with old technician, who going to retire. The way of thinking of her head, sorry to say, she say ‘it was very far from me, so I could not work with him’”.*

*Sector informant, Thailand*

Data concerning home district of students and graduates is not available. In respondents sampled here, it was not uncommon for students to reflect on a willingness – but major administrative or policy barriers – to practicing in their home districts;

*“Yes - of course. I will go [and work in my home province] as soon as possible, but I cannot because government rules. We have to stay one place at least two years. We can apply for transfer, but it will take a long time.”*

*Graduate (F), Myanmar*

*“My home town is Issan, Khon Kaeng. Most of my classmates are from Bangkok, some of them are from the south, but there are some problems with the position process, it is going to take a long process and she may lose the opportunity [to work in home district].”*

*Graduate (F), SSPO*

## Workforce integration: support to new graduates

The CT/Exceed program has included several direct strategies aimed at supporting new graduates as they enter the workforce. These included mentoring by experienced (mostly expatriate) professionals, CPD and upgrade training (explored earlier), and a suite of efforts to strengthen the working conditions for graduates in national workplaces.

Many contextual factors have shaped the experience of graduates entering their new workplaces and profession. This section examines workplace integration from these two perspectives: direct program actions to support workplace integration, and the indirect or contextual factors that have influenced the experience of new professionals.

Most of the direct early career support offered to graduates of programs supported by CT/Exceed has been through clinical mentors. Whether through CT/Exceed-supported mentors, or through internships (in the Philippines), this was almost universally valued by graduates;

*“In my first 6 months of working I made 66 devices. I got a lot of experience in 6 months. When I first started it was a bit difficult because there are so many types of patients, but my supervisor has helped me a lot.”*

*Graduate (F), MSPO*

*“[..for help] I have a clinical supervisor. They work one on one with me. I See patients with them and independently.”*

*Graduate, (F), PSPO*

This approach to mentoring or support from other professionals was not limited to CT/Exceed, but was also a feature of services supported by other international NGOs, and in Thailand;

*“No there are 2 more [senior professionals there] because government links with [iNGO]. I am the only local PO at that hospital. There another 2 [expatriate].. I learned many things from them. They have cat I and are experienced.”*

*Graduate (F), MSPO*

*“At the foundation, they support everything, like equipment, material. The support is like at the school.”*

*Graduate (F), SSPO*

By contrast, one graduate from a country without CT/Exceed support, and without direct support from other agencies, reflected a more challenging scenario;

*“I don't know about practices and challenges of students in their own countries, like I am not sure if it is just [this country] where it is hard to survive. I am not sure about the knowledge and how to utilise it, so I ..always ask the international stakeholders is there anything we can do together.. to enhance the environment and further knowledge and education.”*

*Graduate, SSPO upgrade program*

These findings suggest that mentoring, whether as part of CT/Exceed programming, other NGO support, or through pre-existing national professionals in workplaces, was an important part of supporting graduates to enter the workforce. The next section explores graduate perception on their own preparedness for work.

Challenges associated with working in regional settings also relate to mentoring and ongoing development on their return. This has been considered in programming, but formal or even semi-formal remote mentoring has not yet been part of programming;

*“What I am concerned about is our students who come in from isolated regions and then don’t have the mentoring and ongoing support they need when they return. Supporting them to join associations and link, including informal things like social media can be part of the solution here. This isn’t formalised, structured.”*

*Exceed manager*

### Graduate perceptions of readiness for practice

When graduates were asked to reflect on their preparedness for work after graduation, most graduates felt they were mostly prepared. Exploring areas where students felt they had issues entering the workforce raised two main themes. First, that graduates mostly felt ready for practice. Where they had room for improvement, there were opportunities to do so, but there were some challenges with rarer cases where they had little exposure during training;

*“Yes, it is adequate, but there is room to improve as knowledge changes over time. It is more of improving what you learn here.”*

*Graduate (F), Philippines*

*“The program prepared us well for patients, because we handled patients from the 3<sup>rd</sup> year so we can handle patients by ourselves. The program was very hands on, so we are well prepared for that.”*

*Graduate (F), CSPO*

This theme also emerged among most sector stakeholders when reflecting on graduates and their readiness to practice.

*“Compared with last year, they are getting better. I don't know how exactly, not sure what they are doing there [at the school], but I guess it's just time and experience.”*

*Referring health professional, Myanmar*

Some graduates, especially those who had more clinical experience, felt they were less prepared after graduation compared with more recent graduates. This respondent reflected on the realities of working life compared with training;

*“The training was completely different from real practice. We have different components. In school we had one patient with Through-hip and that was 10 years ago.”*

*(Graduate (M), CSPO)*



Others reflected on the rapid shift in realities when entering practice, compared with their training program. This related both to the volume of work and the real-world clinical scenarios they saw.

*“For the assessment part and the clinical part, we only had a few lectures, and not everything was really taught. For example, the rare cases. We didn’t really learn about transfers for example, only in large lectures but we didn’t get a practical class.”*

*Graduate (F), PSPO*

The second theme to emerge when exploring readiness for practice concerned resources and technology and how they presented challenges entering practice. While graduates felt prepared for practice in terms of their knowledge and skills, several recalled serious issues with access to basic resources;

*“We can’t always get the component parts that we need from the Government, so ICRC gets the parts we need. In 2018 ICRC will stop totally and it will be only a government responsibility. This is a concern because the Government doesn’t give what’s needed when it’s needed.”*

*Graduate, CSPO, Cambodia*

*“I was ready to work, in real situation. Or I thought so. When I started, especially for 6 months, I felt not prepared because of in the real situation we have different thing when I studied in SSPO. There were limits in machine, about lifestyle of patients, like that. That’s why I was not ready.”*

*Graduate (M), SSPO*

Others reflected on how job opportunities linked to readiness to practice, identifying that there were few job opportunities and support. This theme is explored more fully in the section on workforce issues.

## **ENTERING A NEW WORKFORCE**

The previous sections have examined workforce integration from the perspective of how CT/Exceed programming has facilitated transitions from study to practice. National systems like postgraduate internships and support from senior staff have also been important and effective methods to support new graduates.

This section will examine the experience of new graduates entering the workforce and adapt to realities of working life. By asking graduates to reflect on their working conditions, we learned of five main issues; real or perceived lack of job opportunities, remuneration and its impact on graduate motivation and attrition, pressures to leave the P&O workforce, delays in service development and access to resources, and issues related to career development and changing workplaces.

### **Job opportunities**

Central to the professional integration for a new cadre of P&O professionals is the availability of employment opportunities. On the surface, that most graduates are employed (see Part 1 from page 40) is encouraging, but a deeper exploration of how graduates find work and begin their new positions reveals a more complex landscape.

Issues concerning opportunities for work affect the availability of services and integration of the workforce directly and indirectly. Direct effects include delays in establishing new job posts, and limited options for work in regional health services. Indirect mechanisms include demotivation of existing professionals and prospective students.

Others described how issues with recognition of the profession constrained job opportunities to ongoing employment. Issues of recognition has a direct impact via bureaucratic barriers to timely employment, and indirectly through staff demotivation;

*“That was 8 months before coming here, the govt had to wait for ordering positions transfer form - so that was why I had to go back as nurse and wait for that procedure.”*

*Graduate (M), PSPO*

*“No [I would not recommend this profession] – because the government is not welcoming of PO and there will not be many jobs for graduates”*

*Graduate (F) Indonesia*

*“The profession in Cambodia it is hard to get in. Every centre have enough staff to work. So maybe after graduate they may not get job. So, they might not apply because of this. Our category not recognized overseas. You need 2 years’ experience to get out. It’s hard to get out.”*

*Graduate (M), CSPO*

We observed differences between countries with a longer history of P&O investments and smaller populations, compared with Indonesia and Thailand with larger populations and a different socioeconomic situation.

*“There was only 9 graduates so there was not much competition.”*

*Graduate (M) Indonesia*

The lack of job opportunities intersects with other issues for staff, particularly their salary and remuneration, and how they are supported in work. These issues are explored separately.

While limited job opportunities are unfortunate, they were not unexpected. Agreements with partner organisations and relevant state actors have been pursued, and formed the basis of assessments of feasibility of new training programs;

*“Before all this I went to government and requested whether there was a P&O with degree, would they be hired. The govt agreed that this should be recognised, but it wasn’t until some 7 years later that it happened. But there was direct link between the graduates and integration into the national system.*

*Respondent associated with early design of investment*

## Remuneration

Among the many challenges faced by graduates after entering the workforce, issues concerning their remuneration were among the most prominent. Concerns about having enough money to meet basic family needs or to pursue further career goals, were common. Financial concerns often intersected with disappointment about the recognition of their profession, and feelings of missing out from leadership opportunities, especially for students who wished to pursue clinical careers, rather than teaching careers.

The following explores how remuneration has affected how graduates have transitioned into work, and how ongoing realities or concerns about their salaries are influencing choices about the future.

The challenges of remuneration were especially acute in Cambodia, where withdrawal of INGO support was having a direct, material effect on take-home salary. For many P&O staff, salaries have halved, as INGOs have withdrawn supplements, known locally as ‘incentives’;

*“The POs are leaving because there is no incentive.”*

*Graduate (M), CSPO*

*“We want to recruit but the PO people are very few and if we recruit they don’t come to interview because of small salaries. I don’t think they would come even if we did recruit. The INGO who have greater incentive are already having problems.”*

*Graduate (M), CSPO*

*“The current labour fee is not much. 15 years ago, PO earn a lot compared to factory worker. Maybe 4 times as much. Now the PO will earn similar amount to factory worker even though they need to study 3-4 years compared to no study for factory worker.”*

*Graduate (M), CSPO*

In some cases, people leaving the country were still practicing in other countries. While their service is valuable in the country, the pull factors associated with better salaries abroad, and rising costs and challenges at home, threaten the growth of P&O where coverage is already poor.

In other countries, perceptions about low salaries affecting the attractiveness of P&O as a profession were also prominent;

*“PO salary is the same like before. I live here with my family, it’s OK. But if we have to go to another workshop, they need to spend for the transportation and fees and accommodations, and there just won’t be enough money for that. I have to fit all that, and nothing left to spend on training course. Now I live with my family, so I don’t need to worry about.”*

*Graduate (F), MSPO*

Exploring some of the potential upstream or likely causes of issues with remuneration emphasised broader issues with the recognition and remuneration of most health professionals. Constraints for health service providers in paying P&O salaries, often due to HR allocations, was a prominent factor;

*“Not all the hospitals provide PO workshop, they have financial issue, they give the salary for the employee. JSPO graduate is more qualified but the hospitals will only pay the same as a technician.”*

*Graduate (F), Indonesia*

*“Process is quite long to get a job where you earn a salary so [we] worry about losing them to overseas in the meantime.”*

*Employer (F), Philippines*

Respondents highlighted a paradox wherein hope for career development and better financial rewards cannot be realised with the current salary structures for health professionals;

*“The government salary is not so good here. So, they need promotion, and further training. Further training for postgraduate studies.”*

*Graduate (F), Myanmar*

Further, the comparative difficulty of P&O as a job compared with alternatives, was raised;

*“..the salary [is a reason for attrition], it’s so clear. it is so low, most of them they don’t work, they just quit from the job. It is not like office. We do all that work, but the salary is very low.”*

*Graduate (M) Thailand*

*“Some leave to become translators, receptionist or other types of work. PO is also a lot of responsibility, it’s tough, not easy, work with client and work with hands.”*

*Professional association representative, Cambodia*

## Fear and security

An important perspective concerning the impact of remuneration on the experience of graduates is the impact on their personal lives, their families, and in turn, how that might affect their choices about the future. One Cambodian graduate with more than a decade of experience reflects on the challenges of working in a national context undergoing rapid change;

*“I [am a] bit scared it won’t because we don’t know if we can support our family. Due to the connection between the donor and the government. I am old now and if I don’t do this job I can’t do anything else. This skill is limited. I am concerned about the future/stability of PO in Cambodia. Some centres are closed. [Some staff] did not get salary and they did not make [devices]. We only know this skill. We are government staff, so we still have a job but maybe not as good a wage. Our wage is ok it stays flat and does not go up.”*

*Graduate (M), CSPO*

One respondent in a student association focus group linked concerns about the future of salary supplements with access to materials and supplies, staff retention, and impact on clients;

*“Even if a centre close[s], I am still government staff. It doesn’t matter much if NGO go away, I have salary. But life will not be fulfilled like before because no top up from the NGO. But, what I am afraid about is the clients. If .. material is difficult to order or limited, if run by government, clients cannot get the service properly, and my PO friend may give up the job.”*

*Student association representative, Cambodia*

Again, reflecting on the relative experience of the school staff compared with those working in clinical roles, one respondent noted;

*“If that kind of problem really happen [withdrawal of international support], there should be another sponsor come and replace. I don’t want to talk about the staff at CSPO, they have a chance to survive. We have not been to any country for working, so we don’t have opportunity to change, so if this happens there should be another place or way we can go to work.”*

*Graduate (M), Cambodia*

While issues about salaries were a very prominent theme, they were not universally shared. Some respondents reflected on opportunities to improve chances of higher paying jobs, and on the equity with other health disciplines;

*“It depends on them as individuals and the way they are doing. If they try hard when they are student, they will confident when they go to work. Because PO is not a bad field, it is a good career.”*

*Student association representative, Cambodia*

*“The salary is the same from before when I was a nurse, maybe just a little less now.”*

*Graduate (F), MSPO*

## Delays in service development

When we explored challenges, frustrations and potential reasons for people considering leaving the P&O workforce, an emerging theme was related to the availability of the necessary resources for practice. Especially but not only in the Philippines, there are mechanisms for regional health services to implement P&O services. Occasionally, professionals are sought and appointed, but there are delays in establishing the service.

*“They could have prepared ahead some of the hospitals where we can apply afterwards. Create proper job positions so they are prepared before we graduate. In my batch most people are not working in the field anymore. It’s a waste of their knowledge and skills. It would have been better if hospitals were prepared for employment.”*

*Graduate (F), Philippines*

Most international students were supported by an employing entity, increasing the likelihood that there would be a service to work in on their return. But this was not the case for all.

*“It was difficult to invest in the assets and all, it was really difficult. For one year after graduation, I was dependent on my family. The premises are in the hospital, I have to pay the rent, 5000 USD per year. One BW salary 200USD, and for PO 350 dollars. There is enough, no profit no loss.”*

*Graduate of SSPO from non-NF/Exceed supported country*

*“Hospitals don’t want to hire PO – because there is no workshop in the hospital; if they do make a workshop it is just for accreditation, but they don’t use it.”*

*Graduate (F) Indonesia*

Several graduates reflected on challenges with starting up a service, both from their own perspectives and those of potential employers or hospital management;

*“I think there should be more help establishing PO facilities in hospitals. Doctors and other earlier graduates could be creating more awareness where they are already working”*

*Graduate (M), Philippines*

*“Hospitals don’t provide the proper machine, it is more struggle. It is difficult to ask the hospital to get the machine and the material. The hospitals don’t know yet about the PO profession yet.”*

*Graduate (F), Indonesia*

Using foundation training to build expertise in setting up a service, other than basic management skills, was not seen as essential;

*“They do have a management course within their course. Our managers are telling us they need more. It does not look into business models. Level of detail on practical stuff, I haven’t been thinking about. Where does it stop, that’s the thing? Would it be too granular?”*

*Exceed management*

## Career development and a changing sector

How workers with previous (usually lower) qualifications, or no qualifications at all, are transitioned into a changing sector - often referred to as ‘grandparenting’ - is an important consideration for two reasons. First, using their experience and capabilities can help continue existing services during a period of transition. Secondly, the relationship between the ‘old and new’ workforce affects the working conditions of both.

*“They are always interfering, that we are doing wrong, but they don’t know actually. They are experienced though, but the ways are not the same. The experienced PO do the other way, but we do our own way. They think that we are doing the wrong way.”*

*Graduate (F), Myanmar*



*“I think the PO and the technicians [informally trained person working in P&O], we have some space between us. We cannot union. The technician, they didn’t graduate in the field. They have different knowledge and old, different techniques. It’s good to have association represent us in the government system. It is getting better, but it is still there. It will get better as the old guys.”*

*Sector informant, Thailand*

By contrast, another respondent suggested that the transition was not causing tensions, or at least that the graduate retirement of existing staff would resolve the issues in time. They also suggested that the Category III training was a solution to recognising their capabilities, and perhaps to reduce some transition issues;

*“No [we are not worried about tensions with existing technicians]. All the technicians they will be retire anyway. We did think about Cat. III [studies for them] but they don’t need. This year one benchworker, [will go for Cat III training in Cambodia]. Exceed will pay for that. There are 4 places for Myanmar in the cat III program.”*

*Graduate (F), Myanmar*

### Attrition & retention: Pressures to leave the workforce

The previous section explored how P&O professionals viewed their remuneration, and how low salaries impact their esteem and decisions about their work.

Salary was not the only factor causing people to leave or consider leaving the P&O profession. Here, we explore how attrition is a very direct barrier to the integration of professionals but is also a consequence of some limitations in how P&O has evolved as a profession in national health services.

While attrition was a factor in all countries, it was particularly prominent in Cambodia, where there were more specific accounts of people leaving the profession – or considering it imminently – due to salary and other pressures;

*“The current POs will not be retained. The current POs will not want to upgrade their skills. The new ones will not come. It is collapsing.”*

*Sector informant (F), Cambodia*

*“I don’t think there will be a P&O anymore unless there is external support. I don’t think the Government support is stable. Some centres have few staff. The government cannot afford ongoing consumable costs.”*

*Graduate (M), Cambodia*

But, issues were evident in all countries. One iNGO employer reflects on the issues in the region;

*“We appointed graduates across two centres that [we] support. One never showed up, and another ..was very weak. One has resigned. Many graduates in centres [are] also resigning.”*

*Employer, iNGO*

We learned that often, understandable and inevitable family pressures such as supporting elderly or unwell parents was a factor in some graduates choosing other career paths. Others simply chose other career directions, sometimes due to the likelihood of higher salaries in

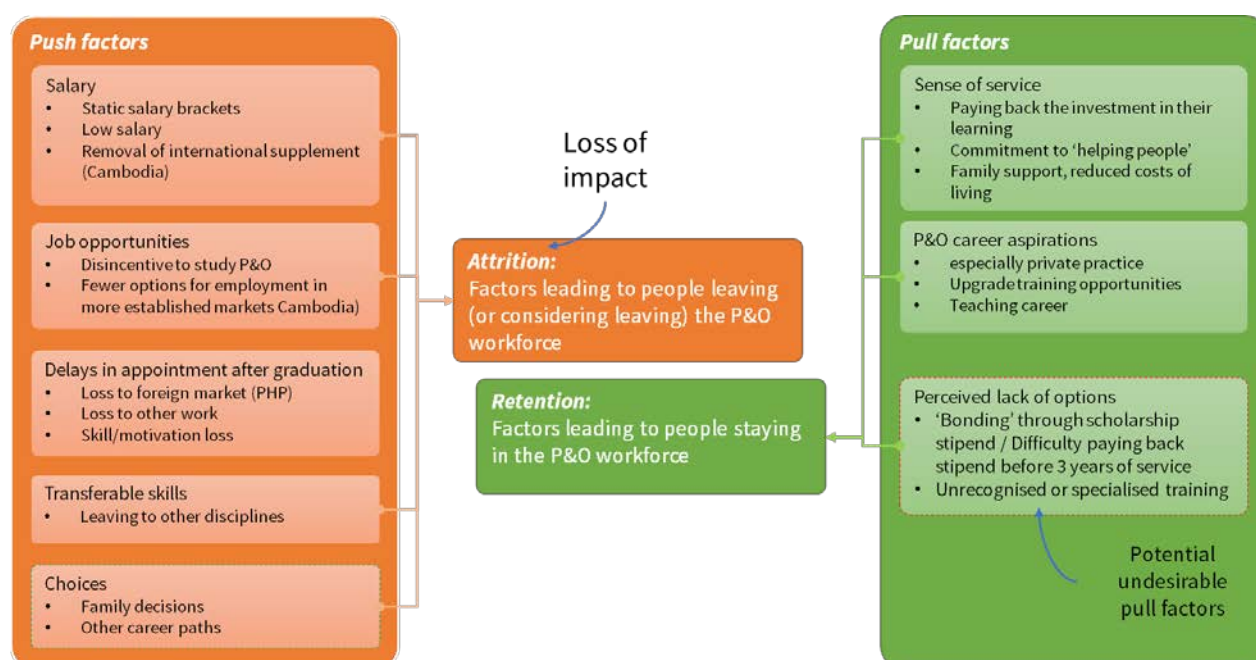
disciplines like business or accounting, but also linked to the workload and uncertainty of a career in P&O.

Others, though, reflected on their relative privilege and the benefit of international philanthropic support, and how it is a factor in their wishing to continue in P&O, despite challenges. One graduate gives an illustrative account, recalling her father's advice;

*"My parents, they tell me I am so lucky. You have this support, that money, they spend on you from abroad. Especially my father like that. When I came to this job he took care my toolbox. Cleaned all the tools. Put the oil. I say 'dad why you do like that? When I go there, I will get another toolbox.' That is hard, confuse."*

Graduate (F), MSPO

The choice to pursue a future in P&O, or to leave, involves new professionals weighing personal and professional choices. Various factors combine to 'push' professionals out of the profession, or to 'pull' them in. Figure 1, below, summarises how respondents reflected on the various factors in their decision-making.



**FIGURE 9 - PUSH AND PULL FACTORS FOR ONGOING EMPLOYMENT**

## Student motivation for entering P&O

When asked to reflect on their intent to continue a career in P&O, many graduates reflected on their motivation for studying P&O in the first place. This gave an insight into how personal motivations shape career and study decisions and might later inform choices to stay or leave the profession.

The strongest trends were a sense of service; most graduates in some way reflected on how helping their clients was a motivating factor in their work, and informed their decision to apply for and study P&O;

*"I like when someone is satisfied with our device. It is good when someone can walk for the first time with the prosthesis"*

Graduate (F), Indonesia

Others reflected on a personal connection to the experiences of persons with disabilities and how it informed their choice to study P&O;

*“My grandfather had a SCI and could never work. It affected the family, his life, and his health. He lives in a village and don’t know about services. I could empathise with that, I think that others would have the same problem. So that mattered, I wanted to be a PO to help people.”*

Graduate (F), Myanmar

*“I was motivated to enter rehab professions by my dad. He suffered a serious spinal injury when I was younger. He went to physical rehab and it helped him to get back to work. I feel rehab gives people new opportunities.”*

Graduate (F), Philippines

For some graduates, a personal experience of disability was particularly motivating. One respondent explained;

*“I decided to choose that because this type of field is really important for the person with disability because I am a disabled person also. That’s why I joined this program, and why I joined it, why I love this field.”*

Graduate (M), Thailand

Other strong motivations to enter the P&O discipline included an interest in health sciences, and the ease of entry in terms of the entry-grade required.

*“.. I wanted to do [dentistry] but I didn't have the standard for that. This is just a bigger version of dentures - I feel like that. It's just a different size.”*

Graduate (F), Myanmar

Other graduates reflected on the relative novelty of the profession, and the perception that there might be more job opportunities;

*“There were only 3 majors; P&O was introduced when we were there. My mum wanted me to do PT, but I asked her whether I could do PO. I thought there would be many applicants, so I wanted to study to PO.”*

Graduate (F), Myanmar

Especially for Cambodian students, stipends and subsidised training were important to students, helping them overcome the expense of studies. For others, the combination of financial support, the suitability of the discipline for them, and the possibility of travel, was a motivation

*My family is big and my cannot afford to pay for all children to go to school. My father said he would retire and not able to support me. CSPO was a good option because they pay me so I applied and did the exam and passed.*

Graduate (focus group), Cambodia

*“The program was on scholarship, and the adventure and travel was pretty tempting.*

Graduate, (M), Thailand



## STANDARDS

Exceed's approach to training and clinical services was underpinned by existing international standards. During the life of the investment (and Cambodia Trust's actions before it), contributing to the development of standards, and working to use them in practice, has been an important part of Exceed's strategy. ISPO's recognition of training programs has been emphasised.

Recalling services before this investment, there were by many accounts quality issues from both professionals and from consumers (see part 3);

*"[..in the past] NGOs were going around rural areas to give out free prostheses - the quality was not the same - people would just hang it on their wall."*

*DPO representative (F), Philippines*

*"There is illegal jobs, people learn how to make prosthetics from YouTube and produce the device illegally."*

*Graduate (M), Indonesia*

..and how new training programs have changed the quality of services;

*"We have given so many treatments over that 4 years. The number of pts has increased now, and the quality is better now. We can give more ADs and PO stuff to the patient. The quality is maybe the same."*

*Referring health professional, Myanmar*

Beyond improving clinical services, an important benefit of this emphasis on standards was new access to finances through national insurers, and international donors;

*“Philhealth [national health insurer] would not approve reimbursements if we hadn’t improved the quality.”*

*Sector informant, Philippines*

*“By increasing quality and demand we are getting more attention from donors.”*

*Employer in NGO, Indonesia*

We observed conflicting perceptions and interpretations of how Exceed should influence the level and standard of training. On the one hand, one employer expressed a need for influence over practice standards in national services;

*“But we found they were really only focused on their own students and not on [Exceed/the training provider influence on] the quality of services [where they were working].”*

*iNGO Employer*

In contrast with another respondent, who sought more flexibility in the types of services in which students could be accommodated in clinical placement;

*“We wish that Nippon Exceed had less resistance about our undergrad students having experience in different workshops/facilities.”*

*Respondent, Philippines*

One account from a graduate of the SSPO upgrading program summarises issues with how ISPO recognition is put into practice;

*“[Organisations advertise for Cat I P&Os, [but], I think they were confused with the education, they hired [people] with bachelor’s degree but no Category I; they were confused, they thought everyone who had a bachelor’s degree [was like Cat I]. Of course, that was frustrating, personally. Sometimes after I got the cat I, I tried to advocate and lobby about the level of PO education, but [those organisations] are mainly concerned with the rights issue than the quality of the service.”*

*Graduate of SSPO Cat I upgrade program*

## Technical & clinical skills

While a review of quality of services and graduates was not a specific aim this review, we sought to understand how an application of standards and an emphasis on quality has affected the integration of a new workforce.

When exploring readiness for practice (reported earlier) respondents suggested the emphasis on theory in their training was a challenge after entering the workforce, particularly for specialist areas or complex cases. But on the other hand, the technical emphasis in training, at least in contrast to the US system, has potential advantages

*“Acknowledged by colleagues in the US that everything is custom made in the Philippines, so I have skills in fabrication whereas things in the US are more prefab or made in a central workshop.”*

*Graduate (F), Philippines*

Further, some respondents observed how self-learning and theory create conditions for ongoing learning;

*“We cannot make, we cannot do everything, but, some people don't have theory and still cannot do. So better to have the theory but practice is the important.”*

*Employer, Thailand*

*“..No I wasn't ready, but the advantage I had was that I already graduated from 2 other courses so I was older and more confident and have other qualifications [and could keep learning and adapting].”*

*Graduate (F), Philippines*

One referring health professional reflected that in her perception, the graduates in Myanmar were improving;

*“Compared with last year, they are getting better. I don't know how exactly, not sure what they are doing there, but I guess it's just time and experience.”*

*Physiotherapist (F), Myanmar*

## Multidisciplinary issues

Central to the Exceed and SSPO curricula, are ensuring multi or inter-disciplinary practice, and a client-centred model of practice. Findings reveal some potential limitations in multidisciplinary practice embodied in teaching programs and clinical services, perhaps reflecting scope issues for Exceed to intervene in national delivery models. One respondent reflects on the benefit of cooperation between P&O and other disciplines to strengthen referrals, but constraints in doing so;

*“In Myanmar the need for referral for other needs for people with disability is not recognised. We are promoting that this is a problem – advocating that it can reduce secondary impairments and long-term costs. We want to develop the processes for discharging clients – making sure their needs have been signed off before they are discharged. [but] – PT [physiotherapist/s] and PO not working well together. [There is] training for PT and PO – we recommend that the students have some classes together, this will impact on their respect and knowledge of each other when they are working... but nothing is happening.”*

*Employer*

Challenges working across disciplines probably arise from both practice and models of service, but also because rehabilitation and allied health professionals overall, are limited in number.

*“We have to train the patients we need a lot of PT here too, but we don't have them. So, we need PTs but in PT department, they said there are not enough PT here. We need at least one. That would be better for the patients, more effective.”*

*Graduate (F), Myanmar*



This highlights a concern about emphasis on support for P&O compared with other disciplines.

*“There is not a lot of training here, but they have done for example training in other countries like Thailand and Japan on OT [Occupational Therapy] and speech [therapy], so PTs are doing that. So, they have to go abroad. There is not much here. So, it is a small amount of the PTs who go for that.”*

*Physiotherapist, Myanmar*

*“Usually PT and OT have a longer history and don't always cooperate. We also know of some resentment with all this international support. But we have seen this in Japan too.”*

*Nippon Foundation representative*

While uncommon, respondents described situations where other disciplines were actively unhelpful, rather than simply disconnected, from P&O;

*“The [physiotherapists] say patient just need Physio. They care about their profession and making money, so they say brace won't work with stroke patient but really they worry they won't need their profession anymore.”*

*Graduate (M), Cambodia*

## **STRENGTHENING SUPPORT FOR P&O**

This section examines the effectiveness of measures to strengthen national scenarios for P&O. While most of the efforts to influence policy were initially framed as advocacy, there were many more activities with the direct or indirect intent of strengthening the domestic support for P&O. Clinical services, emphasis on standards, leadership development, continuing education and technological innovations have all contributed to how P&O is perceived and supported.

Factors identified include formal recognition and regulation of P&O, governance (financing, policy and service structure), awareness of P&O in other health services, and how respondents reflect on the status of transition from international philanthropic and technical support to fully nationalised activities.

## Formal recognition and policy for prosthetics and orthotics

Tangible changes to national policies to recognise the prosthetics and orthotics discipline, and prosthetists and orthotists as professionals, have been slow to emerge. The scenario is highly variable across the region. Where there is policy, it is not always implemented.

In countries where formal recognition or licensure of other health professionals is required for practice (at least in the state system), adding a new discipline takes time. The implications of slow recognition on the realities of employment was prominent in the Philippines, Cambodia and Myanmar.

*“You see the first intake, the 4 PO working here. Their designation is PT because that is the same and that is why the government gives the PT label, but they work as PO.”*

*Graduate/Employer (M), Myanmar*

*“They forget us and the profession and importance of providing mobility for persons with disability, so we are not included in national planning.”*

*Respondent, Cambodia*

Many respondents, especially graduates, reflected on negative issues associated with poor formal recognition of P&O. Formal recognition intersected with challenges linking to other rehabilitation and health professionals, and threatens staff motivation;

*“The challenge is not just the money but also system recognition. We are isolated from other health system and services. They don’t welcome us at the hospital and ministry of health. The MoH does not prioritise PO in the strategic plan. When I want to cooperate with them they say, ‘it’s not my job.’ We should be classified in the medical model, but we are not. Our certificate is not recognized by MoE. When we study ISPO recognize us but not MoE or MoH. This has changed now only in the last 2 years. This has effect on staff. They need motivation and status to work in society.*

*Graduate (F) Cambodia*

*“I would prefer that there was registration – it would help with job opportunities. The problem is that there are no job opportunities.”*

*Graduate, (M), PSPO*

Even if recognition is not formalised, some perceived ‘effective’ recognition and use of other health-sector categories as signs of good recognition of P&O. Reflecting on national support for the training program, one respondent suggested;

*“First the government has recognised the PO and has brought high level awareness to the ministry level and to the rehabilitation doctors.”*

*Sector informant, Myanmar*

## The meaning of ISPO recognition

Where either P&O is not recognised, or recognition is in development, respondents believed that ISPO recognition of graduates played a useful interim measure;

*“At Philippines level – we don’t already have the local registration yet. The ISPO registration is much better because it is recognised outside the Philippines.”*

*Graduate (F), Philippines*

*“To register for practice, for now it will be the ISPO registration... so far there are not enough schools to establish a local registration body.”*

*Graduate (F), Philippines*

*“Yes [ISPO recognition is valuable], because if we are recognised, we can work around the world. It depends on situation if I would do that or not. If my family allowed me, I would do it.”*

*Graduate (F) Myanmar*

However, as explored earlier, the meaning of ISPO recognition at least partly depends on whether employers consider it in their recruitment;

*“The organisations over here are not that much aware of the cat I educations and the level of the practice in the field. That is why it hard to find a job if you have the cat I.”*

*Graduate SSPO upgrade*

## Regulation

Whether services of P&Os and related professionals are regulated is an important consideration in understanding how a new workforce is integrated and nurtured. Overall, we found regulation to be a semi-formal arrangement, and that the training qualifications, employer choice of graduates and to some extent, ISPO recognition of the programs, is acting as ‘proxy’ regulation. In some countries, this was considered an interim measure, in others, particularly in Cambodia, there appeared to be less realistic potential of a licensure or formal regulation arrangement.

Where there is a degree regulation, it is clear there are workarounds or violations.

*“There is regulation that only PO can produce PO, technician or PTs cannot produce. It does still happen that technicians or PTs produce. [It is] regulated by the government.”*

*Graduate (F), Indonesia*

*“...surgeons can [refer] to people without proper recognition, so far, because we are not recognised as proper professionals.”*

*Graduate (F), Philippines*

In the Philippines, pursuing a licencing and regulation arrangement through the national commission has higher stakes, because of national insurance financing. However, one account suggests there is administrative block to regulation of a new professional group;

*“[Here we] have a professional regulation commission, [there are] boards for OT/PT – but we need three schools to establish a board for P&O.”*

*Sector respondent, Philippines*

One respondent speculated that the ongoing presence of Exceed might be a constraint to national leadership;

*“Right now, we are leaning on exceed. Exceed is the ceiling. The nationals will not elevate to that level as long as that 'cap' in that place.”*

*Sector respondent*

## Towards better policies

When asked to reflect on potential solutions to strengthening the recognition of P&O, and on relevant policies, most respondents proposed regulation and licensure as a key target, and broad concepts of ‘advocacy’ mostly through exceed;

*“We need better coordination, so we can coordinate with other professions. There are some strategies to bond with the MoH. We need to advocate for the profession to have a collaboration between the two ministries.”*

*Graduate (F), Cambodia*

In Myanmar, working with the Ministry of Health with rehabilitation medicine authorities and the WHO was ongoing, while in the Philippines, a representative of a DPO highlighted low political will as a barrier;

*“Rehab is not a priority for DoH because there is a separate management for rehabilitation and they are not working together. We have the centre for rehab but look at what it is - they don't upgrade their facilities, they don't have technicians. There's planning issues”*

*DPO representative, Philippines*

Whereas, sector informants with exposure to policy development reflected on challenges to uptake of policies;

*“[We] found utilisation [of insurance package] was poor even after Philhealth. We realised accessibility was a problem. [That was] because only three hospitals offered [services]. Transport of people needing devices was a barrier, and people are not members of Philhealth.”*

*Sector respondent, Philippines*

## Financing

Clearly the extent to which P&O services are paid for, whether by clients, state insurers or other sources, is fundamental to integrating and supporting P&Os to provide their service. In CT/Exceed supported countries, and in Thailand, financing for health services generally, and P&O specifically, is highly variable. Overall, the financial contribution of international and national NGOs has been fundamental to the delivery of even the most basic services. Prominent exceptions are Thailand and the Philippines.

In Thailand, through national health services, a modest but useful reimbursement is paid to hospitals.

*“Because I have Government insurance, 30 Baht scheme. If they refer here, they have to pay from Sibichai hospital through that scheme.”*

*Client (M), Thailand*

*“But prosthetic is based on money that the Government is going to pay. Consumers can buy their own fancy product and get the 220 [dollars] from government. They can only get basic component with that.”*

*Graduate (M), Thailand*

Importantly, discussions on the employability of graduates informed early investments in Thailand. Initial planning involved consultation with MoH who;

*"...agreed that [graduates of a baccalaureate program] should be recognised, but it wasn't until some 7 years later that it happened. But there was direct link between the graduates and integration into the national system."*

*Nippon Foundation stakeholder, Japan*

In the Philippines, some prosthetics services are included in national health insurance mechanisms, even if there are uncertainties about the uptake and effectiveness of that program.

*"Philhealth will now pay for PO including therapy. [A] basic package [was only] transtibial and expanded to other conditions."*

And while there are current limitations, insurance-based financing offers the potential for purchasing arrangements with P&Os;

*"Private P&Os could be subcontracted to a public hospital and claim Philhealth reimbursements."*

*Employer, Philippines*

But, this source of financing is constrained by an administrative challenge, where payment can only be made to services recognised by government, but that recognition is slow or absent, as explored earlier in this section;

*"[The barrier to subcontracting/purchasing arrangements] is that govt will only recognise government facilities – but we don't have positions for PO clinicians. We are working with DoH to work out a way to have some sort of certification. They can take the general public service exam, but they will end up with very low salary. There is no item for PO in the public hospital."*

*Sector respondent, Philippines*

In Indonesia, there are some mechanisms for workplace injuries to be financed through a work insurance mechanism, but awareness and uptake is low, and clients are likely to need to travel to major centres

*"Some prosthetics are covered by insurance – e.g. work insurance, but if usual insurance they are not covered."*

*Graduate (F), Indonesia*

By contrast, respondents in Myanmar, where international support is ongoing, noted the current emphasis on donor support, through Exceed and the Nippon Foundation, and the threat of transition to national financing. One respondent described the costs and Exceed/TNF support;

*"..so for import, its 50000 [US] dollar for one year, and Ks200,000 is available for a person, so after exceed there will be some difficulty. Before Exceed was around - around 2013 - we had problems to get devices to clients. But during the exceed supported years, we had no problems, free of charges and patients are happy"*

*Sector informant, Myanmar*

The implications of financing challenges on clients are mostly self-evident. User-pays systems have the effect of reducing choice, restricting access, or burdening individuals and families with potentially catastrophic costs of self-financing [13]. We find evidence of this issue in testimonies

about how payment whether for services, components or costs associated with travel, affect consumers;

*“In hospitals, in Government hospitals salaries are funded but the patients pay for the devices. It is only affordable for the middle and high-income people.”*

*Graduate (F), Indonesia*

*“You can start a private business if you target the right people. Like rich people, people with insurance. But not people in the provinces.”*

*Graduate (F), Philippines*

*“I have seen the lack of awareness of PO here and have seen patients at low points where they are not getting the right information and it is all about the money.”*

*Graduate (F), Philippines*

With international financial support, challenges sustaining services in the long term were expected. Several alternative financing strategies have been implemented with varying success. Others have been proposed but not continued, due to a lack of support or financial resources to launch new models. Within Exceed and its partner organisations, proposed solutions have included cost recovery from clients, social enterprise model where a proportion of profits from private services are used to offset costs of free or low-cost services, private donations, and institutional donations of materials not part of the Nippon Foundation investment.

At least for Exceed, introducing private, not-for profit model through the Exceed Social Enterprise approach, is now central to its efforts to ensuring the financial sustainability of its programming.

Reflecting on Cambodia Trusts 2000 *Master Plan* [8] is illustrative, and implies that the need for alternative funding measures has arisen because of delayed uptake of P&O into national health financing, or potentially a miscalibration of the likelihood of that happening at all:

*“There was really no reference to private sector in 1991 or even the original master plan; we didn’t see that coming at the time. The emphasis was on government, with the basic assumption that one way or another the govt. would take over.”*

*Exceed Management*

Other barriers are administrative, and specific to the national context. The situation for cost recovery in Cambodia is illustrative;

*“It’s [a cost recovery scheme] actually in place with [the Cambodian] government but hasn’t been implemented. They developed a questionnaire to decide if the patient is wealthy enough to pay or not. It’s quite well defined. It generated very little money [at the start] because we [had to] to make some legislative changes. There [was] something in the Prakas [national legal instrument] that says [government] should provide free services. However, in early 2019 it was approved and generated USD12,000 in one month.”*

*Exceed Management.*

## What health professionals know about P&O

Without appropriate referrals for care, the P&O workforce cannot provide timely and appropriate care. While some clients might self-attend, for most, referral through the primary



health care system would likely be the most effective solution. Here, we find that there is poor awareness of P&O. Respondents suggested that few health care professionals know enough to make the right referrals, and that there are many misconceptions about what services P&Os can provide, and to whom. The implications are potentially catastrophic for clients;

*“We ask them when they have surgery for amputation where the patient goes, and they don’t know to send them to rehab they just get sent home.”*

*Graduate (F), Cambodia*

*“Some patients go to hospital. Like patient that has amputation. You have to go to rehab centre to learn how to work. I ask patient why they didn’t come early after amputation as it was 3 years ago. They said they didn’t know about service. Doctors don’t know how to manage the stump so that it fits well with the prosthesis.”*

*Graduate (M), Cambodia*

On the other hand, there was a trend for respondents to describe better awareness in health professionals, or at least that most of their referrals came from doctors – but that among many others – there is still low awareness of P&O;

*“Some people still don’t know about the PO profession. They think we are just making it for the money. We are doing presentations to hospitals to raise awareness of PO.”*

*Graduate (M), Myanmar*

*“Even medical professionals, they don’t know, they don’t know. They thought P&O means like Piano. They say, ‘I didn’t know that about you!’”*

*Employer (M), Myanmar*

*“In the other medical and health professions – outside doctors not from here – they don’t really know about what we do. They know about prosthetics but not what we do. But there are a lot of medical professionals who don’t know what we do. They just think we make the prostheses and not do the fitting. They don’t really understand our expertise.”*

*Graduate (M), Philippines*

Most of the issues were described as related to how P&O was situated in health services, and how referrers and clients understood the profession and sought P&O services.

P&O professionals often reflected on the isolation of P&O from health services planning and governance, which is also reflected in discussions of policy, recognition and financing, above. In Cambodia, prosthetics and orthotics is under the auspices of the Ministry of Social Welfare. One respondent suggested;

*“The workforce planning has to be aligned with the healthcare services. There needs to be Rehab clinics in hospitals for better referral.”*

*Graduate (F), Cambodia*

Respondents in Indonesia felt there was reasonable awareness P&O, but perhaps not the strengthened professionalism associated with new training and implementation of standards;

*“Doctors some of them know about PO – if the doctor knows our graduates have a certificate then they will respect us more. They need to know we have standards and certifications, like them, that we are not just technicians.”*

*Graduate (F), Indonesia*

*“Mostly devices are handled by the PTs, so PO is not well known.”*

*Graduate (M) Indonesia*

An alternative explanation emerged from some respondents, who had experienced referrals to P&O, but were dissatisfied with their experience;

*“We have referred about 15 patients - challenges include transport, distance to services, whether they can attend follow up appointments, time off work - out of these 15 there are only about 3 or 4 referrals that have been successful”*

*Sector informant, Philippines*

*“[..before], the technicians were making devices for the patients and things were going smoothly, not a lot of problems. But now with new graduates, we are seeing blisters and problems. So, they need more experience. There is not a lot of difference, the device is the same design, so it’s just the socket fit. It is just some not all”*

*Referrer, Myanmar*

## Client knowledge of P&O

While the outcomes of poor awareness of P&O are important for new professionals, they are more problematic for the clients. Given limited awareness in health professionals, many clients rely on personal information or chance encounters with other people who know about P&O. They must then negotiate challenging transport, costs, and uncertainties about what the services involve. A more comprehensive presentation of findings about client awareness of P&O is presented in part 3, in the section ‘Referral pathways and delays’ on page 98.

## Transition issues

Findings highlighted that uncertainty or a lack of ownership of the goal of advancing policy development for P&O plays a role in Cambodia, where responsibilities have traditionally laid with iNGOs in collaboration and partnership with national ministries, but are now well into a phase of transition to full national governance;

*“There is no national plan [for P&O services development and implementation] as yet, there is some talk of this with MoSW. MoSW say its PWDF responsibility. PWDF is only having responsibility on paper but their political will is low, their motivation and interest is low.”*

*Respondent, Cambodia*

But from the perspective of the national employer, managing transition was equally challenging

*“[The transition to national governance is] ..very difficult for us. Some time they [iNGOs] respect PWDF and are guided by PWDF standards sometimes that of the INGO. Right now, recruitment, policy, material (majority from INGO), salary (half/half with INGO) responsibilities is very mixed and inside each PRC is very different.”*

*Persons with Disability Foundation representative, Cambodia*



## THE INTEGRATION OF A NEW WORKFORCE: DISCUSSION

Expert testimonies were used to describe and understand the profile of new graduates and the systems in which they work. The analysis explored solutions for nurturing new professionals, and the outcomes of the investment in integrating a new workforce.

Results from parts 1 and 2 suggest that high quality training and direct investments has catalysed new services and a cadre of professionals and leaders, who have rapidly transformed the scope and quality of P&O services in the countries we examined.

Analysis of the findings revealed six major drivers of or potential barriers to integration of the workforce:


- **Building leadership**, through high-level training and through links with advocacy, services, professional associations and other actions has rapidly progressed the discipline of prosthetics and orthotics in impacted countries. Investments in professionals to take over training positions in the CT/Exceed-supported training programs have provided durable options for quality, nationally-based training, but there has been less specific investment in leadership in service provision and stewardship of the profession.
- Direct **provision of clinical services** has been an important contribution to services, but poor or variable investment in clinical services overall and especially in regional settings, has limited the impact of the investment. Other iNGOs have been important contributors but are constrained by their scope and limited financial resources for accompanying growth of clinical services.
- Targeted, **deliberate strategies to support new professionals after graduation as they enter the workforce** have been valued and effective, but new professionals report fear and uncertainty about the future, mostly related to perceived job security, career development, salary, and professional esteem.
- **Recognition of prosthetics and orthotics in national governance, policy and financing** has been slow to evolve, with mixed results across countries. Where policies do exist, they are not implemented in full. This arose from limited accountability and responsibility, financial blocks, workforce issues and challenges of providing specialised health services outside of major cities.
- **P&O services are poorly connected to other health professionals** necessary for comprehensive care for P&O clients. The investment has made modest contributions to strengthened relationships with other health disciplines, but systematic links for referral and clinical services are both inadequate, causing delays and service gaps.
- Linked to recognition and governance, **P&O services have taken time to emerge in national health and social financing schemes**. Other NGOs, government, and an emerging private sector, have filled gaps. Innovative methods to recover costs and drive service growth are scarce, often due to other NGOs or development partners having variable access to resources, and limited links to other health financing schemes.

## *BUILDING FUTURE LEADERS*

Emphasising high-quality training, based on international standards and backed by scholarships for new entrants to the profession, has ensured P&O has quickly elevated its position and esteem in national health systems – even if there are many persistent challenges to formal recognition and links with other professional groups. Recognised credentials are a source of pride and morale for new professionals and have acted as an interim measure where there are delays in policy reform to recognise or regulate P&O. Graduates overwhelmingly reported that they felt ready to enter practice knowing they had a solid theoretical and practical basis and options for mentoring, but for many - access to basic equipment, supplies and job openings - has constrained their work.

Striking a balance between appropriate low-cost technology and providing adequate exposure and skills in a range of technologies was among the most prominent critiques of both graduates and other sector informants, including employers. On the one hand, some graduates called for more exposure to modern components and methods in their foundation training, while others including some graduates, felt new professionals were not prepared for the working realities after graduation.

Investing in future leaders through upgrading to ISPO category I training has created conditions for successful nationalisation of training programs. Training at SSPO has supported many professionals from other countries to learn and gain transferable qualifications. In the CT/Exceed programs, scholarships for upgrade training in Thailand (and earlier in Australia) created healthy competition among graduates. As the training programs reach sufficient staffing levels of graduates with appropriate training, opportunities for the benefits of competition have probably diminished. Expectations of higher salaries or career growth after further studies have not been met and caused disappointment.

 *Upgrade training, aimed at building a cadre of future leaders in education and to nationalise the programs has been effective, but similar leadership development strategies for clinical services have not been as prominent.*

Continuing professional development has been important and useful, catalysing links to other professionals, and been a source of morale and solidarity for emerging P&O workforce. Upgrade training, aimed at building a cadre of future leaders in education and to nationalise the programs has been effective, but similar leadership development strategies for clinical services have not been as prominent. This created perceived or real inequities and could be a missed opportunity for the program design to balance training with the realities of the national working environment.

The national organisations and training institutes responsible for running the training programs after CT/Exceed withdrawal have different approaches to the long-term development of teaching staff. Supporting faculty to undertake higher degrees and position them for a career in teaching and contribution to research has been left to the programs. In Thailand, Mahidol University has sponsored many staff to conduct higher degrees abroad and in Thailand, across a range of disciplines. The result is a skilled – if young – faculty, to lever the investment in training in Thailand, which is likely to continue to pay a dividend for the profession in the region. Similar



opportunities have not been common in other countries. There is some threat to the durability of teaching programs without a realistic pathway to higher degrees.

Transition to national leadership, withdrawal of international financing and upskilling of the workforce has included challenges. Technicians working before this program have often been included in upgrade training, but in some countries have felt threatened, left behind, or have made entering the workforce difficult for a younger generation with more theoretical skills but less knowledge. Other training models emphasise workplace-based training, combined with e-learning methods to provide upgrade training. This approach recognises pre-existing expertise, and probably increases the contextualisation of training to the working context.

### *STRENGTHENING CLINICAL SERVICES*

Investments in training, complemented by clinical services, have driven rapid growth in the P&O sector in the countries of action, and in many other countries where graduates have returned. Findings revealed profound changes, but persistent barriers to access outside of major cities. Issues were not only attributable to the distribution of services, but also to knowledge of P&O in health providers and the community. While it is not uncommon for P&O services to be localised major cities, even where P&O is more evolved, the problems are especially acute in this context, since travel can be challenging, and the likelihood of effective referrals to major services through primary health care is very low.

The centralisation of P&O services is usually explained as the result of the need for specialised equipment and targeting scarce services where the need is greatest. Nonetheless, access at all levels of the health system is goal of health services planning overall, and of P&O standards specifically<sup>30</sup>. We found several barriers to decentralisation. On the supply side, even where health service providers have a requirement or authority to include P&O care, they experience challenges with start-up of services including capital outlay and recruiting skilled professionals.

Graduates are usually reluctant to work in regional areas. They cite a lack of family support, fewer career growth options, less access to peers and further education, challenges accessing materials and components, and the knowledge that regional services are often poorly financed. On the other hand, some graduates expressed disappointment they could not work in their home districts. They reported that there were no services, or where there were services, but they could not be transferred there. Other NGOs have been important in early uptake of graduates in most countries, but are constrained by their own access to finances and ability to plan the length of support necessary to ensure effective integration of new professionals.

The implications of poor coverage of P&O on clients is considered further in Part 3. In short, clients in regional areas have poor knowledge of available services, compounded by delayed referrals (or no referral at all), and delay or avoid costly and inconvenient travel for rehabilitation. Some services have been available in regional areas, but clients circumvent them and access services in tertiary centres, either due to knowledge, or perceived or actual quality

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<sup>30</sup> ISPO standards, standard 42: *“Prosthetics and orthotics services should be delivered through a three-tier system at primary, secondary and tertiary level, with established links and two-way pathways for referral and follow-up”.*



issues with locally available care. Delays in progressing access to services at local levels are compounded by a lack of clear centralised planning of P&O services in most countries.

*Implications for graduates arise through developing high expectations that are not realistic in their workplaces, without support for systems, equipment, and strengthened relationships with other health disciplines.*



Many of the challenges arise from issues outside the intended scope of the CT/Exceed program. Influencing quality and models of service delivery cannot occur through foundation training alone, or through providing direct services. However, findings revealed some tensions between national stewardship of services and the model and level of training provided. Training standards have been central to CT/Exceed programming. CT/Exceed's own clinical services use international recognised quality management methods, but in other workplaces, quality management is rare outside of large iNGOs. Implications for graduates arise through developing high expectations that are not realistic in their workplaces, without support for systems, equipment, and strengthened relationships with other health disciplines.

Challenges for access at community level are common in emerging prosthetics and orthotics services [14, 15]. Finances through this program were not allocated to service development outside of CT/Exceed's own services, and expansion of services outside of major cities has been limited. The program aimed to build leaders, catalyse sector development, CBR and mobile clinics run by a combination of iNGOs, NGOs and state actors complement P&O services, but persistent barriers to equitable and quality services remain. Success has often depended on other partners, who have not had similar access to durable financial support such as the Nippon Foundation's support of Exceed. Models of service delivery like telerehabilitation, central fabrication and other potential innovative solutions reported elsewhere [16] have not been attempted at scale – often due to limited access to finances for untested innovations.

### *NURTURING NEW PROFESSIONALS*


Supporting and nurturing new professionals to join health services was affected by a range of program interventions, and conditions in the contexts in which graduates were employed. Some parts of the program specifically aimed to support new professionals. These included a clinical mentoring arrangement, CPE opportunities, and deliberate strategies to continue links between the graduates and schools. Often the links were informal, arising from strong, trusted relationships with the training staff. These measures had the impact of staff feeling supported and having knowledge and expertise available to them. Graduates overwhelmingly suggested they felt ready for clinical practice especially knowing support and further training was available. However, many graduates found the transition to work more complex than providing clinical care alone. Graduates reported concerns about career growth, salary, relationships with other staff, and links with other health professionals. Mentoring approaches alone appeared inadequate to tackle these complex challenges.

We observed that while most graduates were employed, there were often a lack of job opportunities, especially where services are more established. This is particularly true in Cambodia, where a stable – if insufficient – number of professionals are employed. In other countries, during the early years of intervention, the demand for expertise was high,

international financial support was available to launch services, continuing professional development opportunities were available, and for promising future leaders, international upgrade training and higher degrees inspired performance and raised morale. However, as programs matured, these opportunities diminished.

While the rehabilitation workforce is poorly understood in health systems [17], most conclude that it is insufficient to meet demand [16, 18]. Here, we find that even for a growing profession like P&O, there is sluggish uptake of new graduates, often linked to access to finances. In turn, poor financial support is related to a combination of awareness of rehabilitation and P&O services in health service decision-makers, prioritisation of P&O in health planning, weak or limited policies for rehabilitation, or limited accountability for the delivery of commitments under existing policies.

The experience of people with skills and training from before the current generation of P&O training is at least as important as introducing new graduates. While our aim was to explore the perspectives of new CT/Exceed and Nippon Foundation supported graduates, we had the opportunity to learn from a few staff with decades of experience, but few qualifications. Some graduates we interviewed were selected from existing cadres and re-trained as Category II or I professionals. Overall, the experience for this important group of people was challenging. Selection criteria for training programs often precluded re-training.

 *Noting the large philanthropic investment in the profession, there is some risk that at least a proportion of the most promising graduates will shift to the for-profit sector, and that the investment will have subsidised their business models.*

In some countries, a future in private practice is a desirable option for professionals, but many are cautious of high capital outlay for uncertain returns, especially with large international players entering the market. Many graduates report a desire to work for private practice, and those who do, report high satisfaction and a financially rewarding career path. Noting the large philanthropic investment in the profession, there is some risk that at least a proportion of the most promising graduates will shift to the for-profit sector, and that the investment will have subsidised the business model of the private sector. This is not uncommon in other disciplines. Exceed's approach is to champion and drive the development of a private sector, arguing that it has the potential to sustain the sector, expand coverage, and incentivise continuing in the workforce. Managing the possibility that low cost or free services, whether through government provision or not, is clearly an area for further consideration and potentially some regulation or guidance.

### **GOVERNANCE OF P&O AS A KEY BARRIER & FACILITATOR OF INTEGRATION**

CT/Exceed programmes have led to a rapid shift in the profile of P&O, but formal recognition of rehabilitation services generally and P&O specifically, has been slow. Despite the obvious positive shift in the profile of P&O, limited formal recognition and awareness of P&O in other health professionals affected the motivation and morale of graduates, and was sometimes associated with dissatisfaction at work, and decisions to leave the profession.



*Even where there are strong policies, there is evidence of poor compliance.*

Despite a lack of formal regulation, there are informal or ‘proxy’ measures to regulate who can provide P&O care. Most obvious is that only graduates of appropriate schools are employed by most state and non-state actors, but there were many accounts of unqualified people providing prosthetic and orthotic devices outside. The scale of this issue is unknown, but it appears likely that greater awareness in health professionals and the grown in service availability has either reduced the number of unqualified operators or will do so in future as consumers learn more about options for free or low-cost services from qualified staff. Anchoring training in ISPOs framework, which is essentially a peer-review model, appears to have given important stakeholders and decision makers confidence in the validity of training, and aligned the training programs with national tertiary qualifications. Even where there are strong policies, there is evidence of poor compliance. This is consistent with how normative frameworks for services [19] and action planning for rehabilitation are slow to implement [20-22]

P&O professionals reported that they almost always had access to necessary materials and supplies where they were employed by national health services or iNGOs. Some were working independently and recalled difficult access to business capital and user-pay financing which threatened their services. Especially in Cambodia, financing for services is at a critical turning point as international support scales back. National insurance mechanisms in Thailand and the Philippines are useful, but only adequate for basic components and services. User top-up is possible, but uncommon. In Myanmar, there is a good starting point for durable national financing of services, but most costs are borne by iNGOs including CT/Exceed with Nippon Foundation support. As Myanmar undergoes change, it is not clear what role the private sector will play, but it is likely to be an important part of the financing mix for healthcare.

Introduction of quality standards has had positive benefits, including a perceptible improvement in service quality and associated benefits for consumers, but also ensuring accountability necessary to lever national health insurance in the Philippines for some P&O services. From the perspective of new professionals, training based on recognised standards has ensured formal recognition of training programs by both national education authorities, health authorities in some countries, and internationally through ISPO recognition.



*We also found poor consumer knowledge, or negative perceptions about the value of P&O.*

A major threat to integration of an emerging P&O workforce was links to other professionals. As has been seen in many other contexts low and middle-income contexts [23-27], knowledge of rehabilitation services in other health services is poor. We also found poor consumer knowledge, or negative perceptions about the value of P&O, which is common to other literature [14, 25, 27-30].

## FINANCING P&O

By committing to long-term plan of scale up and transition, backed by regionalisation and other strategies, Exceed and Nippon Foundation have created good conditions for national buy-in and transition to national financing of P&O services. However, results have been mixed. All countries have strengthened financial commitment to prosthetics and orthotics in the time since the investments begun in respective countries. However, especially in countries with established programs, scale, quality and choice of services are constrained by access to finances, and consumers are mostly (but not always) unable to self-fund.

A new scheme to fund P&O services is scaling up in the Philippines and is aligned with general national health insurance but was is limited evidence of its current scale or effectiveness available for this evaluation. P&O services are available through general health insurance in Thailand, and through the national health services in Sri Lanka. In Cambodia, financing P&O has occurred separately from healthcare, at least partly due to the situation of P&O in a social ministry, and through international financial support.

As international support has withdrawn, finances once available for salary subsidies, equipment and supplies, and other support to the sector, have been removed, or shifted to remaining NGOs – with incomplete uptake from national financial schemes. This was predicted; Cambodia has inequitable economic growth, a high need, and competing national priorities. However, despite Cambodia's history of innovative solutions for health financing, similar options have not been implemented for P&O – either within current health financing solutions or parallel approaches for P&O.

Some options might have included a purchasing arrangement, where a 3<sup>rd</sup> party payer (perhaps financed by existing NGOs and institutional donors) could have smoothed transition to state financing, which is a familiar method in Cambodia. This might have been combined with grants for service improvement, or similar strategies. Recent Australian bilateral investments have focused on transition to national financing while adding new services to rehabilitation centres and have been a further pressure on P&O services.

*Despite Cambodia's history of innovative solutions for health financing, similar options have not been implemented for P&O.*

Similar innovative financing options, other than Exceed's own Social Enterprise model, have not been trialled in other countries. Given consistent financial barriers to scale, and the potential to negatively impact how a new profession emerges, renewed focus on contemporary health financing options will be timely and important for P&O.



Image: W. Pryor (2018)

*“I got [this wheelchair] from an uncle who died. For 1 month I was using the wheelchair. But I kicked that away because I didn’t want to use it. So, I used the cane, but I didn’t want to use that. So, I walked using the walls. I then saw someone at PGH was using a splint, they told me where it came from and how much it cost, but it was so expensive. I joined the stroke foundation and that is where they told me about how I could be a model patient and get a free service here. I really value this item right now and it helps me to walk. I get it through the student clinic.”*

*Client (F), Philippines*

## PART 3: CLIENT IMPACTS

# Transformative change, missed opportunities: Learning from client testimonies



## OVERVIEW: UNDERSTANDING IMPACTS AND CHALLENGES FOR CLIENTS

The findings from interview respondents about the experience of clients of P&O services identified key themes relating to the underlying need for services, referral pathways, issues relating to clients' ability to access services, and the impact on the lives of clients and their families.

### NEED FOR SERVICES

Participants who were clients of the P&O services reported a variety of underlying health conditions necessitating a need for rehabilitation services and leading them to seek care from the P&O services. Clients with an amputation reported that these were the consequence of motor vehicle accidents, workplace injuries – mostly relating to the operation of machinery, landmine injuries, and complications of diabetes. Other clients were seeking rehabilitation following stroke, spinal cord injury or degeneration, congenital limb deficiencies or for the consequences of communicable diseases such as polio or meningitis.

Clients reported difficulties with balance, muscle weakness and pain, resulting in mobility impairments and subsequent restrictions in participation or independence in many aspects of daily life including school, work, self-care, household tasks and community activities, as well as experiences of stigma and discrimination.

*"[Her] Grandma had taken her to school every day before that. But she became bigger, so she needed a leg to walk to school by herself."*

*Client (F), Cambodia*

*"I was walking with kneeling and I could not reach long distance"*

*Client (F), Indonesia*

*"After I lost the leg I didn't go outside the home. Because I was afraid of falling down."*

*Client (M), Myanmar*

*"In crowds I prefer to get away from people – they might discriminate against me and think I am a drug user [because I can't walk properly]. I have to hold onto the wall. It is very tiring."*

*Client (M), Cambodia*

Clients therefore reported a need for P&O and other rehabilitation services to reduce their impairments and improve their independence and participation.

*"Without device they cannot get out of house and be involved social activity. Some people have discrimination of disability."*

*Graduate group, Cambodia*

*"During the year when I did not have a leg, I just stayed at home. When he used the crutch he just stayed at home, couldn't ride a bicycle. When he wanted to a shower he could not, so he would use the river with crutch."*

*Client (F), Cambodia*



## REFERRAL PATHWAYS AND DELAYS

Referral of clients to P&O services was reported by interview participants to be through a variety of pathways, and most clients identified that they did not find out about the services from their health care provider.

*"I normally ask and talk to patient about how did you come to centre (PRC) and they tell me that they didn't get the information from the CHC. Most of the patients know about the centre through relatives, neighbours, volunteers or staff of DoSA. So that is why that we should do something for the health centres."*

*Graduate (M), Cambodia*

*"It took a lot of time to get the information about where to get prosthetics, how much it cost, before found out about [the clinic]."*

*Client (M), Indonesia*

Many clients reported that they learned about the P&O services through word of mouth rather than through any formal referral or information mechanism. For example, they learned about services from village leaders, neighbours, friends, colleagues or extended family who had received services themselves or knew someone who had.

*"When she was 6 they lived in a province area. A group of people from her village (neighbours) told her to go to the centre and she would receive braces, wheelchairs and so on."*

*Client (F), Cambodia*

*"I [service user] tell my friends about this place sometimes. Very seldom people know about this place."*

*Client (F), Philippines*

*"In fact, my classmate had a cousin who is a student here and told me to come - they got me the number and I called. I didn't believe the doctor, but then my classmate told me that and I agreed to come. The surgeon told me but didn't give me any details."*

*Client (M), Philippines*

In many instances people learned about services through a chance encounter with someone in the community who knew about the P&O services, often sometime after the onset of their need for P&O services.

*"There is a guy in a vulcanising shop who is an amputee, and so then when I went there to get a tyre he told me about this place. He made the referral and gave me a number. He saw me with no leg and he told me."*

*Client (F), Philippines*

*“For 1 month I was using the wheelchair, but I kicked that away because I didn’t want to use it. So, I used the cane, but I didn’t want to use that either, so I walked holding the walls. Then I saw someone at PGH [Philippines General Hospital] using a splint [orthotic device]. They told me where it came from, but it was so expensive. I joined the stroke foundation and that is where they told me about how I could be a model patient and get a free service here at the clinic.”*

*Client (F), Philippines*

*“Last weekend I saw a woman from the mountains with club foot - she’s 22 y. ..she found a video of our ambassador on Facebook and found out about our clinic.”*

*Graduate (F), Philippines*

Graduates said ad-hoc and informal referral pathways to P&O services was due to poor awareness by health providers of P&O, as outlined in the above section on workforce integration. The absence of formal referral pathways frequently contributed to delays in clients receiving care, which may have consequences for their longer-term outcomes.

*“The doctor did not tell me about prosthetics. I found out about Puspadi (P&O clinic) after 4 months”*

*Client (F), Indonesia*

*“Last week I saw a partial hand guy, he had a work injury. He didn’t know about the service, he just found out after 10 years.”*

*Graduate (F), Myanmar*

*“[If clients are not referred] they will be late, and we will be late to help them. Like for club feet, they deliver the birth, but they don’t know how to do with the club feet, so it can be late treatment. For stroke if late rehabilitation it will be permanent disability.”*

*Graduate (M), Cambodia*

However, there was some variation reported between countries in the experience of referral to P&O services. Clients of a P&O clinic in Indonesia reported being referred by an outreach team from the clinic that visited their village and was undertaking active case-finding, with some similar experiences reported in Thailand and Cambodia.

*“The outreach team finds clients in rural areas that are amputees that the hospital said they would make the prosthetic, but the client doesn’t have the money to pay for it. He tells them about Puspadi [this clinic] where they can get it for free.”*

*Client (M), Indonesia*

In Myanmar, knowledge of P&O services by health providers and the referral pathway between acute health services and rehabilitation seemed to be more established. Most clients interviewed in Myanmar reported finding out about P&O services from their doctor or hospital.

*“The doctor talked to me about the artificial leg and this hospital and gave me the phone number of the hospital. Once the stump was good I came here.”*

*Client (M), Myanmar*

*“I came here for the device from the hospital. The doctor at Insein General Hospital where I had the amputation talked about this this hospital [national rehabilitation hospital] so I came here.”*

*Client (F), Myanmar*

In Thailand, there was evidence of health system changes that promoted ongoing follow up and referral of amputee clients.

*“The system now, in new amputee case, normally we wait until patient come back to do a prosthesis, but new process we start to tell patient after amputate. We have a system to follow up patient month by month and create system to make patient receive the prosthesis, in the hospital if the patient amputate, the patient will have prosthesis months after, like that.”*

*Graduate (M), Thailand*

Some clients reported that prior to referral to the Exceed P&O services they had sought devices from charities, however raised issues of the suitability or quality of the devices they received.

*“Before coming here, I had a free leg donated from a prosthetic charity in Quezon City because it was black and no-one else wanted it. It was loose, but I used it for 5 years.”*

*Client (M), Philippines*



## *IMPACT AND OUTCOMES OF SERVICES FOR CONSUMERS*

### *Independence, participation and inclusion*

Clients of Exceed-supported P&O services reported overwhelmingly positive outcomes as a result of the services they received, with subsequent impact on all areas of their lives including their independence in self-care and household activities, and their ability to participate in education, employment and social activities.

Almost all interviewed clients reported improved mobility as an outcome of their prosthetic or orthotic device. This enabled them to stand and walk independently and with greater confidence, at home and in the community.

*“After I get the device I will be able to walk like a normal person and I won’t need any help.”*

*Client (F), Myanmar*

*“This is the 3<sup>rd</sup> shoes. These are essential things, because I couldn’t walk with other shoes. Even at home I need to wear it. I wear it every day, all the time. If I did not I could not walk, I could not balance, I would need to use the crutch.”*

*Client (F), Thailand*

*“The device helps me to walk around to talk to friends, walk around the village. To go the market.”*

*Client (F), Myanmar*

*“I wear a brace. I had polio, braces help to make activities easier. If use the brace I do not need to use crutches, so my hands are free to do other things, like things in the house. It is very helpful, especially for walking in uneven terrain.... helps with mobility, it helps to walk at home where the terrain is uneven.”*

*Client (M), Indonesia*

However, there were some limitations in the technology available to achieve the desired outcomes for some clients.

*“I would like to run, but I cannot. Because the leg quality is still limited I cannot run, I need a very modern leg. When I studied in high school, I was a runner. I would love to run again.”*

*Client (M), Thailand*

*“No it didn’t help me. Now it is hard to go up the stairs. It is painful, that’s why. And to get into the jeepney that is difficult. Now they told me to come back and maybe try to fit something again”*

*Client (F), Philippines*

Clients reported that improved mobility as a result of the P&O services in turn had positive impacts for their participation and the contribution they could make to household chores.

*“It helps me stand, just things like household chores, cooking and washing plates because you can't do that while holding crutches.”*

*Client (M), Philippines*

*“It is a really big help for me, as a mum, I can do chores at home. My babies are 5 years, 2 years and 6 months. It would be very difficult without prosthetics, I can do whatever I want. I can do the chores. I can do it all, without help. If my husband is working I can take care of things.”*

*Client (F), Philippines*

*“I don't need any support, I can do everything I need to do now. I can do routine life, wash the clothes and cooking, but this is not the same as original leg.”*

*Client (M), Thailand*

The ability to engage in employment or other livelihoods activities was also reported to be a significant positive outcome for clients as the result of the P&O services.

*“One lady before worked in [a] government factory. After amputation she couldn’t work and stayed at home. At the factory she needed to sew and didn’t have the limb to do so. Then she had our services, have artificial limb and work normally and could go back to work.”*

*Graduate group, Thailand*

*“So, it is easy to move around, and it is convenient - with just crutches it is just so hard. After 30 minutes I get tired, but with this [prosthetic] I can stand for 2 hours at least. I was a chef before, I want to go back to that work as a chef - if I get used to walking like this, many hours of standing for a long time. ..I can apply to work as a chef.”*

*Client (M), Philippines*

*“Previously I walked with the crutches, this was difficult. After I walked with the device I feel confident and happy. If I didn’t come here my life might be very short, I think I would die. It has helped a lot coming here. After getting the device I feel like a normal person, I can go work, I can earn money.”*

*Client (M), Myanmar*

There were positive impacts also noted in terms of improving the ability to access education and training by clients.

*“It is very different with and without the leg. In the house she doesn’t wear it. But outside if she has to go anywhere she wears it. She either walks or ride the bike. That makes her happy because she can ride her bike to school by herself.”*

*Client (F), Cambodia*

*“When I have crutches I study to grade 12, but when I got orthosis I went to school and learn about computers. I live approx. 1 km from school. It was hard to walk there on crutches”*

*Client (F), Cambodia*

The provision of devices was also significant for clients in their confidence and ability to access the community and use transport independently.

*“The old prosthesis breaks easily and has a very annoying belt. The new prosthesis has a rubberised foot instead of a concrete foot, so it moves while you walk. Now I can walk around the mall, before I could not do this.”*

*Client (M), Philippines*

*“With the device I can go anywhere I want. It is very helpful for whatever I want to do – I can ride a motor bike. ..It helps so many things. ..I only take off the device for going to bed.”*

*Client (M), Myanmar*

*“Well I am able to walk without crutches or wheelchair and that is good. I had a stroke. Before I had AFO [ankle-foot orthosis] it was difficult to get the jeepney but with AFO it is easier. There is a market place, I walk there, and it is 3 hours. Before, I did not want to walk at all... I really value this item right now and it helps me to walk.”*

*Client (F), Philippines*

*“Can climb in and out of jeepney easily now. Before it was hard because I was using crutches, but most times people helped. Don’t need help now. This is like normal.”*

*Client (M), Philippines*



The impact of P&O services also extended to client's participation and inclusion in social activities with peers, forming relationships, and participation in religious and cultural practices.

*"If I wanted to marry nobody would agree with me, especially in this village because nobody wants me with no leg. For sure if I not have leg I would not marry. Because I got the leg I got confident to ask her (wife) to marry."*

*Client (F), Cambodia*

*"Having a leg, I can go anywhere like hang out with friends, go for walk."*

*Client (M), Cambodia*

*"The prosthetic helps me to move to everywhere, because in Bali there are a lot of ceremonies, and this helps me to go there. It also helps me to attend the regular meetings for the ceremony."*

*Client (F), Indonesia*

*"In the Buddhist religion you must pray with 2 hands. Now I have one hand I cannot pray. Now I am happy I will get the artificial hand, so I can pray again."*

*Client (F), Myanmar*

## Social-emotional impact

In addition to improved outcomes relating to independence and participation, many clients discussed the impact that receiving P&O services had on their emotional state, self-esteem and confidence.

*"[Before coming here] I will stay in my house and not go anywhere because I feel ashamed to everybody. My life would be like a prisoner. Even now if I stay at home I never take it off except to sleep or shower. Most people don't notice that I have disability. Now I have confidence because I walk hands free."*

*Client (M), Cambodia*

*"I feel like I am born again from having the prosthetic. I feel like having a new life."*

*Client (M), Indonesia*

Attending P&O services was an opportunity for peer support through meeting other clients with similar disabilities and sharing their experiences, which reduced their sense of isolation and gave them encouragement for their own rehabilitation.

*"I get the device, so I become a normal person. Before I came here I feel upset, crying a lot because I lost a leg and thought I can't walk anymore. When I came here I saw disabled people walking with the device and I thought I could walk again. I saw some patients who have lost both legs, their situation is even worse, I got a lot of encouragement from seeing other patients."*

*Client (F), Myanmar*

*“If I didn’t come here maybe I would just be sitting there, and I don’t know, I might want to kill myself. I couldn’t do anything. I was there for 5 years, and I was depressed. That was before 2008 when I first found the (rehab service). I also came here and met some friends and that is a hope for me. For 5 years I sat in the wheelchair. Now though I cannot stay home! I have to go see friends and walk, so I don’t want to stay at home anymore.”*

*Client (F), Philippines*

*“At the clinic there were a lot of people compared to only me from our province. It was difficult at home, as I was the only person with a disability, the only girl.”*

*Client (F), Cambodia*

## Family impact

In addition to the impact on their own independence, participation and emotional wellbeing, clients spoke about the impact that receiving P&O services had on their families.

Many spoke of the economic benefits to their family and the potential negative impact on their family’s economic situation if they had been unable to access P&O services, and consequently needed a higher level of care, thereby impacting on the ability of family members to engage in paid work.

*“It helped my parents so that they could go to work without worrying.”*

*Client (F), Indonesia*

*“There may be impact to the client. They will stay at home. This can impact the family as well. The family have to spare one person to take care of the person. The will be poor. Most of the people with disability their family is poor. Those people all have to work.”*

*Graduate group, Cambodia*

P&O services helped with financial or other contributions to the family, through facilitating returning to or finding work, assisting with caring for family members, and contributing to the household;

*“If I come here, it help my family because now my wife is doing business. So when I go back I can help support my family and help my wife in the business.”*

*Client (M), Myanmar*

*“It [the device] is very helpful, I can contribute to the house and the family. I can carry the water. We have a pig farm, so I can help to feed them”*

*Client (M), Myanmar*

*“I was able to also take care my grand-daughters by carrying them. They are 2 years old.”*

*Client (F), Philippines*

## CLIENT EXPERIENCE OF SERVICES RECEIVED

### Service provision and follow up

Clients provided some discussion about the services they received from the P&O services. Unsurprisingly a large part of this was the provision of prosthetic and orthotic devices, but the provision or availability of other assistive devices, such as mobility devices, was also raised, as well as the availability of other therapies (e.g. physiotherapy) and follow up services for their prosthetic and orthotic devices.

Amputee clients reported that in addition to making the device, P&O staff provided advice about the management of their stump, and training for the use of their prosthetic devices.

*“When first came to Puspadi, the staff are friendly, and they give a lot of information and advice about what to do after amputation and how to take care of the stump.”*

*Client (F), Indonesia*

*“The staff are not only giving prosthetics, but also teaching me how to take care of muscles and do exercises and learn to walk.”*

*Client (F), Philippines*

At some services there was also physiotherapy available to support their overall rehabilitation, but at others it was only a P&O service. In some cases, clients reported receiving physiotherapy elsewhere prior to coming for P&O input.

*“Here at the workshop there is also one PT in training how to walk. At the workshop they teach me how to stand with the device and then walking with the device and standing on the device side.”*

*Client (M), Myanmar*

*“The only intervention here is using the prosthetics, not physiotherapy.”*

*Client (F), Indonesia*

In most cases, clients were attending as outpatients, however in Myanmar at the National Rehabilitation Hospital, clients were also able to be admitted as inpatients, which was particularly helpful for those clients from rural areas. I am an inpatient staying here. I have been staying here for almost 1 month.

*“I came here to get the new device. I have had one device before, this is the second one...I have been here to this centre 3 times. I live far from Yangon, 4 hours by bus.”*

*Client (F), Myanmar*

Many clients also reported that they attended P&O services for follow up regarding their devices including repairs, adjustments and replacement. Most reported that this was a simple process and that staff were very willing to assist them.

*“The people here are helping if I have a complaint about the braces they will immediately help me. For example, if the bolt was gone they fix it.”*

*Client (M), Philippines*

*‘Do production in Puspadi but can do fittings in the rural area, except if there is a big adjustment. Can do it more for AFOs, not so much for prosthetics, for prosthetics they need to come to Puspadi.’*

*Client (M), Indonesia*

*“Before I got the first device I came every day for a week. Now I come to adjust the device. They told me that if there is any difficulty with walking or if there is any pain I should come back here.”*

*Client (M), Myanmar*

## Assistive Products

Clients primarily described their experience of receiving prosthetic and orthotic devices, however there was also discussion of some of the complexities of obtaining other mobility aids such as crutches, canes, walkers or wheelchairs to support their needs

In some of the P&O services clients reported that they had been able to receive mobility devices, however often these were not available and needed to be sought elsewhere, usually at a cost to the client. Clients reported obtaining mobility devices from a variety of sources including from charities, DPO’s, private clinics, purchased from the market, obtaining second hand items from friends, family or colleagues, or even making devices themselves.

*“At that time, they gave me exercise training and a wheelchair from Japan. The chair was a good one and small enough for a child.”*

*Client (F), Cambodia*

*“We cannot take devices [walker] home. There are no systems in Bali for providing mobility devices.”*

*Client (F), Indonesia*

*“I got my walking stick from this hospital (NRH). This is a new stick. They also provided the stick. It is not free, I have to pay for it. If I could not afford to pay for the walking stick, I would use the bamboo.”*

*Client (F), Myanmar*

*“All I have is this umbrella, I use it like a cane. They sell them in the market. I asked someone who makes umbrellas to put the cane handle on it like this, my nephew had that idea, he saw me limping, so they did that, it was a good job.”*

*Client (F), Philippines*

*“Was there any therapy at that time, or crutches or anything? No, they just sent me home. Where did you get the crutches? The company that my husband was working at gave them to me. His boss had them and gave them to us. But now they are broken and dangerous. I don’t use them., but sometimes I have to”*

*Client (F), Philippines*

*“I am using a walker that I borrowed from my mum who doesn’t need it anymore.”*

*Client (M), Philippines*

## ACCESS TO SERVICES

Clients of P&O services raised issues relating to their awareness of and the availability, affordability and acceptability of P&O services that all impact on their ability to access and benefit from P&O services.

### Awareness

Knowledge and awareness of P&O services, and rehabilitation more generally, is poor among those who may benefit from these services in all countries where interviews were conducted, impacting on delays in seeking care or a total lack of access.

*“It’s a problem that they don’t know about us. The patient can’t get the service. Like a stroke patient can’t get treatment and just left. They get worse and worse. Eventually they may come. For example, I met a patient in Battambang that had been lying on his back and didn’t know about the existence of the rehabilitation centre.”*

*Graduate group, Cambodia*

*“We did 80 mobile clinics and we still find people using bamboo. Those are the people missing out, those people who don’t have the information.”*

*Employer (M), Thailand*

A lack of understanding of rehabilitation and how these may assist in addressing their needs, even where people are aware that services exist, impacts on their access. For some this was driven by fear and false beliefs about what would happen if they did access services.

*“At that time, they were afraid to go to the centre because they feared they would amputate the rest of the legs”*

*Client (F), Cambodia*

For others, they believed they or their family member could not be helped by the services available or that rehabilitation was not a priority.

*“They said go to the doctor, but they also said that there was no medication to cure me, so I thought if it’s not curable there is no point in going and so didn’t go because it costs money. If they find something else wrong with my health it would cause me stress”*

*Client (M), Cambodia*

*“Usually I encounter parents who are not committed to therapy for their child. I can’t convince them that they need it.”*

*Graduate (F), Philippines*

Other potential consumers are reported to be too embarrassed to seek help to address their needs or felt they were better off without the devices.

*“She feels shy and embarrassed. She delay going to the service for this reason. She tries to “solve the problem by herself until she can’t handle it anymore because she doesn’t want to see that guy.”*

*Client (F), Cambodia*

*“Since PSPO - it is the same attitude among people with disabilities even though the technology has improved, their attitudes towards using devices hasn’t. They prefer to do their work without prostheses. It’s faster for them. ..In rural areas their priority is survival, if the prosthetic slows down their productivity they won’t use it. The project has not changed this attitude.”*

*DPO representative, Philippines*

However, there was a sense that the Exceed program had been successful in promoting awareness of P&O within the communities where the program operated, and that this was having a positive impact on the lives of people with disability and in changing attitudes towards disability within the broader community.

*“Before the exceed program patients didn’t know about PO, they just stayed with the disability. Now they can get the devices, so it helps their independence.”*

*Graduate (F), Myanmar*

*“When we provide service for people with disabilities they can spread awareness and information to other people with disabilities to get a service. It reduces discrimination because when they come to the centre and they get welcoming from us, so they feel less discrimination. They meet a lot of people and like a frog get out from a well.”*

*Graduate group, Cambodia*

## Availability, distance & transport

The availability of P&O services in relation to where clients live, and distance and transport to centres were factors identified that related to the accessibility of P&O for clients.

It was generally reported that if clients lived near a clinic then they were more likely to find out about services and access P&O services than clients living far away from clinics, particularly for clients in rural areas.

*“It is easy for me to find information about Puspadi [P&O clinic] because I live nearby, and it is easy to find. It’s difficult for people in rural areas to find out about Puspadi.”*

*Client (F), Indonesia*

*“If services are not available where people are then it is like reaching for the stars. It’s frustrating for people.”*

*DPO representative, Philippines*



*“There is not really access to any rehab medicine in the provinces, maybe in the capital of the province.”*

*Graduate (F), Philippines*

Some clients reported travelling long distances to access these services and expressed a desire that there could be more clinics in other areas.

*“There needs to be more clinics like this in other parts of Indonesia.”*

*Client (F), Indonesia*

*“Thinking about people living outside of cities, it is impossible to access services.”*

*Graduate (M), Thailand*

*“No [there is nothing this service could do better] - this is the best service. It would be helpful if there were more centres.”*

*Client (M), Myanmar*

*“It is quite difficult for people in rural and provincial areas to get services, they will come to us sometimes, but many had a lack of resources for a long time and to travel far, and the service is not available. Some people come from a long way and have to sleep on the hospital grounds or something. That is hard for them”*

*Teaching staff (F), Thailand*

It was also discussed that even where services do exist outside capital cities, that they may not provide the range of services needed by clients may perceive those services in capital cities to be better so travel to those regardless of more locally based services.

*“You know the new centres open in Nichina, Janyo, Mandalay. But most don’t know about the information for the new centres. ..The new centres, they cannot provide for all. Some centres are doing for prosthesis only and don’t have the knowledge for some patients.”*

*Sector respondent, Myanmar*

The distances from client’s homes to P&O clinics also presented challenges in terms of clients attending necessary follow-up appointments, which impacts on ability to benefit fully from the services provided.

*“People come from very, very far – so sometimes the service goes to waste because they come once and can’t come back - so they don’t get the device, or they come back a long time later and we have to start again.”*

*Graduate (M), Philippines*

*“Challenges are the commitment to conduct the fitting process. Clients need not just one or two visits, they need to come at least 3 times in a week.”*

*Client (M), Indonesia*

Linked to the challenges presented for clients due to distance to services is the challenges faced in accessing transport to and from services. Some clients reported that using public transport to travel to services was easy, but for others this required using multiple forms of transport, lengthy waits, and/or a reliance on family members to accompany them.

*“It takes so long to get here from my home. It takes 3 jeeps - and then a walk to get here Sometimes I can ride one bus, but if it doesn’t pass, I would have to take a jeepney. The bus is bad though because it’s just standing.”*

*Client (M), Philippines*

*“My home is one hour and 30 minute by bus. I came here by bus – it was easy. I come with my family.”*

*Client (M), Myanmar*

*“Every time I need my husband to come with me, to hold me and help walking. ..We take a motorbike, it takes 1.5 hours. ..My husband works as a freelance auto mechanic, if there is a job he will go to do it. Sometimes he has to say no to work because he has to take me places. ..he cancels the work to help me.”*

*Client (F), Philippines*

## Affordability

Discussions with respect to the affordability of P&O services centred around the cost of devices and the costs associated with transport to and from the clinics.

Clients reported that there was no cost for devices from the Exceed supported clinics, or they could make a voluntary donation, hence these services were affordable. However, if they sought devices from other providers, such as government hospitals or private clinics, these were often unaffordable, and therefore only accessible to people on higher incomes.

*“I then saw someone at PGH [Philippines General Hospital] was using a splint, they told me where it came from and how much it cost, but it was so expensive. I joined the stroke foundation and that is where they told me about how I could be a model patient and get a free service here.”*

*Client (F), Philippines*

*“In government hospitals patients pay for the devices. It is only affordable for the middle and high-income people.”*

*Graduate (F), Indonesia*

*“Before I came here I was told it would be very expensive for an artificial hand, maybe \$1000-2000, I didn’t know. But here I don’t need to pay. I can give a donation if I want to. My brother paid her for my surgery and I feel guilty about that. But I is happy that I can get the hand for free.”*

*Client (F), Myanmar*

Philippines was the only country to have some insurance coverage for prosthetic devices, even so devices remained unaffordable to most in the government health system.

*“This is the second leg. The first device got loose – I needed to wear 15 socks to make it fit. I got the first one from a private clinic for 15000PHP [US\$290] in April 2017. The therapists at PGH recommend prosthetics at PGH but the cost was 39000PHP. If I have Philhealth they will cover half, but I would have to pay the other half. It is expensive. 15000PHP is a lot of money. It would last about 2 months for family costs.”*

*Client (M), Philippines*

The main cost discussed by clients that may impact the affordability and thus access to services, were those costs relating to transport.

*“I didn’t go back to Solo because it takes time, it is far. It is about 2 days to travel there. The cost of transport, accommodation is too much. Here has better communication from the staff and it doesn’t take as much time or money.”*

*Client (M), Indonesia*

*“It’s not difficult, but it’s also not easy. I have to wait until somebody else needs to go to the clinic. So that is not easy. It is expensive if we do not do this. There are 6 men from old army in village but also there is one woman with polio and she comes too. We go together to share the costs.”*

*Client (F), Cambodia*

## Acceptability

Acceptability of services related to issues around perceived quality, staff attitudes and client-centeredness.

Clients mostly spoke positively about the services they received at Exceed supported P&O clinics, both in terms of the quality of devices and the attitudes and behaviours of staff.

*“When I arrived, I was worried because I stay far from family. Once I see staff and PO I stopped worrying because they are friendly, and they look after me.”*

*Client (M), Myanmar*

They described positive experiences of P&O staff communicating with them about their needs and if there were any problems with the devices.

*“The staff is very friendly during making the prosthetic. There is a lot of communication between the PO and the client. They don’t just measure and make it, the PO also ask about the problem, so the patient feels very comfortable to talk about their needs. The clinicians will explain details about the patient’s needs, and not just give the device but also get the feedback from the client and follow up after wearing the prosthesis if there are any problems.”*

*Client (M), Indonesia*



## IMPACT ON THE LIVES OF SERVICE USERS: DISCUSSION

Part 3 explored impact of P&O services on clients through exploring their experiences of accessing and receiving services and the reported outcomes and benefits for clients and their families.

Findings suggest a potentially life-changing impact for those clients who receive P&O services. However, there are many health system and community challenges which limit the reach and impact of P&O.

Analysis of findings reveal some key outcomes and barriers to impact:

- Access to high quality, appropriate, timely prosthetic and orthotic services is **transforming the lives of clients** and their families through enabling greater independence, participation and inclusion.
- **Greater linkages** between prosthetic and orthotic services and other rehabilitation support for people with disabilities could enhance impact.
- **Coverage and access** to services is limited to a small subset of the target population for due to location, awareness and cost.
- Strengthening **referral mechanisms** between health care providers and prosthetic and orthotic services is required to facilitate timely and appropriate access to services.

## TRANSFORMING LIVES



*Improved mobility afforded by P&O products and services facilitates independence, participation and realisation of goals across all aspects of life for clients, spanning self-care, education, livelihood, household, social, cultural and religious domains.*

Results from client testimonies point to profound impact of P&O services, with access to appropriate P&O care making a transformative difference to people's lives. Improved mobility afforded by P&O products and services facilitates independence, participation and realisation of goals across all aspects of life for clients, spanning self-care, education, livelihood, household, social, cultural and religious domains.

Linked to independence and participation, we found positive social-emotional impact of P&O services. Clients expressed a greater sense of self-esteem and self-efficacy and reduced feelings of stigma, discrimination and isolation, because of access to services. Peer support through attending P&O services and the opportunity to meet other clients with similar needs and experiences was an important, but probably unexpected outcome of the intervention, and could be emphasised.

Impacts of services extend beyond direct impacts to the client, but also to their family in both economic and practical everyday terms, and potentially benefit the broader community through enabling participation, although this was not explored in this study.

## LINKAGES

A factor potentially limiting the impact of P&O products and services for clients was infrequent or poorly coordinated linkages and referrals to other rehabilitation services or support, compounded by poor knowledge of P&O in the community, including among clients themselves. Better links to other rehabilitation specialties such as physiotherapy, occupational therapy and speech pathology, and services for the provision of other assistive products for mobility or self-care, has the potential to enable clients to achieve functional outcomes and benefits in addition to or parallel to those achieved through their access to P&O services [31, 32]. Despite some emphasis on multidisciplinary services in foundation training, in practice, P&O professionals often reported working in isolation, and clients report inharmonious transitions between different services. A rehabilitation system with linkages between services is an opportunity for addressing client's needs in a holistic manner and enabling optimal functional outcomes.

*Despite some emphasis on multidisciplinary services in foundation training, in practice, P&O professionals often reported working in isolation, and clients report inharmonious transitions between different services...*





The Exceed training programs have often tried to strengthen links with other disciplines, but do not have the mandate to change training or practice of other programs – and the other programs do not have access to philanthropic support through this investment.

The existing service system for rehabilitation is constrained in the study countries but supports such as disabled person's organisations (DPOs), community-based rehabilitation programs, and social protection mechanisms for people with disabilities are available. For P&O clients, facilitating linkages would enhance service provision and client outcomes, and build awareness between P&Os and other supports which may increase the profile of P&O and create mechanisms for referral of clients with pre-existing conditions who are not accessing the health sector.

### *CHALLENGES OF COVERAGE AND ACCESS*

Rehabilitation is an integral aspect of achieving universal health coverage and ensuring comprehensive person-centred care [33]. This requires efforts to increase the accessibility and affordability of services. Despite impacts of P&O services identified in the client testimonies, there are challenges accessing services due to poor community knowledge, poor links with health professionals, and the location of services. These issues intersect with barriers to health care for people with impairments and disabilities, including cost, location, transport and awareness of health needs and services [34].



*The reach and coverage of services was often restricted to those who had contact with people in their community with some pre-existing knowledge of services, those living close to services, and people who can more easily access transport and afford direct and indirect costs associated with accessing services.*

While satisfaction with P&O services and resultant outcomes was high, the reach and coverage of services was often restricted to those who had contact with people in their community with some pre-existing knowledge of services, those living close to services, and people who can more easily access transport and afford direct and indirect costs associated with accessing services. These findings are consistent with other studies of barriers and access to P&O [27, 28] and other rehabilitation care [35, 36]. Despite consistent barriers observed in this study setting and, in the literature, there are few prominent efforts to tackle these challenges using new service models, leveraging emerging technologies, or systematic programmatic links with available community services that might mitigate the barriers. These factors limit the potential impact of P&O services for clients. Poor access or uptake of care is clearly source of inefficiency, where available services and resources are not used. Costs invested in addressing these challenges might be offset by more effective use of available services.

Poor awareness of the existence and benefits of P&O services within the community, including potential consumers and referrers, is a key factor in delays or total lack of access to services by those who may benefit. Thus, highlighting the need for strategies to promote knowledge and awareness at all levels – community, health sector, government - when implementing a new service or innovation. However, recognising that the number of P&O professionals and the resources for them to practice are finite, current service levels may not be able to absorb rapid growth in demand arising from better knowledge and coverage. Decisions about equity of



coverage and priority allocation of scarce resources may need to be made, shifting away from focusing on urban areas alone – but these decisions are probably not the mandate of Exceed or part of the responsibilities of the training program, but depend on buy-in from national health stakeholders.

For those clients who do find their way to services, and continue to access services, they are satisfied and experience positive outcomes in terms of participation, independence, social-emotional wellbeing, and impact on their family. But little is known about potential clients who do not access services, which is further discussed in the section on limitations.

### *REFERRAL MECHANISMS*

Consistent with other studies [32], a key challenge to accessing appropriate and timely rehabilitation care, including P&O, is the absence of referral mechanisms. The client experience in this study describes how referrals were lacking between health care providers and P&O services, resulting in significant delays to receiving services and potentially impacting on long term outcomes for function and wellbeing. That most clients of the Exceed P&O services found out about the services via word of mouth rather than their health provider, points to a systemic issue of poor co-ordination and communication between these two aspects of health service provision. This relates to poor awareness and understanding by health providers of the presence of and potential benefits of rehabilitation services, and an absence of formal linkages and referral networks highlighting the need for co-ordination and referral mechanisms to be addressed as part of the introduction of a rehabilitation service or sector such as P&O.

While findings from Myanmar were more positive with regards to referral pathways between health service providers and rehabilitation with most clients interviewed having been referred by their treating doctors, P&O services from which clients were interviewed in Myanmar were located within hospital settings. Services provided elsewhere might not benefit from similar linkages, and so the findings reported here might over-estimate the quality of referral in Myanmar.

The use of outreach teams from clinics to visit rural and remote areas for locating clients who may benefit from P&O services and facilitating referrals is an aspect of service delivery that showed some positive outcomes, for example Puspadi Bali in Indonesia and through Exceed and CSPO in Cambodia. This is one well understood but poorly supported and researched model that requires further consideration and exploration to improve referral mechanisms, coverage and access for clients. In addition, pro-active follow-up of amputee patients following discharge from acute care reported in Thailand provides another example of mechanisms to ensure timely referral and access to P&O services.

## LIMITATIONS

This analysis has drawn on knowledge and expertise of more than 100 people in 6 countries of implementation. As such, it represents one of the most comprehensive reviews of international development cooperation aimed at strengthening orthotics and prosthetics. It drew on relevant frameworks and used appropriate, robust methods to address the aims. Nonetheless, there are important limitations of the work.

Time and resource pressures meant that time available for field work in each country was less than ideal. Findings from interviews were interpreted to refine subsequent interviews, but there was limited opportunity to return to themes where there might have been alternative perspectives or new information from other stakeholders.

Even though we used careful methods to purposively sample a representative group of stakeholders including clients and graduates, there is a risk of bias associated with working with programs to identify relevant sector experts. This risk was mitigated by cross referencing potential informant lists with multiple country stakeholders, and by using snowball sampling wherein stakeholders were asked to identify other people who might have complementary or alternate views about the local situation.

Descriptive statistics concerning the graduate outputs and financial contributions to each program were provided by program staff. Data were recorded differently in each country program, and some data concerning sociodemographic characteristics were incomplete. Some programs had conducted surveys of their alumni to determine the current working status, but this was at least 4 years old, and not available for all country programs. There are no available data on the caseload of graduates. As such, the descriptive statistics on sociodemographic characteristics and clinical outputs of program graduates are based on the best available data and cross-checked as far as possible, but there are likely to be minor discrepancies. The estimate of total clinical services provided is derived from realistic clinical outputs but should only be taken as a general guidance.

The experience and background of the researchers might have influenced interpretations of findings. The main researchers were; researcher/analyst with a background in international development, applied research, and analysis and design of rehabilitation programs – formerly trained in prosthetics and orthotics; an occupational therapist with training in public health and disability inclusive development, and an optometrist with expertise in population epidemiology and qualitative methods for health services evaluation and disability inclusion in health and development. The research team was supported in research design and question guide formation by a medical anthropologist and a physician experienced in evaluations of complex health interventions. Risks of biased interpretations were minimised by cross coding a proportion of transcripts, and by discussion and agreement on the main interpretations, as well as seeking feedback and clarification from respondents, country programs, and exceed management during drafting of this report.

A crucial limitation of this study was that clients interviewed were those who had in one way or another found their way to the Exceed-supported P&O clinics and, in most cases, had continued

to attend for follow up services. These findings only report on interviews from a small number of people who may benefit from P&O services but had not been referred or had received services elsewhere with no input from the Exceed services, or who had attended Exceed services but discontinued their intervention. This study does not adequately reflect the views of those clients who chose not to, or could not, access services.

Finally, using qualitative methods in diverse settings implies results should be generalised to other contexts with caution. However, by using a large sample, and interpreting findings across and between multiple settings, findings can be generalised by paying due mind to the characteristics of countries and programs we researched and how they are similar or different to future countries of implementation [37].



## IMPLICATIONS

### *TRAINING*

- This model of strengthening the P&O profession has been an effective means to introduce a new, highly skilled workforce, who are prepared for entering practice.
- Strategies to build leadership among trainers have been effective and led to nationalisation of training programs. Stewardship of the sector is varied and often poor, and there has been less emphasis on clinical and policy leadership among graduates. This implies solutions to build leadership other than through the training programs might have strategic value.
- Training is provided in major cities. Levering available learning technologies could support strategies for decentralisation, by supporting students from regional areas, and to provide longer term mentoring to new graduates without costly travel.

### *WORKFORCE SUPPORT*

- The number of working P&Os is expected to double in the next 2 decades. New job opportunities will be needed to ensure efficient use of the investment in foundation training.
- It is likely more expensive to train new professionals than support existing ones to practice. Current strategies to retain existing professionals are effective but not always used.

- Where international support has been withdrawn, the situation for the workforce has deteriorated. Investing in the workforce after foundation professional training could mitigate inefficiencies caused by attrition and a need to re-train and support new graduates.
- Solutions to address coverage might include incentives to practice in regional areas, potentially combined with clinical leadership or further career development opportunities.
- Introducing prosthetic technician level training has the potential to increase the potential output of prosthetists/orthotists by allowing them to focus on clinical services rather than technical services.
- Financial and other pressures reduce the likelihood of graduates staying in the profession. Private sector careers are now feasible; this investment may subsidise the scale-up of a private P&O workforce. Ensuring services remain affordable to all should be carefully managed by all stakeholders.
- Innovations in financial coverage of P&O care have been limited – models from other health care dimensions active in the countries of this investment could be tailored for P&O. Limited access to expertise and finances, and emphasis on transition to national financing, appear to have been barriers to innovations for financing P&O.
- Consistent with other professions, women professionals appear to leave the profession earlier. This is sometimes, but not always, associated with having children. Exceed has emphasised gender balance and equity in its work, but attention on the trajectory of women professionals once they enter the workforce is especially important.

## *COORDINATION*

- Coverage outside major cities is poor, despite growth in the profession overall. Poor availability of services compounds inequities experienced by persons with disabilities.
- Awareness of P&O among other health professionals and the population is poor, affecting uptake and coordination. Current strategies to build awareness of P&O have been effective, but more emphasis is needed.
- Timely and appropriate referrals for P&O (and other services) are constrained by weak referral systems. Integrating P&O with health services should emphasise processes for coordination including referrals and follow-up.

## *SERVICE MODELS*

- This investment in P&O has occurred at a time of new emphasis on overall development of rehabilitation in health systems. Not least due to this large investment, P&O is more internationally engaged than other disciplines but cannot be fully effective without a strong multidisciplinary workforce and a strong allied health sector.

- There is emerging interest in providing for-profit services among new professionals. This may be one solution to better coverage, but whether it would compromise affordability [38] is unknown.
- The expense and knowledge involved with setting up equipment and systems for a new P&O clinic are a block to scale-up, even where there are supportive policies and recurrent finances for P&O services in some regional health services.
- Solutions to combine start-up capital and support, with financial supplements, might be a means to incentivise practice outside of major cities. Options for franchise approaches and central fabrication, potentially through Exceed's social enterprise model, have been proposed as potential options to address these challenges.
- A large proportion of services, at least in start-up phases (but often longer) are financed by a combination of international donors via technical agencies and national governments through health or social services. This might be an opportunity to aggregate resources to incentivise performance, retention, and act as a buffer to smooth transition from donor-funding to local funding.

## OVERALL

- Using a long-range plan, theory of change and reviewing critical success factors over time, largely (but not only) managed by one organisation with a reliable, well-costed, long term financial grants is not common in development practice. These conditions probably account for much of the overall impact of the investment.
- The integration of P&O into national health systems, and coordination with other health disciplines has been slow. The investment did not plan for significant investment in other sectors to complement the development of P&O, and buy-in from other disciplines is mixed, probably in part due to the lack of resources available for them. Future growth of P&O services including in the private sector should be balanced with efforts to strengthen rehabilitating services overall.
- The services provided by graduates, both through Exceed programs and other services, have a transformative impact on clients.
- There is promising, but slow development of policies related to P&O. Expectations about how services will be financed and managed in the future need to be realistic. Risks of attrition or service deteriorations need to be mitigated during transition away from international technical and financial support.
- At country and regional levels, the sector lacks coordination and cohesion. Routine monitoring of high-level indicators of P&Os status would be a low-cost, high-value intervention.
- Despite the scale of the investment, many challenges were shared with other contexts without similar long-term, reliable program financing. For the P&O profession and those interested in scaling rehabilitation services, this implies innovative solutions are needed to tackle persistent challenges, particularly to financing and coverage of P&O services.



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