Persons with Disabilities: Actors within Agribusiness

Northern Uganda Transforming the Economy through Climate Smart Agri-Business Market Development (NU-TEC MD)

March 2017

CONTENTS

ACCRONYMS

ADD	Action on Disability and Development
CAADP	Comprehensive Africa Agriculture Development Programme
CBR	Community-Based Rehabilitation
CEDAW	Convention on the Elimination of Discrimination Against Women
CPP	Crop Protection Product
CRPD	Convention on the Rights of Persons with Disabilities
CWD	Children with Disabilities
CBO	Community Based Organisation
DDA	Dairy Development Agency
DFID	Department for International Development
DPO	Disabled Persons' Organisation
FAO	Food and Agriculture Organisation
GBV	Gender Based Violence
GDA	Group Development Agents
GDP	Gross Domestic Product
GDPU	Gulu Disabled Persons' Union
GoU	Government of Uganda
HI	Hearing Impairment
ICF	International Classification Framework
ILO	International Labour Organisation
(I)NGO	(International) Non-Governmental Organisation
KII	Key Informant Interview
M4P	Making Markets Work for the Poor
MD	Mental Disability
MSA	Market System Assessment
NAADS	National Agricultural Advisory Service
NCD	National Council for Disability
NDP	National Development Plan
NUDIPU	National Union of Disabled Persons of Uganda
NU-TEC MD	Northern Uganda – Transforming the Economy through Climate Smart Agri-Business Market Development
NUWODU	National Union of Women with Disabilities of Uganda
OECD	Organisation for Economic Co-operation and Development
OSSUP	Oil Seed Sub-Sector Platform
OWC	Operation Wealth Creation
PD	Physical Disability
PWDs	Persons with Disabilities
PWE	People with Epilepsy
ROI	Return on Investment
SAGE	Social Assistance Grant for Empowerment
SET	Survey Enumeration Team
SDGs	Sustainable Development Goals
SIGI	Social Institutions and Gender Index
SSA	Sub-Saharan Africa
TL	Team Leader
URA	Uganda Revenue Authority
UN	United Nations
USL	Ugandan Sign Language
VI	Visual Impairment

WEE	Women's Economic Empowerment
WGQ-ES	Washington Group Questionnaire – Extended Set

1. FOREWORD

The Northern Uganda – Transforming the Economy through Climate Smart Agri-Business Market Development (NU-TEC MD) programme is a five-year DFID funded programme implemented by Palladium that aims to increase the incomes and climate resilience of poor men and women in Northern Uganda by (a) stimulating sustainable, pro-poor growth in selected agricultural markets and (b) improving the position of poor men and women within these market systems by making the market systems more inclusive.

NU-TEC MD sees a move away from traditional subsistence aid, instead looking towards knowledge sharing and relationship building with the intention to identify, attract and support investments that drive growth for smallholders in Northern Uganda. There is a particular emphasis on catalysing change for women and vulnerable groups: youth, persons with disabilities (PWDs) and the very poor. As such, NU-TEC MD operates within the 'making markets work for the poor', or 'M4P' framework,[1] supporting pioneering firms to navigate the constraints of operating in the agri-economy of Northern Uganda and co-develop and pilot inclusive business models that generate economic, social and environmental returns.

This report is a small but important component of NU-TEC MD's overall programme. The purpose of this report is to provide detailed insight into how Persons with Disabilities (PWDs) in Northern Uganda are engaging as market actors within selected agricultural market systems. This, in turn, will enable NU-TEC MD to ensure that ongoing research, interventions and market development approaches are targeted or tailored appropriately to ensure maximum impact for growth.

This report builds on initial ideas put forward in a scoping report and four Market System Assessments that were completed by NU-TEC MD as part of an inception phase of the overall five-year project. Therefore, this report aims to give an overview of PWDs as market actors within the business environment – looking at areas such as access to assets and financial services, whilst also considering social rules. It also focuses on some specific market systems identified previously which include sunflowers and soybeans, land preparation, aggregation and storage and seed markets.

This research is both timely and topical in the DFID and global drive for a world where 'no-one is left behind'. Importantly, as the report demonstrates, it shows PWDs are important players that add value from an economic market based perspective.

[1] For a summary of objectives, principles and methods of the approach see: https://beamexchange.org/marketsystems/key-features-market-systems-approach/

2. EXECUTIVE SUMMARY

2.1. Summary

This research presents findings that demonstrate there are people with disabilities in Northern Uganda who are actively participating in agricultural market systems. These PWDs are economically empowered with access to land and assets and could benefit from a market development approach to maximise their incomes and resilience. The development of an M4PWD Economic Empowerment Framework would help to shift focus from inclusion to empowerment, facilitating the mainstreamed and targeted interventions outlined. This needs to be considered within the wider context of leave no one behind.

The purpose of this research is to provide detailed insight into how People with Disabilities (PWDs) in Northern Uganda are currently engaging as market actors within selected agricultural market systems (land preparation; seeds; aggregation and storage; sunflower and soybean) and to provide potential market development interventions for consideration. This research was undertaken as part of a wider DFID -funded programme: The Northern Uganda – Transforming the Economy through Climate Smart Agri-Business Market Development (NU-TEC MD).

Implemented by Palladium, NU-TEC MD aims to increase the incomes and climate resilience of poor men and women in Northern Uganda by stimulating sustainable growth in agricultural markets and improving the position of poor men and women within these market systems.

These findings are intended to directly impact NU-TEC programming: putting DFID's 'leave no-one behind' agenda into practice by offering evidence based proposals for targeted and mainstreamed interventions. The research also has relevance for the wider development audience who may be considering models for disability inclusive programming for economic empowerment.

2.2. Methodology and Approach

NU-TEC MD operates within the 'making markets work for the poor', or 'M4P' framework.[2] This approach sees a move away from traditional subsistence aid, instead looking towards knowledge sharing and relationship building with the intention to identify, attract and support investments that drive growth for smallholders.

This study developed an approach to align with the overall strategic framework yet was flexible to the complexities of disability: M4PWD. This sought to understand the access and agency PWDs have within market systems. A core component is the emphasis on 'barriers plus'[3] and boosters: aspects of PWDs, their home, community or wider environment that act as a disability specific constraint or enabler.

A 'positive deviance' approach underpinned the research to select PWDs already working in agriculture or livelihoods to capture learning from their engagement as market actors.

[2] For a summary of objectives, principles and methods of the approach see: https://beamexchange.org/marketsystems/key-features-market-systems-approach/

[3] PWD largely experience the same barriers as those non-PWD who are also small-scale subsistence farmers operating in Northern Uganda. The term 'barriers plus' is used to describe additional barriers to those that all small-scale and subsistence farmers face which are specifically as a result of their disability.

Four disability types were included: mental, physical, visual and hearing impairments, with additional sampling criteria ensuring a diverse mix (gender; age; rural/urban; region; proximity to urban areas). Research focussed on Acholi, Lango and West Nile sub-regions. Participants were mobilised via ADD International who, in turn, used the NU disability networks to reach the relevant PWDs and organisations at the grass-roots level.

A mixed methods approach was used to gather data via qualitative and quantitative methods. Tools were developed, field tested and refined and were designed to capture information about agricultural market systems, disability, stigma and broader economic engagement such as access to financial services.

The research was led by Montrose, who partnered with ADD International and SNV to provide disability and markets advice respectively.

It is important to note that this study focuses on PWDs who are already engaged in agriculture: as a market development approach. It aims to make existing markets work better, and does not focus on reaching the most marginalised. As a result the sample is not representative of all PWDs across NU, so care needs to be taken when extrapolating findings.

In total, 384 participants took part in the quantitative survey and a further 100 in the qualitative research.

2.3. Key Findings

Very little is known about PWD who are already engaged in agri-business and operating in Northern Uganda. The following key findings both support and contradict existing research on PWD, the majority of which did not, until now, focus on PWD as current market actors.

2.3.1. Supporting Functions and Rules

- There are PWDs actively participating in agricultural market systems across Northern Uganda. **Many demonstrate a high degree of economic empowerment**, with 81% owning land (43% being sole owners), 83% owning houses (63% being sole owners) and 69% owning assets such as mobile phones. Access to financial services was higher than anticipated, with 68% participating in VSLAs and other informal institutions and 35% with a bank account.
- **PWDs are not the same**: there is variation between them in terms of their access and agency within market systems and not just by disability type. The overall differentiating factors are more attitudinal, societal and demographic.
- **Gender norms are not as pronounced as the rest of NU**, with women growing cash crops and a more equal division of labour roles, suggesting that disability rather than gender is the key factor driving agricultural practices.
- **PWDs face many of the same challenges faced by smallholders** of Northern Uganda, such as poor access to seeds, inputs, improved land preparation techniques and extension. **There are some areas where PWDs experience 'barriers plus'** such as physical access to markets and limited access to information. A **key constraint for PWDs are the poor linkages** they have with other players across the market systems, particularly the private sector and other community players who overlap with the business environment such as traders, agro-dealers and farmer groups. This means **PWDs are invisible to other key market players**, impacting on their ability to engage. It also impedes their ability to link with reliable off-takers. This means PWDs have no certainty over

income and often receive less, meaning they are less willing to invest in improved inputs thus perpetuating the cycle of poor yields.

- **There is potential to overcome this barrier via leveraging the disability machinery** across Northern Uganda. NU-TEC is ideally placed to utilise the strength of the DPO networks to facilitate linkages to result in economic empowerment
- **PWDs have personality traits and attributes that are considered appealing** to the private agricultural sector, such as being honest, loyal, determined and hardworking. These strengths are not just self-reported and can be used to leverage private sector engagement.
- PWDs can experience negative stigma but **there are a few instances where disability-related discrimination has a negative impact on access and agency** within agricultural market system.s
- It is generally assumed that by creating an environment where negative attitudes and discrimination are less, PWDs will in turn be able to access opportunities, leading to employment and eventually, acceptance in the wider community. However, the findings of this work suggest that the cause and effect might be reversed - that **by becoming more visible in society through demonstrating their viability as economic players, PWDs can fast-track inclusion within society.**

2.3.2. NU-TEC Market Systems

- **Land:** While PWDs do own, and have access to land, the largest challenge is the inability to join shared labour groups to prepare the land and benefit from animal traction or tractor hire services. This reduces their productivity and further removes them from potential market networks including the ability to negotiate prices; access farm machinery; or link to Government or donor initiatives.
- **Aggregation and Storage:** PWDs have low integration with aggregation actors and are rarely involved in bulking or group marketing. PWDs store their own crops at home, despite acknowledging that this leads to wastage and spoilage. This is driven by a significant fear of theft if the produce is stored externally and is compounded by difficulties in accessing transport.
- **Seeds:** PWDs have limited involvement with the production of improved seed varieties, whilst demand is predominantly through the informal sector (as with most smallholders). Some PWDs lack knowledge on the benefits of improved seeds to increase yield and protect against climate change, whilst others understand the benefits but deem the risks too high: all PWDs lack trust in the quality of seeds and poor network linkages means there is no guarantee for their return on investment.
- **Sunflower and Soybean:** Of PWDs growing cash crops in the survey, 8% produced sunflower and 19% produced soybean. The constraints in the interconnecting market systems above negatively impact on PWDs' ability to maximise yield and profits. Information is a key barrier, particularly with reference to the use of fertiliser and irrigation practices in the soybean market. As always, poor network linkages mean PWD are not linked into other actors and thus may not receive adequate income to justify investments in improved field practices and inputs. Stigma means PWD may not receive a premium for higher quality grain, again reducing the incentive to invest in quality inputs.

2.4. Intervention Potential for NU-TEC MD

For PWDs in this study a market development approach is not only possible but could be transformative. To put this into practice within the NU-TEC context requires a **combination of**

mainstreamed and targeted interventions to **capitalise on existing PWD market strengths** and/or help **overcome disability** related constraints for maximum economic engagement. This will be facilitated by an **overarching intervention** designed to **increase the visibility of PWDs** to other market actors and **create practical guidance** around how to include PWDs for economic empowerment within programming.

Targeted Intervention 1: Linking sunflower producers with visually impaired apiculturists

Apiculture (the production of honey through bee-keeping) is an area where PWDs are actively engaged as market actors in NU. Bee keeping is attractive to PWDs: visually impaired are adept at using touch to assess whether honey is ready so they are not limited by disability; and it can also provide a mechanism for social inclusion. Apiculture in Uganda is a growing market with room for further expansion within East African and International trade. The Apiculture and Sunflower market systems are linked as honey bees can improve the productivity of sunflower yields via increased pollination.

This intervention sees NU-TEC MD facilitating a relationship between PWD apiculturists and smallholder sunflower producers/processors. Several intervention models have been considered, with HIVE Uganda as a leading partner (Entrepreneurial visually impaired Apiculture company who trains and aggregates from a network of PWDs). This has been selected as an easy market entry point: an intervention that will, in itself, improve market linkages and income for PWD, particularly the visually impaired. It also offers additional opportunities to gather and review evidence to conduct a rapid MSA on the broader apiculture market to see whether it is a viable new market system for NU-TEC to enter at this stage in the programme.[4]

Targeted Intervention 2: Hearing impaired men as an entry point into the farm labour market

There are groups of PWD, specifically hearing impaired men, who are working together around Acholi to provide labour services. They are valued by people who use them, who note that they are hardworking, reliable and honest. However, they are not well linked into the general labour market. We know this because (a) they currently work ad hoc with no contracts (b) there is a widely reported labour shortage in Gulu, reportedly farmers need to 'import' labour from Lango, another sub-region (c) Most PWDs have difficulty accessing the labour market for land preparation, as they are not part of communal labour groups and are not always able to hire help (both issues mainly due to stigma). These last two points demonstrate PWDs are not well linked to markets and presents an opportunity to meet demand.

This intervention sees NU-TEC MD brokering a relationship between NUDIPU and an investment partner or commercial farm. The case is built around forming a partnership between the PWDs and the private company who will in turn be able to (a) employ them as workers and (b) sub-contract them out to others at a profit. The intervention creates an easy entry point to match supply and demand via knowledge brokering. It paves the way for further entry into the private sector labour force for PWDs, especially with new opportunities in processing or seed manufacturing on the horizon.

Targeted Intervention 3: E trader platform

'Barriers plus' around information, transport and network linkages means PWDs are not linked to information about market pricing and are isolated from other players. This means they do not receive the best price for their produce, nor is income guaranteed due to the lack of reliable off-taker. Linking PWDs to an e-trader platform would help overcome constraints by stimulating linkages between

[4] Note the UNDP 2012 Value Chain Analysis of the Apiculture Sub-Sector in Uganda as a starting point

PWDs and buyers via a secure market environment whilst providing information about market pricing via SMS.

This intervention sees NUTEC brokering a relationship between the disability networks of Northern Uganda and an e-trader platform. The suggested intervention partner is KUDU, a mobile marketplace developed by Makerere University, where early evaluations indicate positive findings and membership has already reached 11,000 plus in Uganda.

Mainstream Intervention 4: Provision of on-farm storage

PWDs have limited access to improved public storage due to trust and transport barriers. Produce is stored in the home leading to heavy post-harvest losses. This intervention sees NU-TEC MD working alongside disability networks and the World Food Programme to incorporate PWD within the commercial case for the production and distribution of improved on-farm storage. NU-TEC is already piloting this intervention in NU providing an easy, low-risk market entry point.

Mainstream Intervention 5: Integration of PWD with the Village Agent model

Adoption of improved inputs and field practices amongst PWD is poor. In addition to core market failures this is driven by 'barriers plus' such as transport difficulties accessing markets and limited access to information and extension. A key constraint is the lack of network linkages, meaning PWD do not have a guaranteed buyer and may sell at the farm gate. Reduced profits results in less likelihood of investments in improved practices, thus perpetuating the cycle of poor yield.

This intervention sees NU-TEC leveraging existing relationships to include and empower PWDs within the Joseph Initiative (JI) across NU, focusing on the soybean sector. JI links farmers and buyers by establishing relationships via Village Agents, who provide seed, fertilizer, herbicide and extension guidance and help link produce back to buyers. The intervention sees PWDs mainstreamed into the existing NU-TEC JI pilot, achieved via integration of PWDs into the VA model, acting as disability mobilisers, spokespersons and distributers. It would also be driven by processors, where change agents will be identified and will proactively drive the formation of PWD groups or individuals as suppliers. Once PWDs are embedded there is scope to (a) scale up delivery to other JI regions and (b) see others crowd in, replicating the PWD VA inclusive model across other market sectors.

Overarching Intervention 6: M4P PWD EE

Disability inclusion is a growing priority but there is limited practical guidance on what this means. Our research provides evidence to suggest the inclusion agenda would benefit from a shift towards economic empowerment. A similar movement in gender (WEE) sets both process and precedent for this. Consideration will need to be given around how a market development approach could work within the wider context of 'no-one left behind'.

This intervention sees the development of a clear and practical PWD EE Framework (Persons with Disability Economic Empowerment Framework) and operational guidelines demonstrating the practical application of this framework within a market development approach, feeding into the international M4P Guidelines (M4PWD). This process will be undertaken via a multi-stakeholder approach, championed by change agents across all market sectors and further facilitated by increased numbers of PWDs engaged in multi-stakeholder platforms.

NU-TEC is uniquely placed to create change on the ground by leveraging existing relationships, whilst driving the overall development agenda via the collection of evidence and performance metrics. Given

the right endorsement from DFID or other stakeholder this could provide a unique opportunity to bring actors together to kick-start the drive towards disability economic empowerment.

2.5. Conclusion

There is no doubt that disability inclusion has risen up the development agenda as reflected in DFID's key policy changes. This research has demonstrated that, contrary to much of the literature, PWDs are economically engaged as actors within agricultural market systems, with similar or better access to assets and services than non PWDs in the same region. These findings have both proven and dis-proven pre-conceived ideas about PWDs with respect to their current engagement in agri-business, their access to land, their ability to reverse gender norms and their potential for operating within both the NU-TEC MD market systems and the broader private sector markets. We have found that economic empowerment drives social inclusion and not the other way around. These findings have key implications with regards to disability inclusion, suggesting the overall agenda should shift away from 'inclusion' and move towards economic empowerment.

Finally, this research has demonstrated several key findings that have relevance not just for the NU-TEC MD project but for development partners globally. Therefore, findings should be shared, suggested interventions implemented and outcomes of implementation disseminated to both development partners to improve their programming and to businesses as a means to leverage crowding in.

3. INTRODUCTION

This research is focussed on Persons With Disabilities (PWD) in the agricultural sector in Northern Uganda. The World Health Organisation (WHO) defines disability as *'an umbrella term, covering impairments, activity limitations, and participation restrictions. An impairment is a problem in body function or structure; an activity limitation is a difficulty encountered by an individual in executing a task or action; while a participation restriction is a problem experienced by an individual in involvement in life situations. Disability is thus not just a health problem. It is a complex phenomenon, reflecting the interaction between features of a person's body and features of the society in which he or she lives. Overcoming the difficulties faced by people with disabilities requires interventions to remove environmental and social barriers.'*[5]

The United Nations Convention on the Rights of Persons with Disabilities definition includes those who have long-term physical, mental, intellectual or sensory impairments which in interaction with various barriers may hinder their full and effective participation in society on an equal basis with others.

3.1. Background

The Government of Uganda (GoU) has taken some positive steps regarding the rights of Persons With Disabilities (PWD). In 2008, the GoU ratified the UN Convention on the Rights of Persons with Disabilities (CRPD). The CRPD ratification was preceded by progressive anti-discrimination legislation specific to disability, including the: Equal Opportunities Act 2008; Education (Pre-primary, Primary, Post-Primary) Act; 2006 Persons with Disabilities Act; 2004 National Council for Disability Act, amongst others.

Despite these positive steps, the situation for persons with disabilities in Uganda remains challenging, with high levels of stigma and discrimination within communities and invisibility of PWDs within the economy. A key issue facing Uganda is how to accurately measure disability prevalence. Despite efforts by the GoU to incorporate disability data into household surveys, measurements remain unsatisfactory. A number of surveys have produced different rates; using different definitions of disability, the Population and Housing Census (2002) reported that 3.5% of the population was made up of disabled people; the Uganda National Household Survey (2005) reported a figure of 7.1%; and the Uganda Demographic and Health Survey (2006) reported a figure of 20%. The question in the final survey included whether a person had difficulty seeing, hearing, walking or climbing stairs, remembering or concentrating, providing self-care, or communicating, thus broadening the definition to include those with mild and moderate physical and cognitive impairments (Mersland and Beisland, 2012).

The large differences in disability statistics are concerning but are outside the scope of this research. The important point for our study is that regardless of definitions or statistical methods, the disability population is large and thus constitutes an important opportunity for market development actors.

There is very limited literature available on the role of PWDs in agri-business. Most interventions attempting to increase economic empowerment of PWDs in Northern Uganda are led by International Non-Governmental Organisations (INGOs) and involve skills training with distribution of start-up kits, but few look to reach those PWDs already active in the sector and thus they are frequently omitted from agri-business or economic empowerment initiatives. As a result, PWDs are often invisible in terms of economic development, being overlooked by the private sector for their role in market systems. They experience the same barriers as other rural poor but with additional barriers ('barriers

[5] http://www.who.int/topics/disabilities/en/

plus') on account of their disability, social exclusion within their communities and discrimination in the workplace and markets.

3.2. Importance of Inclusion

There are several reasons why it is important to include PWDs when scoping market developments within NU-TEC MD. Firstly, it has been noted that there are significant economic losses related to the exclusion of PWDs in the labour force (Walton, 2012)[6]. Secondly, there is evidence to support the social benefits of empowerment when PWDs are economically independent. Thirdly, it aligns with Uganda's aim of implementing policies to support the Convention on the Rights of Persons with Disabilities and with DFID's overarching vision to 'leave no one behind', contributing to a world where people with disabilities have a voice, choice and agency over the decisions that affect them. Underpinning this, it supports more broadly the work towards achieving the Sustainable Development Goals, specifically contributing to targets related to:

- **Goal 8** by 2030 to achieve full and productive employment and decent work for all women and men, including for young people and persons with disabilities, and equal pay for work of equal value.
- **Goal 10** by 2030 empower and promote the social, economic and political inclusion of all irrespective of age, sex, disability, race, ethnicity, origin, religion or economic or other status.

Finally, it provides the opportunity to learn more about different disability groups, including their needs and potential for economic growth and contribution to the local economy. This is an area where there is limited information at present.

4. METHODOLOGY AND APPROACH

This section focuses on the methodology and approaches used to conduct field research in Northern Uganda. Please note that there is a separate Inception Report which includes a more detailed outline of the methodology and approach.

4.1. Research Purpose

The overall purpose of the research was to answer the following four research questions:

1. What is the current situation for PWDs in Northern Uganda in general and specific to economic development including through agriculture and agribusiness?
2. What are the potential synergies that can be leveraged by NU-TEC MD using an M4P approach, to build on the Community-Based Rehabilitation (CBR) strategy and successfully engage PWDs?
3. What opportunities exist for NU-TEC MD to engage the different PWD impairment groups within the programme's selected markets and what are the potential barriers?
4. Within NU-TEC MD markets, what are the potential strategies and approaches that can accommodate the specific economic development needs of different impairment groups including girls and women with disabilities?

[6] This inclusion is guided by the 2006 UN Convention on the Rights of Persons with Disabilities.

4.2. Research Framework and Approach: M4PWD

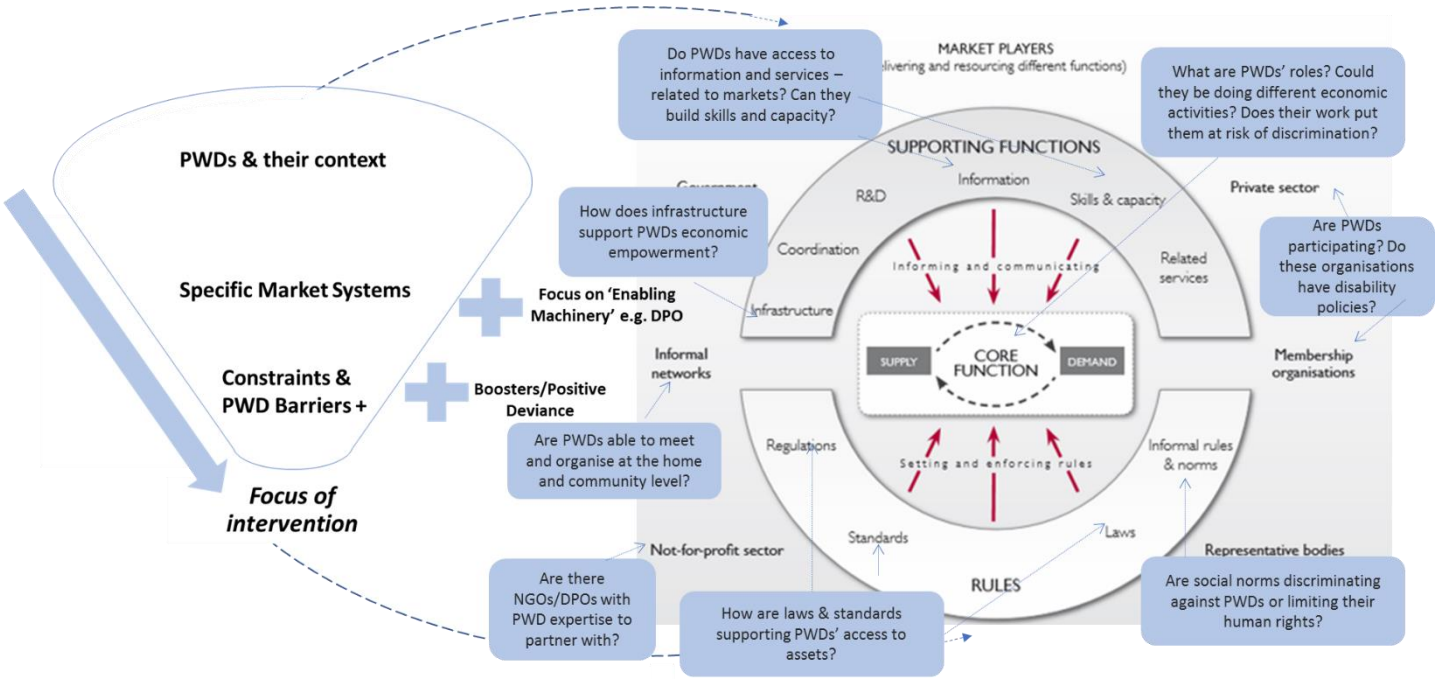
As a part of a broader market-development project, it was important to define an approach that aligned with the overall strategic framework yet was flexible to the complexities of disability; as much as this research is focussed on access to markets and economic inclusion, there are certain social issues and barriers that need to be observed.

The M4P approach already goes some way towards this, with 'rules of the game' analysis that includes a focus on social norms and networks. However, it soon became clear that applying a disability 'lens' to the generic framework would not go far enough to examine the more complex power dynamics that shape market systems, nor determine the extent to which these are liable to shift dependent on the level of access and agency PWDs have within a given market system.

There is little practical guidance available within the literature about disability and economic inclusion. Fortunately, there has been work to forward Women's Economic Empowerment (WEE) in the context of M4P which helped to shape the development of the M4PWD Framework, as outlined in *Figure 1*. Other influences came from Brinkerhoff's notion of contextualising PWDs at the different levels of the home, the community and business environments.

M4PWD Framework is centred around the M4P funnel approach, which aims to first gain insight into PWDs and their wider socio-economic context before focussing in on specific agricultural market systems and then using the analysis to understand the root causes of market constraints. At every stage, we have considered disability specific barriers, aiming to differentiate between the issues faced by every rural smallholder in Northern Uganda, and the 'barriers plus' that are the additional constraints faced by PWDs. We also consider 'boosters'- examples of positive attributes or assets demonstrated by PWDs that have helped forward economic empowerment. Considering some of the key social and economic empowerment indicators for PWDs within the key domains (core function; rules; supporting functions) helped guide the analysis. Some of the questions considered are marked on the diagram.

Figure 1: M4PWD Framework: Disability Lens Within Market Systems

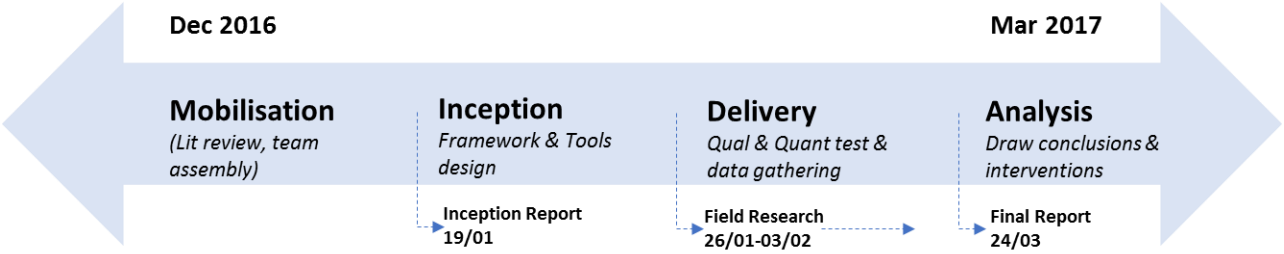


It should be noted that this framework was developed iteratively as the project progressed and it could be further refined and progressed. Indeed, this research demonstrates the compelling need for further work in this area. The development of a PWD Economic Empowerment Framework would be a key next step to shift the 'inclusion' agenda towards one of enablement and mainstreaming within M4P programming. This concept is explored further in the interventions section.

4.3. Methodology[7]

This study took place between 26 December 2016 and 10 March 2017 via the four stages demonstrated in figure 2. Field research took place across three sub-regions of Northern Uganda: West Nile, Lango and Acholi over nine days. The research was led by Montrose, who partnered with ADD International and SNV to provide disability and markets advice respectively.

Figure 2: NUTEC PWD Research Timelines



The field research/study was designed using a mixed methods approach to concurrently carry out qualitative and quantitative research. This was influenced by the wider literature and the M4P operational guidance that suggests 'quantitative information is vital to *describe* the market in its current state in terms of scale and participation… and qualitative information is important to help understand *why* the market is working the way it is' (M4P Operational Guidance). The study was underpinned by a 'positive deviance' approach: to select PWDs already working in agriculture or livelihoods in order to capture learning from their engagement as market actors.

The sampling frame had multiple components. Purposive sampling was used to ensure variability across the limited sample size.[8] Four categories of disability type were selected; physical, hearing, mental and visual (*Figure **3***). The rationale behind the selection of disability categories was driven by (a) closely mapping to the Ugandan census data, thus facilitating sampling and cross comparison; (b) creating manageable research boundaries (c) advice from ADD International, particularly around the need to further understand the field of mental health where there is limited information.[9] Additional criteria were used to ensure a mix of gender, age, geographical location across the three sub-regions and variation between rural/urban settings[10]. For the qualitative research, the same criteria were used with additional categories such as 'role' to ensure a spread between PWDs; NGOs; DPOs; and carers. Participants were mobilised via ADD and the DPO networks.

Quantitative research was carried out via an electronic survey, administered on KoBo Toolbox by 15 data enumerators from across Lango, Acholi and West Nile. The survey was developed by Montrose (see annex 3.1). It draws from existing agricultural surveys used in Uganda and appropriate disability

[7] More information about design and methodology can be found in the Inception Report
[8] http://research-methodology.net/sampling-in-primary-data-collection/purposive-sampling/#_ftn1.
[9] ADD International reinforced the need to include mental health- stating that it is a misunderstood condition with limited research and evidence. These findings were confirmed in this study.
[10] Concentric circles were used to map urban/peri-urban; rural and remote (30 minutes; 2 hours and 2 hours + respectively from a big market town).

tools to create a composite survey of the following sections (1) demographics (2) disability status (3) stigma and discrimination (4) personality and skills (5) livelihoods and economic activities. Following completion of the survey component, all data was merged, cleaned and analysed in SPSS 20.

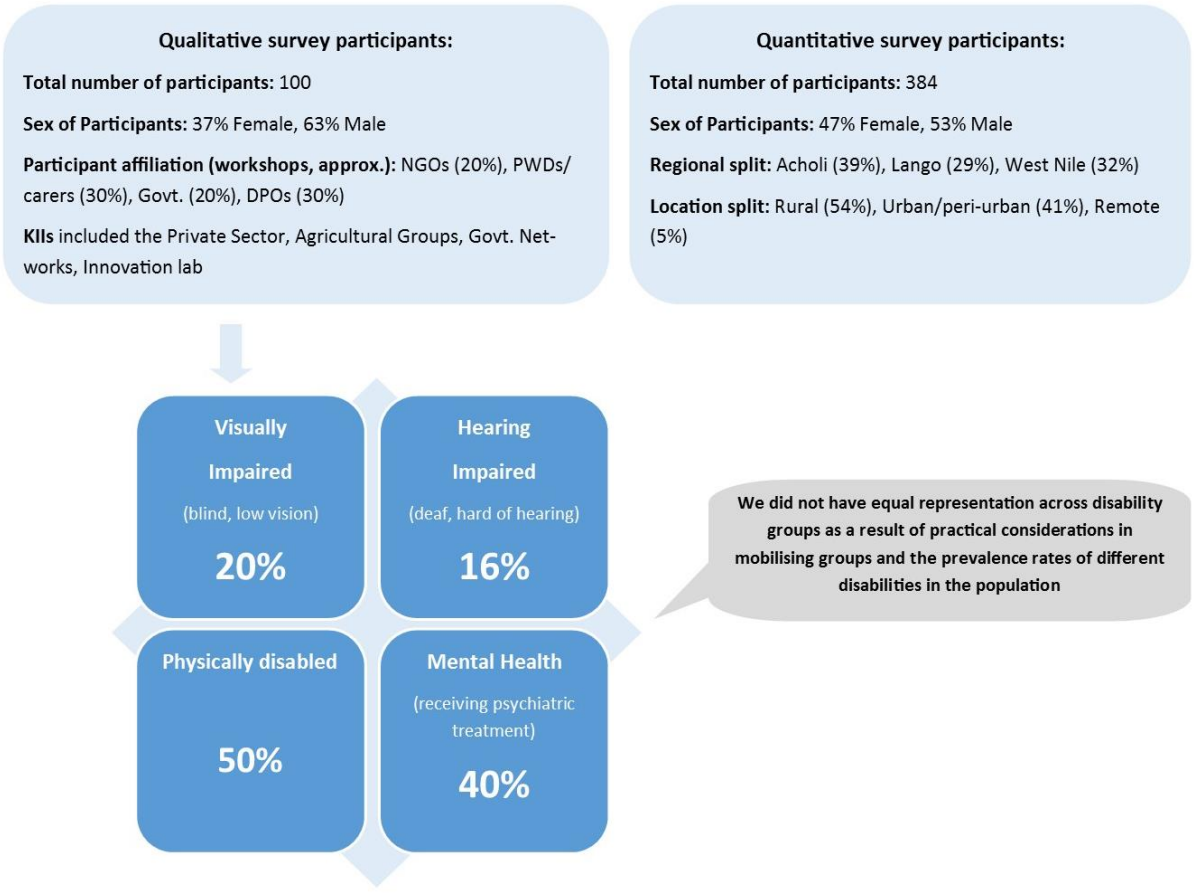
Qualitative research consisted of Key Informant Interviews (KIIs) and Discussion Group Workshops. KIIs followed a semi-structured interview protocol. Workshops took place in Gulu (3) and Lira (1) and used a matrix tool based around agricultural market systems alongside a semi-structured discussion protocol. A fifth workshop was conducted in Kampala with personnel from INGOs and NGOs involved in Community-Based Rehabilitation (CBR) and/or in livelihoods development in Northern Uganda. Notes were written up in word and analysed thematically.

Both tools were field tested and modified to ensure they were culturally sensitive and accurately translated.

Research Participants

Overall, 484 individuals participated in the study (384 in the quantitative survey and 100 in the qualitative survey). Please see figure 3 below and annexes 5 and 7 for a comprehensive demographic breakdown of participants.

Figure 3: Research Survey Participants



4.4. Challenges and Limitations

All research has challenges and limitations and this study is no exception. Most challenges were overcome and limitations mitigated to ensure they did not de-validate the findings. However, it remains important to note the following limitations and challenges when reviewing the results and conclusions outlined in the report:

1. The parameters of the research study were ambitious compared to the time available.
2. The research and evidence base for studies on PWDs in agribusiness is limited and often lacks the rigour of delivery that underpins credible results. This means there are few credible tools that have been tested and refined in various contexts that a researcher might utilise. Whilst we were able to produce a composite tool, it has not been validated globally or peer-reviewed by other researchers. The timeframe for the study, mentioned above, also had implications for a thorough testing and refinement of the tool.
3. With limited data around disability prevalence in NU and the general invisibility of PWDs, identifying a theoretical population was difficult. Field work was time-bound therefore we were required to create criteria to ensure PWDs had some level of mobility and communication skills in order to participate. We did recruit regional sign-interpreters but this still meant the hearing impaired needed to have a degree of sign language, and we know some do not. The approach used for mobilisation (via the disability networks using ADD as a co-ordinating partner) means there could be sampling bias due to respondent visibility within DPOs and the community, meaning there may have been some PWDs who were excluded from the study.
4. Whilst clear parameters were set for defining mental health participants, PWDs were included within the survey with epilepsy and intellectual disability (as well as those with a mental disability). This demonstrates that mental health is not well understood in NU; as such, this should be considered a caveat around our findings within this category of PWDs.
5. The quantitative team encountered programming issues with KoBo Toolbox up-country due to (a) an issue with the programme itself and (b) poor connectivity in rural areas. Some questions that should have been coded became free text or mis-ordered. This was mitigated via close contact with data teams but it may have compromised data validity on some questions (e.g. around income).

5. SITUATIONAL ANALYSIS: PWDS AS MARKET ACTORS

Our initial assumption was that it would be difficult to identify PWDs who were already engaged in agri-business. However, our findings suggest that PWDs are significant market actors within agri-business in Northern Uganda.

5.1. The Legal and Policy Environment

The legislative environment impacts both the constraints (or 'barriers plus') and enabling factors outlined within this report, particularly in terms of PWDs' access to markets. It is important to consider both the legislative and policy environment regarding PWDs specifically as well as the wider frameworks within the agricultural and financial sectors that indirectly affect the ability of PWDs to engage effectively in markets.

Uganda has been recognised as a positive example in Sub-Saharan Africa in terms of legislating to protect the rights and promote opportunities for PWDs at the national level. For example, the Persons with Disabilities Act, 2006, in accordance with principles laid out in the national constitution, provides a legal framework for the prevention of discrimination on the grounds of disability and promotion of equal opportunities. The law prescribed in the act provides a mandate for disabled persons' organisations and other groups to litigate to protect the rights of PWDs. The Equal Opportunities Commission, through the provisions of the Public Finance Management Act, 2015, assesses all Budget Framework Papers and Ministerial Policy Statements to ensure their gender and equity responsiveness. In addition, the Commission, through its tribunal, handles issues of discrimination against and marginalisation of vulnerable groups including persons with disabilities in the areas of land ownership, employment and property rights. This legal framework is supported by a robust system of

disability 'machinery', headed by the National Union of Disabled Persons (NUDIPU), an umbrella organisation of disabled persons' organisations operating nationally down to the village level. The government frequently consults NUDIPU on matters related to disability.

There are various other legal frameworks supporting the economic and social inclusion of PWD[11] including several acts[12] intended to increase the representation of PWD in the public and political sphere and several examples of cases where laws relating to public services (such as education[13]) and administrative functions (driving licencing[14]) support disabled persons. The mainstreaming of disability consideration into other areas, such as the agricultural and financial sectors, is less pronounced. For example, though in theory equal opportunities legislation should prevent PWDs being denied loans of the basis of their disability, our research study showed that this was a common occurrence. Other areas where PWDs are afforded little protection include housing rights, social benefits, and healthcare (NUDIPU, 2013).

It is important to point out that although the legal and policy framework for protecting the rights of PWD and promoting their opportunities does exist on paper, the extent to which this has created a difference for PWD in reality is variable. As is the case with a significant amount of legislation in Uganda, there is often a disparity between the law that exists and what is followed in practice, particularly in the case of issues such as land tenure where customary law often operates alongside (or in place of) established legal frameworks. Furthermore, where legislation has been put in place specifically to benefit PWD, it can be open to exploitation, for example in the case of a tax break system for employers of a workforce of at least 5% PWD established in several iterations since 2006 that has been subject to widespread abuse by employers. Aside from the issues of enforcement, there are further issues relating to deep rooted misconceptions on the nature of disability itself even at the government level that limit a large demographic of PWDs from being able to benefit from that legislation which does exist (as noted by NUDIPU in their 2013 comments on the UN report on implementation of the Convention on the Rights of Person with Disabilities).

5.2. Overview, Roles and Assets

Our research indicates considerable variation between PWDs in terms of their economic engagement (access and agency) within market systems - not just by disability type. PWDs demonstrate the range of economic and behavioural trends akin to any population in a rural setting within a developing country. There are disability nuances but overall the differentiating factors are more attitudinal, societal and demographic. The section below presents the range of roles and assets that help to differentiate between various cadres of PWD.

5.2.1. Land ownership and access

There are three main groups of farmers across PWD based on their assets as well as their chosen roles, (Figure 4 presents the percentage of respondents in each of these categories):[15]

[11] http://www.ilo.org/wcmsp5/groups/public/---ed_emp/---ifp_skills/documents/publication/wcms_107842.pdf
http://www.ilo.org/wcmsp5/groups/public/@ed_emp/@ifp_skills/documents/publication/wcms_115099.pdf

[12] Including The *Local Government Act (1997), Parliamentary Elections Statute (1996) and the Movement Act (1998).*

[13] *The Universal Primary Education Act* and *The Business, Technical, Vocational Education and Training (BTVET) Act, No. 12, 2008,* and *The Universities and Tertiary Institutions Act, 2001,* all contain references to equitable access to education for PWDs

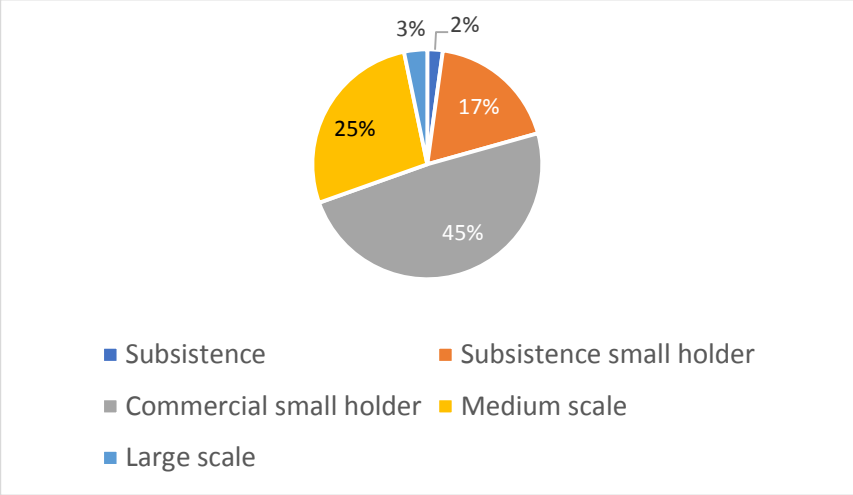
[14] The *Traffic and Road Safety Act, 1998* prevents denial of a driving permit on the grounds of disability

[15] This range was also reflected within the qualitative research: at every workshop, there were several PWDs who owned large amounts of land (30-300 acres), or PWDs who owned an agribusiness. On the other hand, there were also those with 1-2 acres or less, who struggled to produce excess produce to sell. The percentages are based on the number of respondents

- **Subsistence farmers** (2%) – who sell excess produce but generally only grow what they require in order to survive. [16]
- **Smallholder farmers** – own and farm small areas of land that are 5 acres or less[17] and are either **subsistence** (17%) or **commercial** (45%) growing mainly food or cash crops respectively.
- **Medium scale** (25%) and **large scale** (3%) farmers own larger tracts of land - 6 to 49 acres and 50 acres plus respectively.

Of the survey sample, 93% had access to agricultural land (with 43% being sole owners, 38% being joint owners and 13% having access to land that they did not own themselves). Respondents were more likely to own land jointly than any other asset considered – this is predictable given the nature of land tenure in rural communities in Northern Uganda (Anderson *et al.* 2016). PWDs often rely heavily on family support in their livelihood activities which may further contribute to a high rate of joint ownership of agricultural land (Ghore *et al*., 2017).

Figure 4: Types of farmers (by % of respondents involved in Agriculture, n = 309)



5.2.2. What crops do PWDs grow?

Of the survey participants involved in agriculture, 226 individuals (73%) were cash crop farmers. There were no statistically significant differences between disability groups or between sexes in their likelihood to grow crops or to be commercial crop growers.

The cash crops most commonly grown by survey respondents[18] were Cassava (25% of cash crop farmers), Maize (23%), Sim Sim (Sesame) (20%), Soybean (19%) and Beans (18%). This pattern generally reflects agricultural markets in Northern Uganda[19]. Over 25 different commodities were grown commercially by PWDs in the research sample. There was regional variation in predominant cash-crops (reflecting both differences in staple markets and in agricultural practices)[20]:

who worked in agriculture (309 people), split by whether they sell their crop and if they own land, how much land they own (in acres).

[16] Note that the proportion of subsistence farmers across a population would usually be considerably higher- a demonstration of purposive sampling bias

[17] Ownership could be sole or joint with a family member

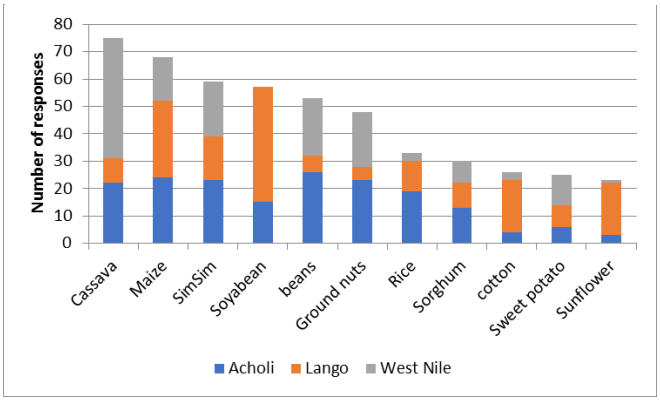
[18] Respondents were asked to select all crops grown as a cash-crop (with multiple answers allowed) – most individuals grew more than one

[19] All five commodities (other than Soybeans) sit within the top seven crops for market size (combined sales and consumption figures) – UBOS 2014

[20] The percentages given are of all crops grown in that region rather than by number of small holders in that region – as is presented in the quantitative report.

- **Acholi** –The top five cash crops grown by PwDs in Acholi were beans (23% of commercial farmers), Maize (21%), Sim Sim and Groundnuts (both 20%) and Cassava (19%).
- **Lango –** The primary cash crop in Lango was Soybean (37% of commercial farmers) followed by Maize (28%), Cotton and Sunflower (both 19%), and Sim Sim (16%).
- **West Nile –** Cassava was by far the most common cash crop (51% of commercial farmers) with Beans (24%), Sim Sim and Groundnuts (both 23%) and Maize (19%) also holding significant shares of the product base.

Figure 5: Cash Crops grown by PWDs sampled by region (n = 226)



5.2.3. What agricultural tasks do PWDs do?

Our research indicates PWDs are primarily involved in agricultural functions towards the production end of the market system (growing crops; keeping livestock; selling labour). There is very little representation as we move up the chain into more formal roles in grain handling, extension, processing or manufacturing. It is worth noting that 1 in 4 respondents have additional non-farm based employment, including working in retail, trade and representation at councils.

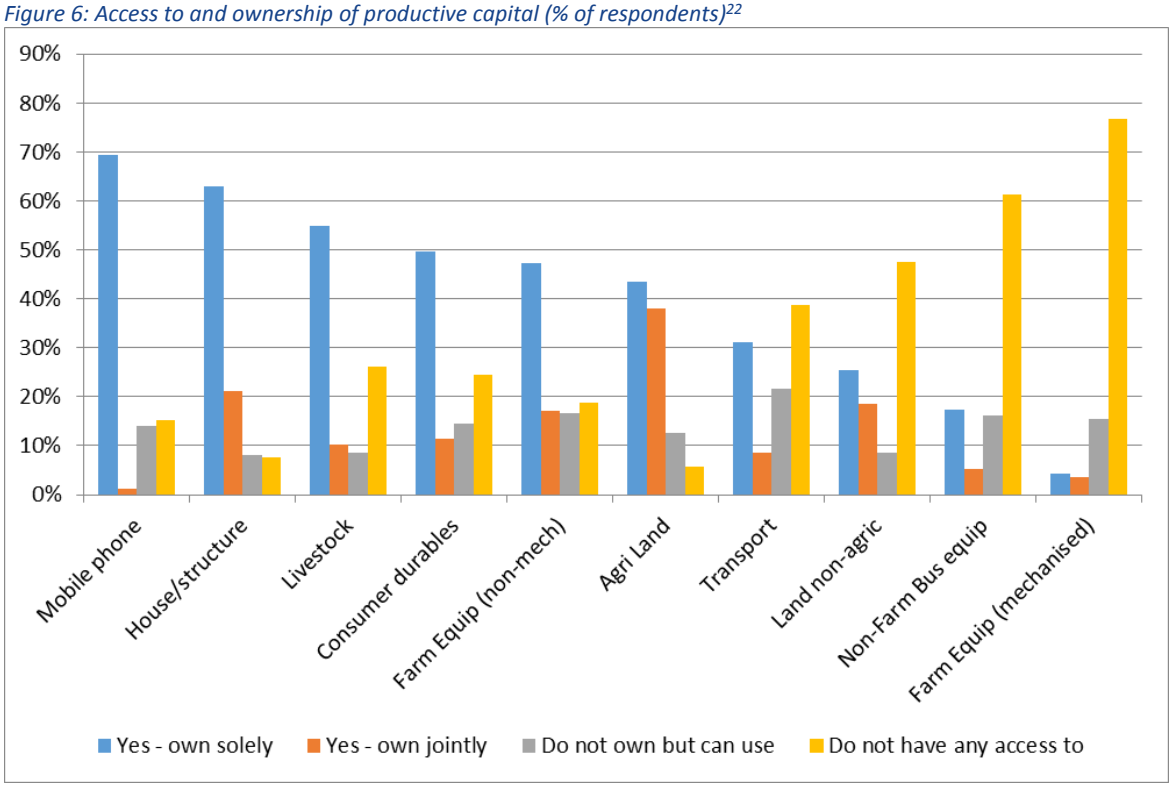
5.2.4. Assets

Ownership of assets is an indicator of economic empowerment. Much of the literature around PWD focusses on their inability to own assets. However, we found that PWD have better access to and ownership of assets than previously thought[21]. Figure 6 shows an inverse correlation in access to, and ownership of, assets from personal assets to commercial; with PWDs owning mobile phones, houses, livestock and land but with less access to farm equipment.

Moderate rates of access to **transport** (62%) and low levels of access to **non-farm business equipment** (38%), and **mechanised farm equipment** (23%) are constraints to both market access and increased production that are not unique to PWDs but common among all smallholder farmers in Uganda. However (as is highlighted in subsequent sections), there are factors unique to PWDs and disability-specific barriers that combine to further limit PWDs' access to and ownership of productive capital.

[21] Assets were defined in terms of productive capital (i.e. assets which have a value and/or economic use) and included land (both agricultural and non-agricultural).

Figure 6: Access to and ownership of productive capital (% of respondents)[22]



5.2.5. Disability nuances

There appears to be certain preferences in crop choice dependant on disability type in the surveyed population and there are a number of disability related nuances that would be worth investigating further:

- **Visually impaired individuals** had a low representation in core practical agricultural functions including planting, weeding, seeding, sorting, packing/bagging and transportation. This is likely a result of (either real or perceived) barriers that visual impairment presents to carrying out these tasks effectively. However, people with visual impairments have good access to finance and produce the second highest amount of cash crops, with a leaning towards growing Cassava (22% of the crops produced by visually impaired farmers)[23].
- **People with physical disabilities** showed reduced rates of participation in the same practical functions, though this disparity was not as pronounced as with visually impaired individuals. They had the highest degree of participation in farm management, administration and accounting of any of the disability categories.
- **People with hearing impairments** primarily carried out practical functions (planting, weeding, seeding) and had low levels of inclusion in farm management, administration, and accounting, which may be associated with communications barriers faced by this group (as highlighted in the qualitative research), as well as lower educational outcomes[24].
- **People with mental health disabilities** had a similar representation to the other disability categories in practical agricultural tasks such as planting, weeding, packing and bagging. However, they were the least likely to be involved in accounting, machine operation or spraying. They have

[22] The assets for assessment were adapted from IFPRI's Abbreviated Women's Empowerment in Agriculture Index (A-WEAI) tool

[23] Further research is needed to ascertain the rationale for this.

[24] Hearing impaired respondents had the lowest educational outcomes of any group surveyed, with 64% having achieved only a primary level of education

significantly lower access to finance; lower levels of confidence and higher internalised stigma than the other disability categories. In our sample, sim sim makes up 26% of all crops grown by people with mental health disabilities[25].

5.2.6. Gender nuances

Agricultural labour divisions by gender are, interestingly, not as pronounced in PWDs as the general population in Northern Uganda. For example, the Gender Equality and Social Inclusion (GESI) scoping mission report for NU-TEC MD states that only women sort seeds and "only when planting in rows will approximately 10% of men assist" with weeding. However, these roles (and in general all the agricultural roles) appear to be shared more equally across the PWDs sampled (70% of men and 87% of women weeding and 61% of men and 59% of women seeding). This demonstrates that the level of disability is more important in determining the level of engagement in different agricultural tasks than traditional gender norms. Additional points to note are:

- Women do have less access to assets and ownership than men in many cases but often the divide is less stark than would be anticipated. The overall access to assets for women with disabilities (in this study) is higher than expected compared to the literature. When we look at agency over these assets, we can tell that women in this study have a level of decision making; 83% feeling like they make their own decisions.
- Sometimes we see gender norms reversed, for example visually impaired men are more likely to experience violence in the home than visually impaired women.
- There is a concern that the data for mentally disabled has a higher proportion of women to men which may be skewing the data on the level of confidence of the general PWD female sample population.

5.2.7. Climate resilience

Like much of Uganda, the PWD sampled rely on rain water harvesting and have little or no access to enhanced irrigation systems as our research demonstrated through these key findings:

- PWDs believe that weather is a key constraint to their yield or crop production. Drought is the biggest concern and has negatively impacted over 70% of respondents in the last three years
- There is a lack of adoption of farm-level basic irrigation techniques and crop planting for improved moisture retention. This looks to be due to a lack of knowledge in this area which in turn could be down to limited access to information.

5.2.8. Key PWD Agricultural Market Systems

PWD are active across the NU-TEC MD market systems such as soybean and sunflower and the interconnected markets such as land preparation, aggregation and storage and seeds. However, as Figure 5 above suggests, PWD may have more of a presence in other commodities such as Cassava, Maize and Sim Sim. In addition, PWD look to be involved and fairly well integrated in bee-keeping across Northern Uganda. Our research suggests that bee-keeping is a good way for PWDs to overcome negative stigma and discrimination at the community level, because bringing bees into the community is acknowledged to be beneficial. The Apiculture market system is explored more in section 7.4.1.

5.3. Financial Services

Access to finance was a common theme throughout our qualitative research. However, there are a number of ways PWDs may define access to finance; (a) increased access to existing loans, credit,

[25] Further research would be needed to ascertain the rationale for this result.

insurance, microfinance or other institutions (b) the creation of new low- interest, disability friendly T&Cs products (c) access to more 'no-strings-attached' grants.

Overall, PWDs have relatively good access to financial services. Comparing our research results with findings from another survey from 2015 (CGAP[26]), in some instances PWDs have greater access than other smallholder farmers in Northern Uganda.[27] For example, 68% of PWDs sampled have access to at least one informal financial service provider such as Village Savings and Loans Associations (VSLAs), which compares favourably to the 35% of other Northern Ugandan smallholders when asked the same question. In addition, 35% of PWDs in this study have a current bank account at a formal institution, versus 8% for Northern Ugandan smallholders in the CGAP. Visually impaired people have particularly good access to bank accounts, with half of the participants reporting a registered account.[28] Overall, 90% of our study participants have heard of mobile money and around 60% have an account.

This positive picture is not universal. 65% of PWDs do not have bank accounts even though 85% of respondents indicated this was important to them.[29] Fewer women have bank accounts than men (26% versus 44%) and younger people (18-26) are less than half as likely to have a bank account or use informal savings mechanisms than others (although there is no difference for visually impaired people). The hearing impaired have less access to VSLAs than other disabilities and those with a mental disability have the worst access overall. Furthermore, there appears to be a swathe of PWDs within this research (32%) who do not access any financial services at all; they have no bank account, are not part of any formal or informal microfinance institutions or group savings associations and they do not have mobile money.

5.3.1. Disability nuances

PWDs are not the same. Although, seemingly obvious, commonly found references in the literature to 'PWDs as a marginalised group' suggest perception of homogeneity is widespread, albeit with referenced caveats around disability specific nuances. By focussing solely on 'disability type' and 'gender', it is easy to overlook other key characteristics (e.g. education or income) which could offer more insight around issues such as economic access and empowerment. Indeed, our research illustrates that when it comes to financial services PWDs behave much like the general rural-poor of Uganda.

Further work needs to be undertaken to consider more appropriate intervention clusters that are beyond just disability groups but consider a whole range of individual and social characteristics.

5.3.2. Financial resilience

1 in 4 PWDs have an additional work area, suggesting a degree of financial resilience. Evidence suggests the greater the reliance on agriculture, the poorer the household is likely to be predominantly due to the inability to cope with external shocks, whilst Jones *et al.* suggests that earnings from selling labour are frequently higher than from subsistence agriculture (Nathan associates 2015). Another interesting finding is the number of PWD (from our sample) who engage in government and council

[26] CGAP- National Survey and Segmentation of Smallholder Households in Uganda: Understanding Their Demand for Financial, Agricultural, and Digital Solutions

[27] There are significant caveats when cross-comparing to the CGAP survey, as this sample is not statistically significant and was sampled purposively. Also, CGAP was completed in Oct 2016 & we have not accounted for economic growth due to lack of regional information. However it is still useful as a general comparator: sample sizes are not unreasonably dissimilar (384 versus 556); participants were from the same regions in NU; participants were smallholders

[28] It was not possible to determine the reasons for greater economic engagement amongst visually impaired, but this could be an important area to explore for greater access to markets

[29] 78% of those who currently do not have a bank account said having a bank account was important to them

roles alongside their agricultural endeavours. This was found in the quantitative research (over 10% of the PWDs with 2+ roles worked for local or regional councils) and came out strongly in the qualitative research where a number of participants have been elected to positions of regional responsibility.[30]

Another demonstration of financial resilience is that over half (52%) of PWDs in this study stated that they would be able to access the sum of 114,000 shillings in an emergency.[31] This compares to 32% in the NU CGAP study. PWD tended to use individual approaches such as 'savings' (32% of PWDs who said they could access the money); 'money from working' (24%); 'family and friends' (16%) and 'other'[32] (13%) to access the capital, whilst respondents from the NU CGAP survey had a heavier reliance on 'family and friends' (34%). This could indicate PWDs have a less strong social support network, but it also points to independence and autonomy which speaks more broadly to aspects around agency and control.

5.3.3. Access to credit, insurance and loans

PWDs have difficulty in accessing credit, insurance and loans, but no more than everyone else in Northern Uganda:

- **PWDs have poor access to loans**- but this is consistent with much of the literature suggesting smallholders generally have low access to loans due to extortionate interest rates and low collateral. There is some evidence to suggest that PWDs face discrimination by money lenders and experience self-stigma, preventing them from applying for loans (Bertland and Maisland, 2014). However, our findings were mixed and the quantitative research suggested a low number of loans being declined due to discrimination.
- **Few PWDs are involved with more formal microfinance institutions (such as SACCOs)** reflecting the wider literature around the trend within the rural poor population to use more informal mechanisms.
- **Access to credit is difficult;** access to cash is a problem making it hard to invest which in turn makes it difficult to break out of the poverty trap (which is similar to all people at the lower end of social-economy). PWDs use their own funds and savings rather than supplier's funds for inputs and entrepreneurs find it difficult to expand businesses.
- **PWDs are interested in informal lending and savings but would also be keen for insurance to help overcome the big constraints they face as farmers.**

5.3.4. Variation in financial needs

Financial needs for PWDs are complex, overlapping between household and agricultural needs. When asked to identify the most important aspect to invest in, farming (41%) and education (35%) were considered a priority over other options, with home improvements in third (10%). This demonstrates that an investment in agriculture competes with an investment in the education of a child. PWDs are not unique in this respect: these findings speak to the diversity of poor agricultural households across the World (Nathan associates 2015) and correlate strongly with findings from the CGAP survey. PWDs are perhaps more likely to experience further conflicts around whether to use credit to purchase medical supplies or equipment as opposed to the intended investment.

An additional factor relates to the **variation in demand for particular financial services across the agricultural cycle.** This has been well documented in Martin *et al.* (2014) who reference the financial

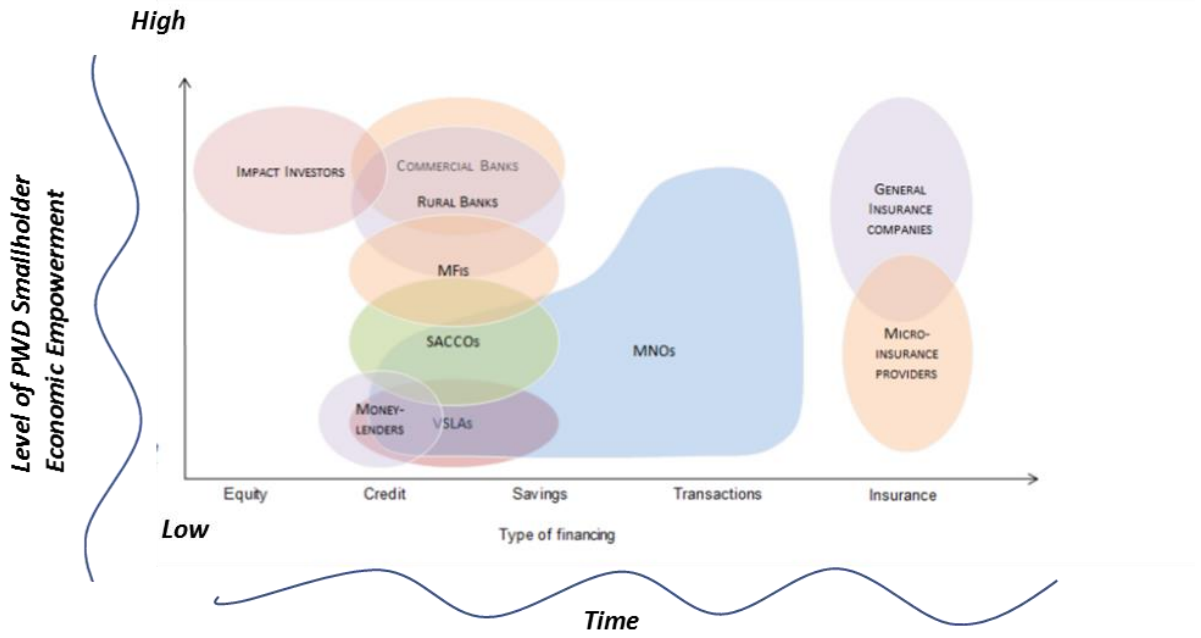
[30] This could be due to sampling bias as explored in the limitations section

[31] The sum of 114,000 is the sum used initially by the World Bank as a

[32] It is interesting to note that in the 'other' category, the majority of the responses referred to the sale of assets such as livestock.

and information needs at each point and provided the following summary: at the preparation and planting stage farmers require credit for inputs and labour, in between the farmer requires risk management products such as insurance (see Figure 7 below).

Figure 7: Level of PWD Smallholder economic empowerment against type of financing



5.3.5. Summary

Access to financial services and products may not be as big a constraint as initially thought although there is a tranche of PWDs who have very poor financial access.

Undoubtedly, PWDs have additional costs (transport, guides, medicine) and are likely to have a lower income (periods of low productivity) but the core issue is not access to financial services in and of itself, with the exception being:

- The poorer PWDs who would benefit from accessing savings mechanisms via targeted inclusion
- The 'entrepreneur type PWDs' who could benefit from greater access to microfinance institutions and loans

In every other area, such as facilitating easier access to credit (e.g. by mobile money) or exploring the use of index insurance, PWD should be considered in the same way as every other smallholder.

It is hard to ascertain the constraints and root causes surrounding financial access even without the added complication of distinguishing 'barriers plus' for PWD. The sheer vertical variation in economic spectrum of PWDs combined with the horizontal variation in financial needs makes it difficult to analyse PWDs as a group: they will have different barriers at different times, requiring different solutions. That said, any initiative that can help PWD diversify from agriculture (e.g. into the labour market) will help them earn more and increase economic resilience, with a low risk of migration.

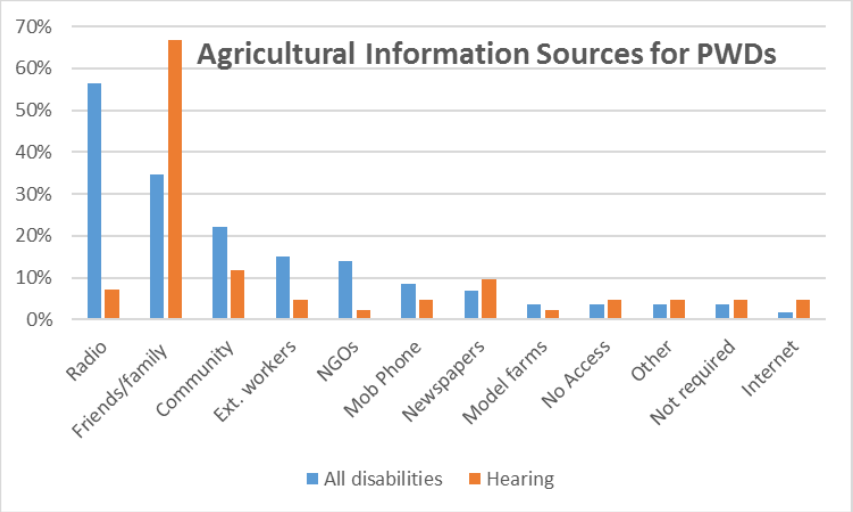
5.4. Information

Lack of market information has been identified as one of the key constraints to farmers' access to market opportunities in Uganda (Kleigh *et al*., 1999; Foodnet and NRI, 2002).

5.4.1. Access to information

Figure 8 demonstrates the sources used by PWDs to obtain agricultural information. We can see that the radio is the most common means (56% of PWDs involved in agriculture) followed by family and friends, the community and fellow farmers. More formal services such as those provided by extension workers, NGOs and demonstration farms are accessed much less frequently. Mobile phones do not look to be a common means of accessing agricultural information and the internet even less so.

Figure 8: Source of agricultural information for PWDs – separated by hearing impaired and all disabilities



5.4.2. Disability Nuances

Women surveyed had a broadly similar level of access to men across the majority of information sources, albeit very marginally less, for example 53% of women access radio compared to 59% of men. This conflicts with much of the literature suggesting women have less access to information (Uganda Poverty Assessment, 2016).

There are significant differences by disability, the most profound being that whilst most PWD groups rely on the radio, the hearing impaired cannot (see Figure 8 orange versus blue), instead they rely on family and friends far more - at double the average. They are also less than half as likely as the other disability types to look to other farmers or the community for advice. When it comes to accessing market information therefore, the hearing-impaired look to be at a greater disadvantage. This is not uncommon and reflects the wider literature that states the hearing impaired are the most marginalised (Bertland and Maisland 2012).

The relationship between hearing and communicating is pivotal here, and the hearing impaired are again disadvantaged - with 83% reporting difficulties in this area. The hearing impaired can only really communicate via sign language and in Uganda there are many regional varieties of this. On a practical level, this means that they are at a disadvantage when it comes to communicating outside of their immediate family or regional networks. This, in turn, leads to a degree of marginalisation – a theme explored in our qualitative research:

> *It is harder to be part of everything that's going on. People avoid looking at you or leave you out because they think it's too much effort to explain. I can kind of understand, it's tiring trying to communicate unless you have someone that can help you translate* [33]

Our research leads us to conclude that people with hearing impairments might be isolated at an individual level but they are often part of a close-knit community. They socialise, eat and work together which enables them to *'have jokes and arguments like normal people'*. Therefore, societal isolation could be seen as a two-way process: it is easier for them to stick together rather than integrate into community.

This has implications regarding the information getting through to people with hearing impairments, as they have access only to very narrow communication channels.

Radio in Northern Uganda: In all regions, there is a weekly broadcast noting market prices for key crops such as Maize, Beans, Sorghum, Cassava. In addition to pricing, listeners are informed about upcoming jobs and training opportunities and receive weather alerts. Agricultural programmes offer advice in areas such as new farming techniques and the correct use of inputs whilst offering advice and troubleshooting for common problems. This information is not easily found elsewhere in the community putting those that cannot listen to the programmes at a significant disadvantage.

5.4.3. Information technology innovations

Broadly there is a lack of knowledge around newer technology-based innovations which provide market information in the form of SMS messaging price updates and advice, which is supported by our quantitative data. However, our qualitative research suggests that PWDs would be very keen to access these services, particularly if they are low cost. Hearing impaired men would benefit particularly from the SMS updates for market pricing.

> *For me it would be very good just for getting the price right. For the moment, my brother tells me what the board says when he is in the town but this is not so very often and then when the traders come they are saying something different and my friends they also are saying something different*[34]

Similarly, innovations such as mobile apps to convert sign to speech was something of interest but not previously considered as many were not aware of their existence.

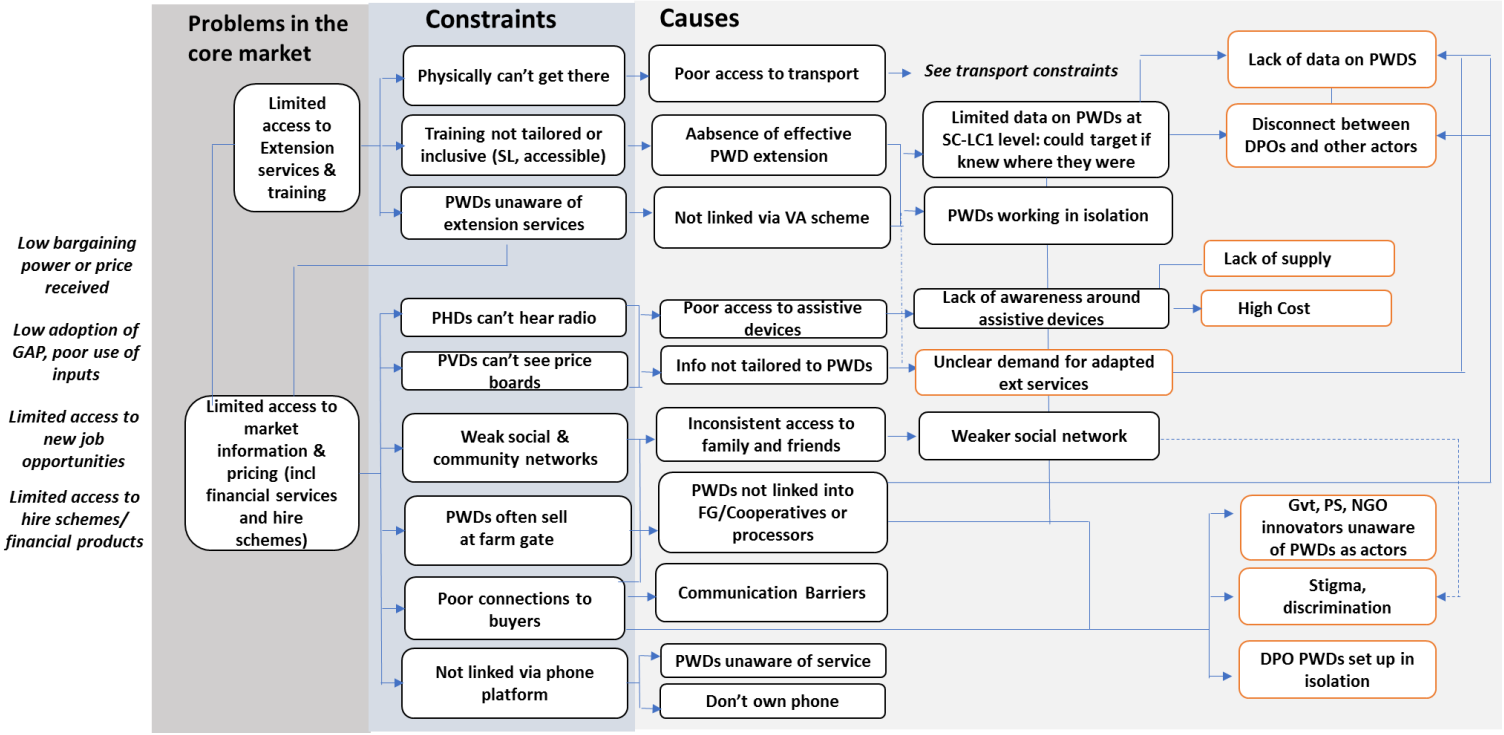
5.4.4. Barriers and constraints to information

Figure 9 looks at some of the disability related barriers around access to information, which have numerous adverse market consequences, for example: low adoption of good agronomic practices, poor use of inputs, low price received for produce and limited access to new job opportunities and financial products. The root causes are **physical access** (see transport section); **isolation** (at the group and individual level); **invisibility and network disconnect** (right across PWDs and other actors in market system - this makes it hard for actors to target effectively at a basic level to make sure PWDs receive the *same* information and services as others and also makes it hard to assess demand for *adapted/tailored* services). **There are additional barriers for hearing impaired** around the lack of assistive devices or tailored information, although arguably the root cause still lies in the invisibility of PWDs as viable market actors.

[33] Male participant, Hearing Impaired Workshop
[34] Ibid.

Whilst there are clearly 'barriers plus' for PWDs, when comparing against the norm in Northern Uganda, there is not a great difference between the level of access to information sources between non-PWDs and PWDs (excluding hearing impaired individuals). Formal extension services are not well accessed across both PWDs and non-PWDs, suggesting a general lack of services or perhaps reflecting the difficulty of providing services across large geographical areas. Technological interventions such as agri-mobile messaging are not currently used by either group despite interest in this area.

Figure 9: Information Constraints tree



5.5. Transport and Mobility

PWDs need access to competitive markets not just for their produce but also for inputs, assets, technology, consumer goods, credit and labour. However, Uganda's road infrastructure is notoriously poor, with over 95% of roads unpaved, including the community access and feeder roads at the village level. Many of these roads are inaccessible by motor vehicle and primarily trafficked on foot or by bike, increasing time and cost to transport goods (Mwebesa N.D.).

5.5.1. Access to transport and markets

With the additional disability and mobility related issues faced by PWDs, inability to access transport has often been cited as a major constraint to PWDs' participation in markets, as it restricts opportunities for income generation: remoteness increases uncertainty and reduces choice, resulting in limited marketing opportunities, reduced farm-gate prices and returns to labour and increased input costs. This weakens incentives to participate in the economy, leading to subsistence rather than market-based production (IFAD, 2003).

This is reflected in the quantitative data, which found PWDs living in Urban/Peri-urban areas earning an average household income of over 300,000 UGX per month compared to those living in remote

areas who were earning less than half of this[35]. That said, access to markets is a central concern for rural communities across the developing world and the variance in income between those living in urban versus rural is also widespread (Nathan associates 2015). It is important to differentiate the 'barriers plus' faced by PWDs to understand the true constraints within this key supporting function/system.

5.5.2. Disability and gender nuance

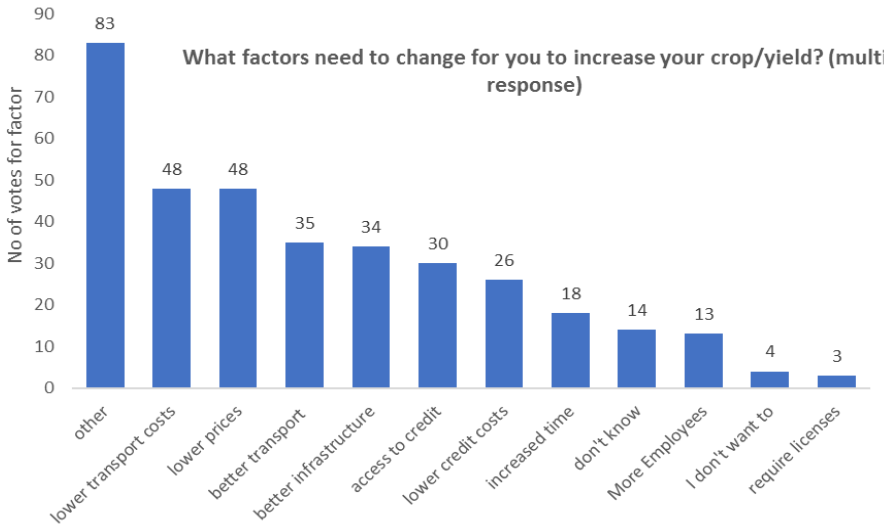
According to the quantitative data, **52% of PWDs are able to access transport** to buy or sell inputs or produce and a further 10% can sometimes access transport. There is significant variation by disability type with a 40% difference in range between those who have the best access (hearing impaired) and those who have the worst access (those with mental health issues). Similar patterns are seen in transport ownership, with hearing impaired 30% more likely to own solely or jointly than other categories (particularly those with mental health issues). Women are 15% less likely to access transport than men.

The degree to which PWDs are physically mobile does not necessarily correlate to their ability to access transport.[36] However, there look to be links between geographic location and transport access: PWDs living in a rural location are able to access transport 23% of the time, compared to 48% living in remote locations and 60% living in Urban/Peri-urban.

5.5.3. Barriers and constraints to transport

Whilst it is helpful to look at access and ownership of transport, these are fairly crude indicators in ascertaining the extent to which transport is an issue for PWDs: 'Can you access?' is not the same as 'Do you access?'. Our research suggests that there are more complex factors at play that relate to social norms, behaviour and disutility and it is important to explore these further before unpacking the impact these will have on access to markets.

Figure 10: Factors stated that would be needed to help improve yield among cash crop farmers (n = 226)

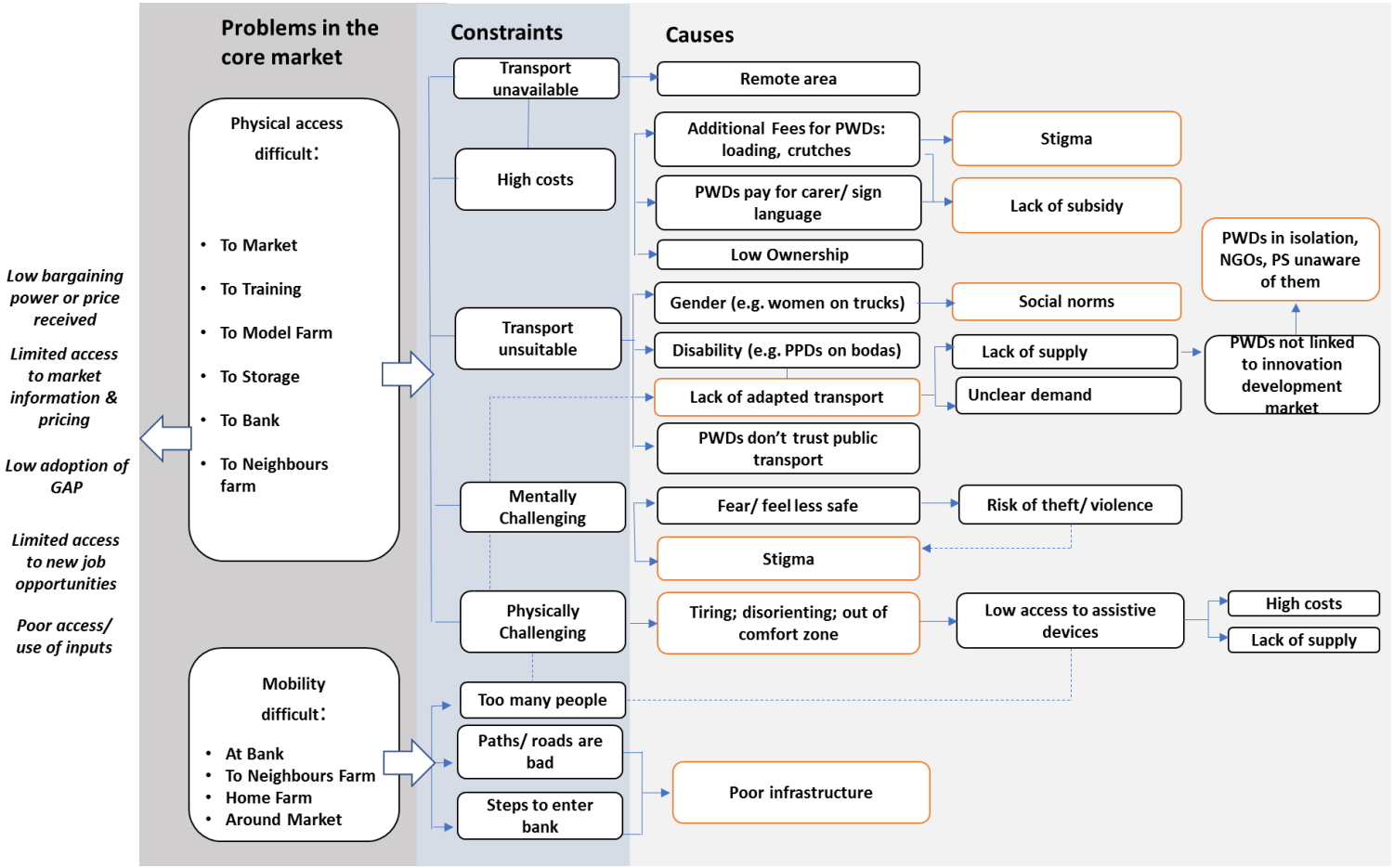


[35] However, aggregated income statistics need to be caveated because they were inserted as free text and as such, there are a number of 'unusual' values, but it is not possible to verify whether they are an inputting error or not.

[36] We looked to see whether PWDs who had difficulty walking longer distances (half a km) had less access to transport but it did not seem the case

Section 5.5 examines the constraints for transport and mobility. Observe that 'high costs', 'inadequate transport' and 'poor infrastructure' are listed as three factors raised in the quantitative research by PWDs as key to increase their crop/yield productivity (see *Figure 10*). By tracing these issues left and right on the constraints tree, we are able to see that some of the key market failures are limited access to pricing, financial services, poor adoption of GAP and poor utilisation of land. Some of the root causes are high costs, stigma, unsuitable transport and trust. [37]

Figure 11: Transport and Mobility Constraints tree



5.6. Skills, Personality and Capacity

There remains a question mark around whether PWDs in Northern Uganda are able to build the skills and capacity required to facilitate access to markets.

On the one hand, there is the literature which suggests PWD are less likely to access education and skills training. This is supported, to an extent, by our findings, which show 43% of PWD had achieved only a primary level of education. However, this is not uncommon in Northern Uganda and initial comparisons suggest PWDs are not far from normal, with a potentially higher representation attending secondary school than the general population (nearly 30%)[38].

[37] Qualitative research suggests infrastructure is interpreted by PWDs as physical road/path quality, both at public and home level. There were references to poor farm infrastructure which meant PWDs could not get independently from house to field, delaying agricultural productivity- especially during harvest

[38] Additional analysis is required to compare our results to the norm. Difficulties around 'attend' and 'completed' may void some data, and the fact the survey was not sensitive enough to the different levels within primary and secondary education

5.6.1. Personality traits and attributes

A recurrent theme throughout the qualitative and quantitative research was that PWDs have certain personality traits and attributes that are considered appealing to the agricultural market sector:

- *Honest and Trustworthy; Reliable and Loyal*
    - PWDs often have to put their trust in other people, at the home, community and business level (e.g. traders; carers). As a result, they take time to build relationships. They will not let people down: once given a chance PWDs do not want to jeopardise this.
    - PWDs do not want to jeopardise relationships so will commit to finishing a job or a contract, even if they would receive more money elsewhere. This is because they value trust and relationships over marginal profitability.
    - PWDs are thought to be good with handling money: employers will trust PWDs because they are unlikely to steal (they would not want to lose their job or reputation).
    - **In a market system underpinned by mistrust, these are appealing attributes**
- *Determined, resilient and hardworking*
    - There is general recognition that PWDs face high levels of adversity. PWDs who are able to overcome disability related challenges (physical and mental) are determined to do well and demonstrate resilience in their approach to work. They often work harder than others, wanting to prove they are a useful addition to the workforce.
- *Strong (hearing impaired youth men)*
- *Focussed*

It is important to note these qualities are not just self-reported but are recognised by other actor including government and private sector. Indeed, an example was given about the Mayor of Gulu and his preference for PWD labourers:

> *I know the Mayor only employs hearing impaired men now…he was having difficulty with his farm labourers…always they were late coming and leaving early and they were not doing weeding properly. Since he switched he is very happy, he says there are none such hard workers and for good money also*[39]

There are also strong examples of leaders and entrepreneurs within our research such as PWDs elected to local council levels and those who have started their own businesses.

Whilst PWDs do have some obvious physical limitations, the majority feel that they are able to do their job as well as able persons, and 69% think their disability does not affect their ability to work.
Our findings generally reflect those found by the International Labour Organization (ILO, 2011) who highlighted:

- PWDs are good, dependable employees.
- PWDs represent an untapped source of skills and talent.
- PWDs are an often-overlooked market segment.
- Hiring PWDs can contribute to the overall diversity, creativity and morale of the workplace and enhance a company's image.

5.7. Informal rules and norms

There is an abundance of literature which discusses the relationship between high levels of stigma and discrimination and low levels of economic and social integration (Wapling and Downie, 2012; UNICEF, 2013; Heymann *et al*., 2014). Many have found that negative attitudes and stigma towards PWDs are

[39] Male participant, Hearing Impaired Workshop

more extreme in developing countries and Northern Uganda is reputedly no exception to this with PWDs facing '*…the most deeply entrenched levels of social exclusion, marginalisation and discrimination'* (Lang *et al.,* 2009). It is generally found that women with disabilities face more difficulties; with less ownership over productive resources and being more likely to experience violence (Human Rights Watch Uganda, 2010)

From the perspective of PWDs as economically active market actors, this study both confirms and contradicts some of the previous findings.

5.7.1. Stigma and Stereotypes

Mont *et al* have found negative attitudes and stigma towards PWDs to be more extreme in developing countries as a result of misconceptions, stereotypes and *'folklore linking disability to punishment for sins or witchcraft'* (Mont, 2014, p. 24). Our qualitative research generally confirmed these findings. There appeared to be more stigma around mental health than any other disability, with a fear that it is contagious:

> *My family own a farm of around 17 acres. We hired some people to come and work to help harvest the beans. They came on the first day but they are seeing my brother who he has a mental health problem. They run away and they shout at him, saying "this is an evil place, it is cursed by witches, we will not come back". They all did not come back and we were left by ourselves. We could not find anybody else. We worked so hard all day and night but it was too late. We could not harvest in time. The beans were rotten* [40]

There was also stigma associated with hearing impairments with 'people running away' from them in the road, although our research suggests that this could be because of the communication barriers rather than the disability itself.[41] Mental Health is particularly poorly understood. There is a significant knowledge gap around the definition of a mental health disorder and an inability to differentiate between mental health and intellectual disability. Epilepsy is another area that was misunderstood.[42]

5.7.2. Differing societal levels

Figure 12 shows the extent to which PWDs in this study feel valued, respected and safe at the household, community and workplace levels. The data indicates that PWDs experience a greater degree of stigma at the community level.

Similarly, 29% of PWDs have experienced violence at the household level, 40% at the community level and 16% at the workplace level because of disability, although this does not necessarily seem to relate to gender-based violence. It is interesting to note that the community poses the biggest issue; at the workplace level the incidences of violence decrease. This could indicate that those in more formal employment feel safer and protected whilst bearing in mind many PWDs work in less formal setups, indicating caution should be taken when making such assumptions.

[40] *Male participant, Mental Health Workshop*

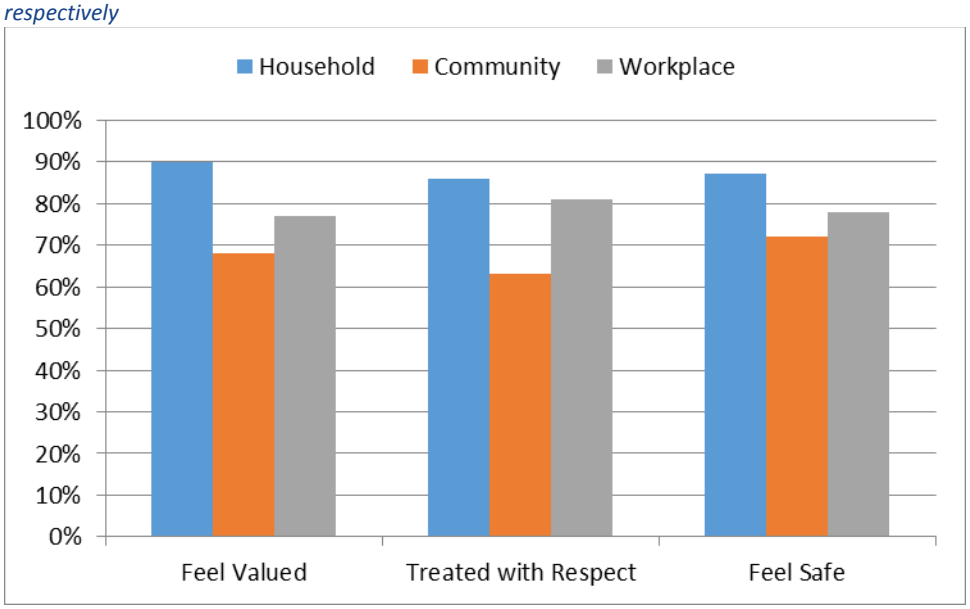
[41] Montrose Field Research Feb 2017, Hearing Impaired Workshop

[42] Epilepsy is a highly prevalent health problem in many developing countries (Preux & Druet-Cabanac, 2005; Birbeck et al., 2007). However, the proportion of people with epilepsy (PWE) who require treatment but are not receiving it can exceed 90% (Meyer & Birbeck, 2006). Uncontrolled seizures have serious consequences on morbidity and mortality rates. Therefore, people with epilepsy in sub-Saharan Africa (SSA) have high exposure to cognitive impairment, physical injuries, and disabilities (Jacoby et al., 2005). All these factors combined could exacerbate the stigma associated with epilepsy, which has long been described as a major burden to the disease.

5.7.3. Gender Nuances

Whilst females with a mental health disability are much more likely to experience violence at the household level than males (42% compared to 6%), for the visually impaired it is the men who are more likely to experience violence (30%) than the women (19%). When we look at violence at the workplace level, although the overall prevalence is lower than at the community level, men are more likely to experience violence across every disability category. This could suggest that gender norms are distorted when it comes to disability and there are more complicated factors at play that relate to socio-economic positioning and degree of stigma resilience.

Figure 12: Percentage of PwDs who feel value, safe, and respected in their households, communities, and workplaces respectively



5.7.4. Theft and Trust

Our qualitative research indicates that PWDs are often the victims of theft. Examples were given of outright theft due to a physical or sensory imbalance (grain stolen outside storage unit from a physically impaired man) or a sensory advantage (produce stolen from deaf); or the theft could be more underhand in nature (manipulating a mental health women to accept low pay; providing incorrect quality and amount of seeds to a blind man unable to check). This theme was confirmed in the quantitative research where we find that 39% of PWDs have had money stolen within the last 12 months, which is significantly higher than the non-PWDs in Northern Uganda who were asked the same question.

Unfortunately, it is not uncommon for PWDs to be the victim of theft. At the household level, PWDs feel able to mitigate this risk by taking precautions such as changing assets (for example livestock from chicken and goats to pigs) as they are more difficult to steal. Another example given was weighing beehives down or buying an extra lock for the storage room. However, outside the home environment, there is a greater degree of vulnerability, with less protection from family members and a lower degree of confidence:

> *At home I am in charge. It is my land, my farm, people do as I ask. I am King of my land! When I am somewhere else I have no land. I have no people. I am just a normal person, although a bit worse off because I can't walk properly and I can't see properly.*[43]

We have two pieces of evidence therefore, that when taken together have implications when considering access to markets: First, PWDs feel safer and more respected at home and feel they can protect their assets there. Second, they are more vulnerable to theft.

For our research participants, the key implications are: (i) they are less likely to trust people they have no prior relationship with; (ii) they are less likely to carry or transport valuable assets (produce, inputs, money) or entrust them to someone else without receiving full payment up-front; (iii) they seemed to strongly reject the notion of public storage units on the basis that their produce would not be secure from others neither on the journey there nor throughout the storage duration. Careful consideration will therefore need to be given around removal of barriers or incentive structures when considering all aspects of bulking schemes, storage and transport to markets. The overarching conclusion at this stage is that it might be easier to bring aspects of the markets to PWDs rather than the other way around.

5.7.5. The impact of stigma and discrimination on access to markets

For the most part, negative attitudes and discrimination are not stopping PWDs from owning assets, accessing services or actively participating in markets (which is a different finding to the literature)**.** Section 5.2 and 5.3 explore that PWDs actually seem to have fairly good access to assets (land, livestock, house, phone) and financial services (bank accounts, mobile money, VSLA). Access to loans is one area where PWDs feel they are often discriminated against (67%) yet many of our qualitative research participants noted that other limitations such as access to capital and transport are the bigger barriers.

We can see from previous sections that whilst disability is often a limiting factor when it comes to accessing financial, information and transportation services, the biggest limitation appears to be their lack of visibility and the disability itself rather than discriminatory behaviour. Indeed, when those PWD not part of a VSLA were asked why, only 10% cited discrimination, with other more prominent reasons being lack of money or use of alternative formal institutions. Over 70% of PWDs think that their disability has made no difference to the amount of money received for produce, with only 17% overall reporting that they received less as a result of their disability. Furthermore, when possible reasons for poor access to financial, information and transportation services were explored in the qualitative research, it pointed towards more practical issues (transport to market versus selling at the farm gate) as opposed to discriminatory reasons. Similarly, when we look at barriers to accessing work, discrimination is very low compared to other reasons such as transport.

Our initial conclusion is that whilst examples of negative attitudes and discrimination persist, the realisation of these negative attitudes are not necessarily impacting on the ability of PWDs to engage in the economic marketplace in Northern Uganda.

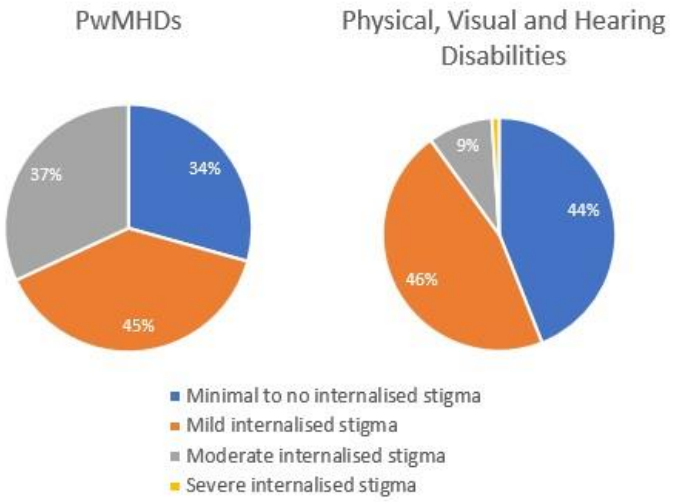
Of course, arguably, the characteristics and resilience of PWDs could be a key enabling factor: on the whole, PWDs demonstrate low levels of 'internalised' or 'self- stigma'. Self- stigma usually occurs when PWDs buy into society's misconceptions about disability, thus internalising negative beliefs, which in turn can prevent them from social or economic inclusion (ISMI research). The fact that 86% of participants scored 'no' or 'mild' levels of internalised stigma is positive, as it demonstrates that PWDs have the potential to reject negative stereotypes. Indeed, we can see from responses that PWDs

[43] Male participant, Physically Impaired Workshop

demonstrate high levels of stigma resilience and determination, with 95% working hard to be the best at what they do and 99% always looking for ways to improve themselves or their lives. They overcome negative behaviour by *'working harder to prove them wrong'* and *'concentrating on what I do best and working for my income'*[44].

The exception is for people with mental health disabilities, who generally seem less confident, have less control and are less likely to make their own decisions than the other disability categories. They also have a much higher level of self-stigma than the other disability groups (see *Figure 13*) confirming the correlation between high self-stigma and lower levels of socio-economic engagement. This is unsurprising given the aforementioned negative attitudes towards mental health in Northern Uganda, and reflects findings in the wider literature suggesting persons with mental health disabilities often report high levels of self -stigma.

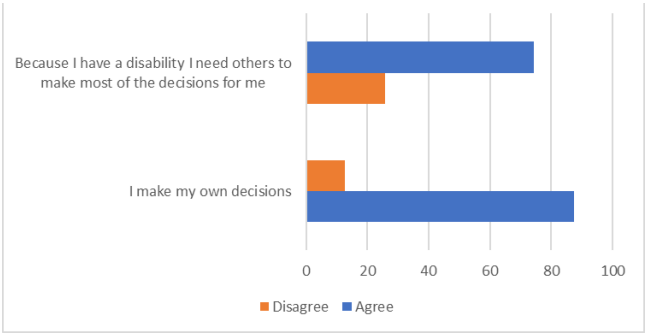
Figure 13: PwDs' internalised stigma score (by % of respondents) partially disaggregated by disability



Furthermore, despite overall low self-stigma scores across the disability groups, we can see some evidence even within the quantitative survey that there may be negative associations with the word 'disability'. As an example, see Figure 14 which demonstrates the different responses - by the same participants - to the concept of agency around decision making, with and without the negative word association 'disability'.

This could be an indication that the presence of negative assumptions and stereotypes can be projected onto PWDs, thus impacting on their confidence. This reinforces the importance of maintaining a positive involvement approach to overcome self, social or economic exclusion.

Figure 14: Implications of the use of the word 'disability' to responses



Indeed, the qualitative research reinforced the concept that whilst community sensitisation was important, the best way to become accepted, valued and included in society is to prove oneself economically and better still be someone who can add value to others. As one person explained:

> *For me I think sensitisation is important…and here we have had many projects. The people they come, and they like to get the samosas… But then the project ends and nothing really changes. For me I think it is the responsibility of the disabled person to sensitise others after all they do not know another way. It is the difference between an NGO saying "these PWDs are good really and they have rights" and me showing them "look, I am here, I can help you with making your goat better and I can give you some of my sim sim"*

[44] Responses from Quantitative research around how to overcome challenges to do with stigma/behaviour

This concept of PWDs taking responsibility for sensitisation of others is interesting, as is the need to be able to add value, as it makes sense that the most effective way to change stereotypes is by doing rather than saying.

More broadly, it challenges some existing assumptions about PWD 'inclusion': It is largely assumed that by creating an environment where negative attitudes and discrimination are less, PWDs will in turn be able to access opportunities, which in turn will enable employment and eventually, acceptance in the wider community. However, this is suggesting that the opposite might be true; that by becoming more visual in society and demonstrating their viability as economic players, this will fast-track PWDs' inclusion or acceptance within society.

> *An interesting observation came from a focus group after a participant recounted his bee-keeping business model. He noted that in his village a hearing-impaired man used to be excluded and marginalised. One day he started keeping bees and he would go around the village letting them out to help with pollination. People started to welcome him into their homes and give him tea and they would buy his honey. One day he became sick and the village came together to buy medicine for him.* [45]

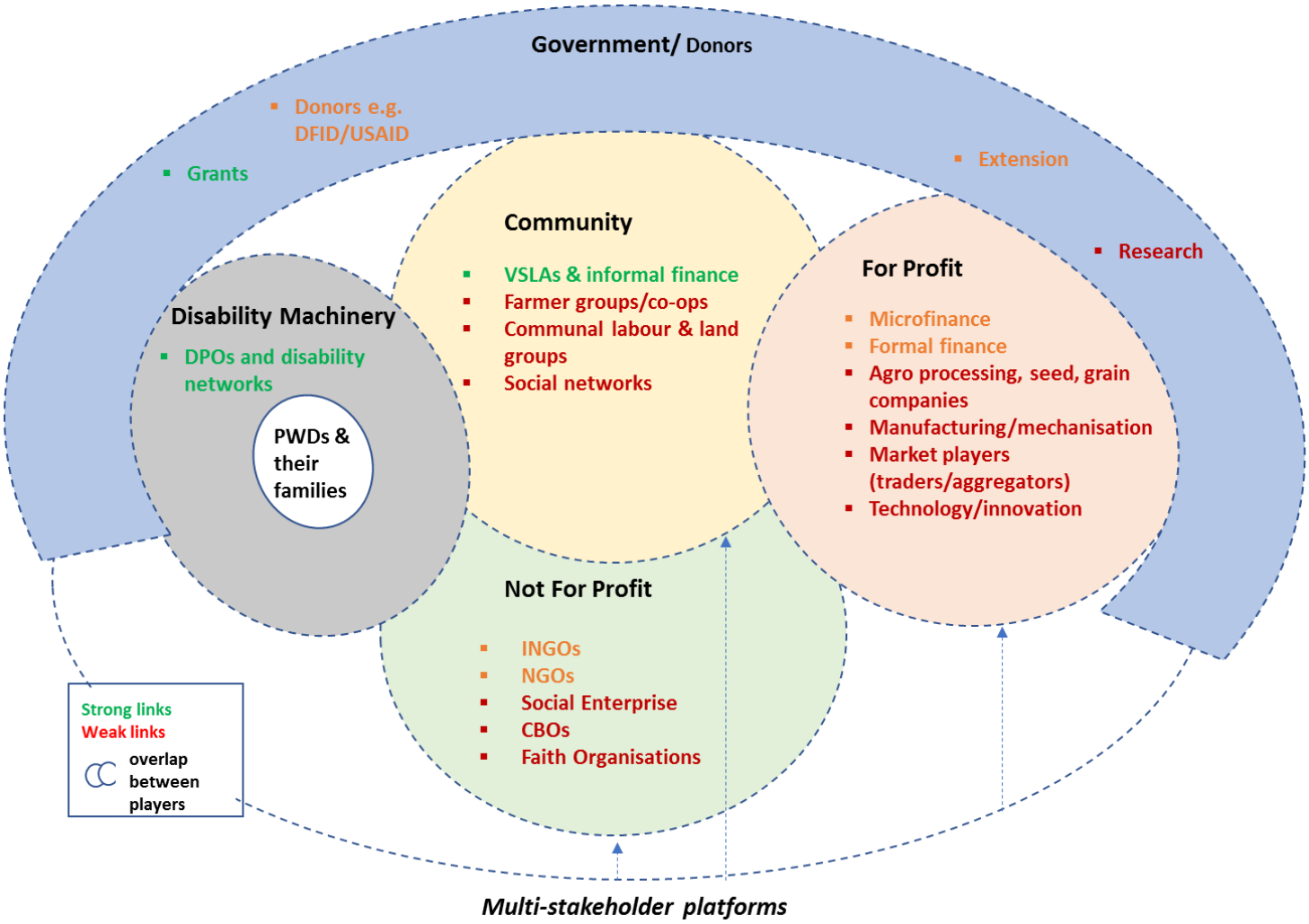
This suggests the conclusion could be not that PWDs are the 'most marginalised and most discriminated' but that invisibility breeds exclusion which in turn can lead to marginalisation. The point to consider at this stage is how to overcome this most effectively; the DPO machinery and networks in Uganda are a huge benefit and provide significant support to PWDs but the extent to which they have facilitated socio-economic inclusion and empowerment is debatable. The weakness of the networks perhaps lie in their very strength as standalone support structures and the question around how to leverage their insight and skill is to be determined.

5.8. Networks

It is difficult to generalise the complex interrelationships that exist between PWDs and other market players, not least because of the socio-economic variation between PWDs. Section 5.8 provides a broad overview of the key relationships PWDs have at the different levels within the home, disability networks, wider community, business and public sector. The text below offers greater insight into these relationships.

[45] Female participant, Visually Impaired Workshop

Figure 15 Key PWD linkages and relationships within NU agricultural market systems



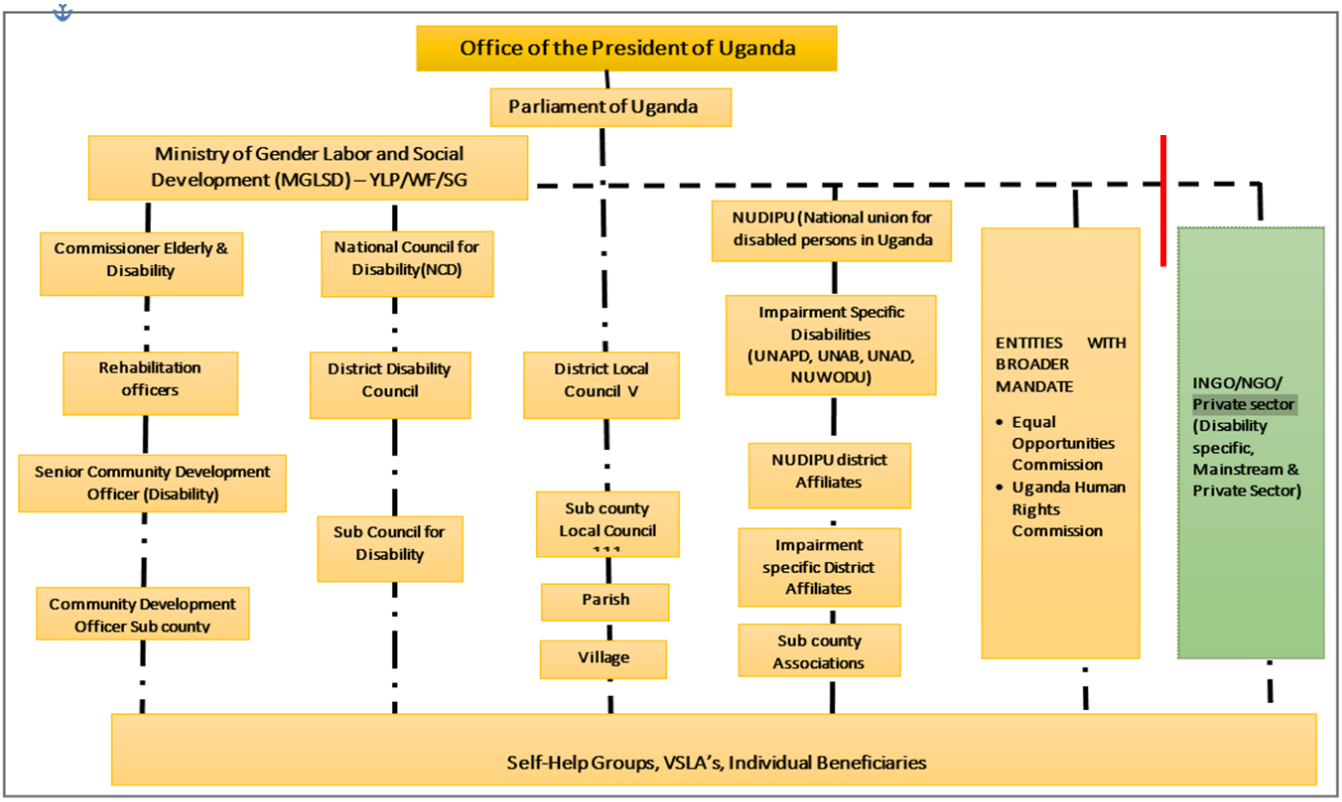
5.8.1. PWDs at the home level

Many PWDs have a strong relationship at the home level. Respondents said they feel safe (87%), valued (90%) and respected (86%) in the household and qualitative research indicates many rely on their closest family for support with transport and mobility. There are some instances where PWDs experience stigma and rejection by their families which looks to be more common for people suffering from mental health disorders.

5.8.2. Disability Networks

The 'disability machinery' (formal and informal disability networks, DPOs) is complex yet far reaching in Uganda and provides a powerful network that spans from the grassroots right up to central government level: *Figure **16*** provides an overview. PWDs in this study look to have strong links to the disability networks and machinery operating within Northern Uganda, with 74% reportedly being part of an official network.

Figure 16: Structure of organisations available for persons with disability in Uganda



Data Source: *ADD International Uganda program@2017*

The National Union of Disabled Persons (NUDIPU) is a national umbrella organisation made up of disability associations. Underneath this are organisations such as Uganda Disabled Women's Association, Uganda Foundation for the Blind, Uganda National Association of the Deaf Blind, the Mental Health Association, the Legal Action on Persons with Disability and the Disabled Women Network and Resource Organization, to name but a few. Each of these organisations has a registered membership and typically has outreach down to the village level. In addition, each organisation undertakes a range of activities including advocacy, service provision and capacity building.

The disability networks provide a supportive community for PWDs, both as individual and by assisting them to form groups. However, further research needs to be undertaken to understand the current and potential functionality of groups as our research yielded mixed results. On the one hand, we found evidence of PWDs working successfully together, for example the farmer groups in Aboch and Awach where PWDs bulk buy and market produce together and in Lira where 52 groups have been supported by an initial grant. On the other hand, it was reported that mixed PWD groups can fail, with different disability types not trusting one another. It seems that groups are often formed for the purpose of receiving something: money; seeds; training but can then fall apart. This is unsurprising and if PWDs are not provided with support on good group dynamics it is likely that they will not perform well. That PWDs are able to organise themselves into groups represents a strength which could be leveraged.

Whilst PWDs exist and link well *within* the disability community, this whole network does not seem well linked to some key players, instead working largely in isolation. The biggest gap is the lack of connection between the disability networks and the private sector - as explored in section 5.7.3 below.

5.8.3. Not for Profit Sector

There is some degree of overlap between disability organisations and the not-for-profit sector who provide support through CBR-based interventions, skills training, access to basic adaptive technologies such as hearing aids, white canes and wheelchairs and support to families of PWDs. However, those involved specifically in agri-business and access to markets rarely target PWDs as their primary target group, leaving this to the proviso of the disability organisations. This is changing and there are a couple of exceptions (such as Voluntary Services Overseas, VSO). This will hopefully grow as disability inclusion, mainstreaming and empowerment moves up the development agenda.

5.8.4. Private Sector

On the whole, both individual PWDs and those working together in agricultural groups are not well linked to key private sector market players. There is limited evidence to suggest PWDs are linked to buyers, processors or grain handlers (or supporting networks such as agro-dealers or village agents); most PWDs sell produce at the farm gate and are not active in group marketing or aggregation. Similarly, there is no evidence that PWD are involved in contractual seed multiplication. Relatively few examples were given of PWDs employed as contractors, seed sorters, cleaners or other roles within the private sector.

This means that PWDs do not get the benefits of a more secure market environment (with a guaranteed off-taker), dis-incentivising investment in higher quality inputs, land preparation techniques and storage. It also means they do not benefit from private sector extension services. Meanwhile, private sector companies do not get the benefits that PWDs can offer in terms of their attributes and skills and are missing out on a source of labour and produce.

The business and community environment cross-over heavily within agriculture, for example, the private sector looks to community members to act as intermediaries (such as Village Agents) or to community groups to provide a service (such as farmer groups/co-operatives to provide grain). Unfortunately, PWDs are not well integrated at the community level which could partially explain the current invisibility of PWDs to the private sector.

The poor linkages to the innovation or technology markets, are a missed opportunity to engage PWDs both in agricultural platforms and SMS-based extension as well as any innovation and disability enhancing software or devices.

PWD do have some links to formal financial institutions, for example 35% have a bank account. This could be leveraged further to provide additional access to finance, particularly with reference to more advanced savings schemes.

5.8.5. Community

Whilst PWD have some relationships at the community level, on the whole, they do not seem well linked at this level. Only 8% are part of farmers' groups or co-operatives. They are very unlikely to be part of communal labour or land hire groups, making land preparation difficult (see section 7.1 – land preparation). They also seem to have a weaker social network being self-reliant (e.g. selling assets) rather than going first to friends or family if they needed short-term finance.

This might be due to decades of stigma, leading to a degree of social exclusion and marginalisation: we noted in section 6.6 that PWD feel less safe, valued and respected at the community level and more likely to experience violence here than in the home or workplace. Another explanation could be

that the disability networks themselves provide a community; right from the village level up to local, district and national government.

One area PWDs do have some linkages is within informal village savings setups such as VSLAs and ROSCAs (63% of respondents). Our qualitative research indicates PWDs are involved in general savings communities, as opposed to being a member of a 'disability specific group'. PWDs in our study also reported an unexpected level of agency within these groups, actively participating and able to present ideas to secure a loan. This is encouraging as it demonstrates integration within the community and a degree of trust when it comes to PWDs and financial matters.

5.8.6. Cross-cutting networks & platforms

PWDs do not look to be members of local leadership forums, chamber of commerce or multi stakeholder platforms related to agriculture, again reducing their visibility from all other actors.

5.8.7. Government/Public Sector

PWDs in this study demonstrate some linkages with the Public Sector: Around 25% of participants in the qualitative research had received inputs via Operation Wealth Creation (OWC) and others had been the recipient of a Government Disability Special Grant, although the funds from this were reportedly too small and shared between too many to make a difference to livelihoods. Very few PWDs in this study have heard of or benefitted from public extension services such as National Agricultural Advisory services (NAADs) or Ugandan The Vegetable Oil Development Project Phase Two (VODP2).[46]

Overall, linkages in this sector are fairly low, but PWDs are more likely to be linked to government programmes when the output is transactional (such as the provision of inputs or a grant) rather than relational (such as agricultural extension services).

Poor linkages could, in part, be explained by the relationship between government agencies and disability networks: The Ministry of Gender, Labour and Social Development (MGSLD) looks to be linked to the disability networks, although the extent to which these linkages are being leveraged to reach PWD is unclear: our qualitative research suggests the relationship is more advocacy based rather than a practical means for connectivity. Whereas, the Ministry of Agriculture, Animal Industry and Fisheries (MAAIF) does not look to be well linked to disability networks and organisations.

We found PWDs' engagement in MAAIF schemes such as Operation Wealth Creation can vary significantly depending on the capacity, engagement and personal interests of local government officials. For example, in Gulu, where there are visually impaired people working within local government, the opportunities for PWDs to benefit from government interventions were severely limited. This is in contrast to Arua district where the government officials were pro-actively finding ways to reach out to PWDs and include them in agricultural initiatives; offering them free seeds, seedlings, tools and equipment and finding ways in which they could benefit from opportunities such as Operation Wealth Creation.

In summary: there are some strong relationships that can be leveraged such as the disability machinery; PWDs and their access to finance both at the community and business environment.

[46] http://www.newvision.co.ug/new_vision/news/1330156/vegetable-oil-development-project-phase-vodp

There are also some key missing links that, if strengthened, could help increase access and agency for PWDs within agricultural market systems. Most notably, these include increasing visibility via stakeholder platforms and linking the private sector with the disability networks.

The disability machinery has the potential to be a powerful tool and could be leveraged more effectively. This is of interest to private sector actors within the agricultural sector in NU and across the country as a whole. NU-TEC MD are ideally placed to take the lead in connecting their networks and pre-existing relationships with the private sector to disability organisations. Using the findings from this research, creating linkages with entities such as NUDIPU and leveraging these opportunities to make market systems work for PWDs already engaged in agri-business. To do this effectively, it is important to think about incentives for different market players. This is outlined in more detail in the interventions section.

5.9. Community Based Rehabilitation

Community-Based Rehabilitation was introduced by the World Health Organisation (WHO) following the Alma-Ata Declaration in 1978. Whilst initially it was established as a strategy for rehabilitating PWDs in resource-constrained settings, the term has expanded significantly to become a more generalised, rights-based approach for ensuring people with disabilities and their families experience social integration, equal opportunities and an improved quality of life.

The Uganda Community Based Rehabilitation Programme was officially adopted by the Government of Uganda (GoU) in 1992, to be championed by the Ministry of Gender, Labour and Social Development (MoGLSD) and coordinated by the Department of Disability and Elderly. The CBR programme has been rolled out into ten districts to date, none of which are in the sub-regions of focus in this study – West Nile, Lango and Gulu. The government's approach is multi-faceted including home-based care, awareness-raising, capacity building through livelihoods training, advocating for equality and equal access to services for PWD, amongst other things.

As part of this research, a workshop on CBR was held with participants ranging from (i) INGOs working primarily with PWDs/CWDs/their families but including aspects of agri-business/livelihoods to; (ii) INGOs working primarily in agri-business but employing a CBR approach to PWD inclusion.

Findings from the discussions at the workshop found that those organisations whose work was primarily with PWDs, CWDs and their families included programmes with some degree of vocational training and entrepreneurship interventions but without applying a market-based approach and therefore resulting in limited economic empowerment. In addition, by separating out PWDs and targeting them separately, it could be argued that this is less of a traditional CBR approach as it does not promote inclusion but positive exclusion of PWDs from mainstream programmes.

Similarly, those organisations working primarily in agri-business or access to finance were targeting their interventions at the most vulnerable community members, of which often PWDs happened to be included, but were never sought out purposively. As a result, very few interventions were targeted to specifically increase the capacity of PWDs to operate successfully within the market and there were few lessons to be learned which would look specifically at how to increase PWDs' ability to compete within agri-business.

Overall, these findings suggest that the danger with broadening the scope of the CBR strategy means it becomes more of a concept and less of a strategic intervention. As a result, each organisation was approaching CBR differently and there appeared to be few comparative initiatives or lessons learned

which could be leveraged for use within the NUTEC programme. As a participant from ADD international explained:

> *'There is a tendency to think certain interventions delivered in certain way is CBR – this is not true – on the contrary every intervention is CBR.'*[47]

5.10. PWD Barriers and Boosters Summary Tables

The green and orange tables below summarise the key 'barriers' and 'boosters' that are specific to PWDs with relation to their access and agency in agricultural market systems. They draw on the qualitative and quantitative research presented in the sections above: the darker the colour the greater the barrier or booster.

Figure 17: PWD Booster Table

PWD Booster		Deaf	Blind	Mental	Physical
Character Traits	Hardworking	XXX	XXX	XX	XXX
	Reliable	XXX	XXX		XXX
	Honest	XXX	XXX	XX	XXX
	Determined	XXX	XXX	X	XXX
	Strong	XXX *(loading)*	X	X	X
	Forward Thinking	XX	XX	X	XXX *(women)*
Skills	Driving	XX *(no licence)*			
	Sorting	X		X	
	Educated	XX	XX	XX	XX
	Leadership	XX	XXX		XXX
PS Actors Willing to Engage		XXX	XX	XX	XX
Work in Agriculture	Lango 52	XXX	XXX	XXX	XXX
	Aboch/Awach group	XX	XX	XX	XX
Networks & DPO Machinery		XXXX	XXXX	XXX	XXXX
Market Gaps	Low produce supply	XX	XX	XX	XX
	High labour costs	XXXX	XX	XX	XX
	New roles	XX	XX	X	XX
Access to livestock & land		XX	XX	XX	XX
Access to phones & banks		XX	XX	XX	XX
Business Entrepreneurs		X	X *Gvt, Apiculture*		X *Motorbike*

[47] ADD International, CBR Workshop

Figure 18: PWD Barrier Table

PWD Barrier	Deaf	Blind	Mental	Physical
Reduced Mobility		XX	X *(enclosed- kept in)*	XX
Access to Information & Extension Services	XXXXX *(radio, TV, meetings)*	XXX *(some illiterate)*	XXX *(enclosed- kept in)*	XX
Stigma & Discrimination	XX *(can't communicate)*	XX	XX *(contagious)* XXX *(women & epilepsy)* XXX *(paid less)*	X
Security of Assets	XXX *(theft)*	XXX *(theft)*	XX	XX
Invisibility	XXX	XXX	XXXX	XXX
Other Physical Issues- agri related	X *(some can't hear and/or speak-isolated, difficulty understanding & communicating)*	XX *(can't see- difficulty weeding, cutting, seed sorting)*	X *(some find exposure to sunlight difficult)*	XX *(some can't move, difficulty digging & spraying)*
Reliance on others	XX *(some require SL)*	XX *(some require guide)*		X *(some require help lifting/ getting around)*
Access to assistive devices	XXX (Ox plough, tractor, hearing aids, convertor)	XX (Ox plough, tractor, S2S tech)		XX (ox plough, tractor, adapted hand devices)
Land- access/ownership/utility	X XX *(women ownership)*	X XX *(women ownership)*	X XX *(women ownership)*	X XX *(women ownership)*
Access to Finance	XX	XX	XX	XX
Climate Resilience	XXXX	XXX	XXX	XXX

6. SITUATIONAL ANALYSIS: PWDS AS ACTORS WITHIN NU-TEC MD MARKET SYSTEMS

The following section aims to provide insight into how PWDs are currently participating as actors within four NU-TEC MD priority market systems across West Nile, Acholi and Lango. The market systems are (1) land preparation (2) aggregation and storage (3) sunflower and soybean (4) seed markets. These are not comprehensive market system assessments; whilst each section draws on M4P principals such as looking at core functions, supporting functions and rules of the game, we do not provide a comprehensive assessment of the wider market, touching only on areas that are particularly key to increasing economic access and agency of PWD. Constraints are examined from the perspective of PWD and draw from the above sections. As such it would be helpful to view it alongside the existing comprehensive NU-TEC MD market system assessments under the same name.

Due to the nature of the report structure, and specifically with the requirement to look at supporting rules and functions with both a general disability lens and a market specific lens, there is some overlap between sections.

6.1. Land Preparation

Much like the rest of Northern Uganda, **the process of land preparation for PWDs is one of arduous manual labour.** The majority use hand hoes for soil tilling, with very limited access to oxen and mechanisation. Some PWD in this study have large amounts of land (18% own 10 acres or more and there were a number of PWD in the qualitative research who owned 50 acres plus) and **struggle with land clearing and opening**. PWD rely on family labour, often finding it difficult to hire labour or benefit from reciprocal schemes. This is particularly demanding for PWD who contribute to this gruelling

labour with no help from labour saving devices. PWD believe the inputs they use are good quality, yet our research suggests they tend to use low quality fertiliser or herbicides. It follows that their yield will be substandard.

According to NU-TEC MD, farmers need to make a better living from the land by using the best technologies available. To achieve this, they must put more land under crop and increase the productivity of currently cultivated land. This requires farmers who currently rely on family labour and traditional hand tools to move up the technology continuum and increase productivity. This process will ultimately release labour and time, with positive impacts on rural poverty.

6.1.1. PWDs as Actors within Land Preparation Market System

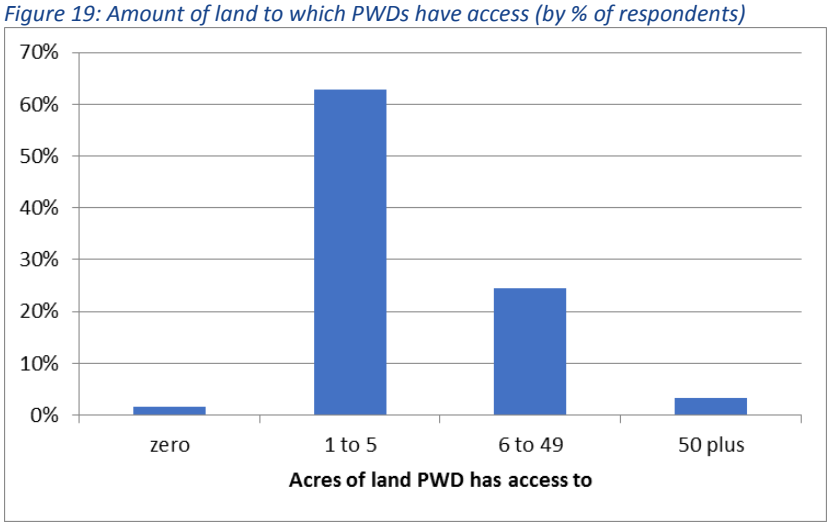
The PWD farmers in our sample fall into four main groups (see also ***Figure 4*** and *Figure **19***)

- **Subsistence farmers** (2%) who sell excess produce but overall only grow what they require in order to survive.
- **Smallholder farmers** who own and farm small areas of land that are 5 acres or less[48] and are either subsistence (17%) or commercial (45%) growing mainly food crops integrated with cash crops or higher value cash crops respectively.
- **Medium scale** (25%) and **large scale** (3%) farmers own larger tracts of land; 5 acres plus to 50 acres plus respectively.

Whilst land ownership alone might place them into these categories, they do not necessarily demonstrate other characteristics to qualify for commercial farmer status: land may not be fully opened or cultivated due to difficulties in labour hire and access to animal traction or mechanisation. As such, their potential for producing high yields of cash crops may not be fully realised.

For other smallholder farmers, the adoption of more advanced technology to assist in land preparation corresponds to the level of farmer: subsistence and smallholder farmers are more likely to rely on family labour and hand tools unless a collective arrangement enables access to more advanced technology; medium scale farmers are likely to start thinking about the use of animal traction and larger scale farmers will use or at least be considering the use of mechanisation and hired labour. This does not seem to be the case for PWDs who are mostly reliant on hand tools and family labour regardless of how much land they own. This is an issue because despite having access to assets they are unable to realise their full potential, thus limiting their ability to rise up the poverty ladder.

Figure 19: Amount of land to which PWDs have access (by % of respondents)



[48] Ownership could be sole or joint with a family member

Most crops grown by PWDs in Northern Uganda are seasonal, requiring land preparation and planting twice a year. Figure 5 shows the most popular crops produced per region and demonstrates that PWDs tend to select crops based on regional trends. Whilst there appears to be some disability related nuances such as visually impaired persons preferring to grow cassava, this needs to be explored further.

Land preparation is referred to as 'digging'. The first season requires land preparation from January through to March, the second season from August through to mid-September.

6.1.1.1. What land preparation tasks do PWDs carry out?

The main land preparation tasks for PWDs are the same as for the general population However, there are a couple of areas to note. For instance:

- **Land clearing:** Amongst PWDs with larger amounts of land (10-20 acres plus), there were a number of anecdotal references to the inability to clear the land due to lack of access to hired labour and mechanisation, meaning that there are swathes of land currently underutilised.
- **Land opening**: PWDs, like others in the region seem to conform to the practice of leaving fields in a fallow state to 'rest the soil'. PWDs reportedly burn the land at the end of the dry season as it is less labour intensive and a much easier way to open up the land (although arguably less climate smart than alternatives such as slashing)[49]
- **Tillage:** Our research suggests that PWD are most likely to use conventional tillage as opposed to conservation tillage. [50] This is unfortunate as it is labour intensive, requiring a first and second ploughing, and PWDs largely have access only to hand tools and family labour.

6.1.1.2. How do PWDs prepare land?

PWDs use traditional and rudimentary hand tools such as pangas, hoes and axes. Qualitative research indicates they have very limited access to oxen (reportedly no access at all in West Nile) and quantitative research demonstrated that only 5% are able to access tractor services. There was a desire to change this, with many professing an interest in accessing productivity-enhancing and labour saving technology. Several barriers were cited such as prohibitive costs and poor linkages to farmer groups. Indeed, poor connectivity to groups seems to be a key issue because PWDs referenced times where they did not hear about lease or loan schemes until it was *'too late',* because they were not part of a particular farmer group. Farmer group membership amongst our sample of PWDs was very low with only 8% belonging to a planting group and insignificant or no people part of a co-operative or with linkages to larger agro-dealers.

There is limited use of adaptive devices/technologies to help overcome or mitigate disability related disadvantages, such as lighter or shorter hoes. From this research, it is difficult to determine whether this is due to (a) lack of knowledge – as PWDs were not all aware that farm equipment could and has been adapted; (b) lack of supply as there are no obvious local manufacturers operating in this area or; (c) unwillingness to appear different or less able than non-PWDs as one disabled participant stated:

> *I've heard about lighter hoes and shorter things…they might be easier but I don't want others to think of me any less. Here we are proud of our tools -they are special to this region- we have the Kid'Ma and the hoe that has been this way for many years*[51]

[49] See NU-TEC MD Land Preparation MSA for more detail
[50] Ibid.
[51] Female participant, Physically Impaired Workshop

PWDs could benefit from being linked into adaptive devices technology as this could help reduce time and physical limitations. There has been much work to forward the gender agenda, with labour saving initiatives and developments put forward to balance the labour/time burden for women. As the market for adaptive technologies is small in Uganda, it could be beneficial to link PWDs into the gender labour saving market space to benefit from existing innovations.[52] Better still, would be to invest in PWD adaptive technologies as a new market to ensure PWDs are able to become even more viable actors within the agri-business space.

6.1.1.3. PWDs' access to labour

PWDs have limited access to hired or communal labour. Often during land preparation, families work together to complete work at one another's farm (referred to as a 'zero sum game'). PWDs are rarely able to participate in such schemes as they are not perceived to be able to give the same amount of labour back into the group.[53] PWDs can also find it problematic to hire labour owing to issues around stigma (see section 5.7) and access to credit. This means the majority of the labour burden is on family, further impacting on the ability of PWDs to maximise productivity and land under crop, particularly for those with 5 or more acres.

All commercial farmers require labour, especially at critical times and even small farmers may need assistance occasionally. A number of PWD and non-PWD stakeholders interviewed referred to the scarcity and high costs associated with hired labour. Farmers from Acholi said that they had to 'import' labourers from Lango and bear the additional costs[54].

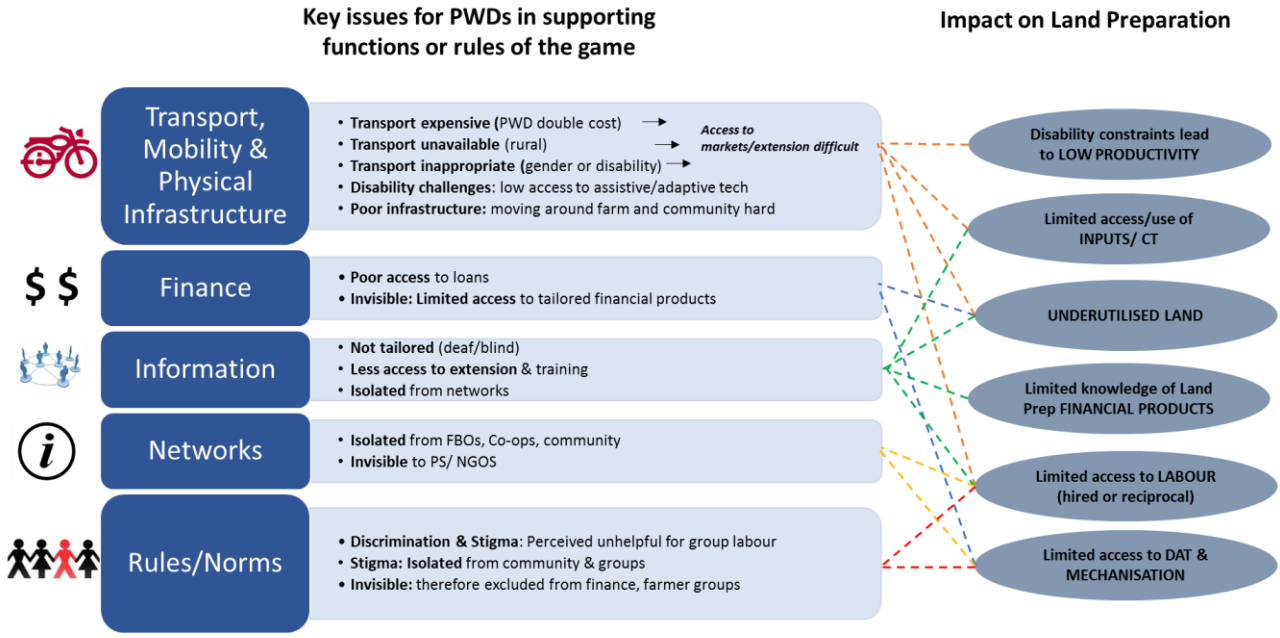
However, our research suggests that **there are groups of PWDs, specifically young hearing impaired men, who are available for labour hire.** This was certainly the case in Gulu. There were a number of references to the fact that these PWDs worked hard (see section 5.6). That these labour groups exist but are not well linked either to disability networks or the wider environment reinforces the suggestion that the hearing impaired are isolated from the rest of community (Beisland et al., 2014). It also presents an opportunity to help fill the labour gap: there is potential to capitalise on the value for money offering that PWDs can bring in a non-exploitative manner.[55]

6.1.2. PWD- Specific Supporting Functions and Rules: Summary

The situational analysis above provides detail around supporting functions and rules in relation to PWD. Figure 20 below provides an overview summary of key findings that have an impact on the land preparation market system.

[52] See an example here https://www.globalinnovationexchange.org/innovations/hand-pulled-small-seeds-planter
[53] A second limitation is that PWDs can find it difficult to get to other farms – even close by-due to poor road quality
[54] Field Research, Gulu
[55] A senior councillor from Gulu pays hearing- impaired labour group a fair market wage, saving on labour 'imports' from Lango. The hard-working qualities also make the investment mutually beneficial.

Figure 20: Summary of issues and impacts for land preparation



The key issue in land preparation for PWDs is isolation from other groups and actors (farmer groups; co-operatives; NGOs; private sector). This means they miss out on any kind of communal labour and, crucially, miss opportunities for group hire schemes or targeted financial products facilitating draught animal traction or mechanisation.

This is problematic for smallholders and larger landowners alike: PWDs are already disadvantaged (especially the visually and physically impaired), with limited access to assistive/adaptive devices, and lack of integration into the hired or reciprocal labour market means an increased burden on PWDs and their families. For those with around 5-10 acres, lack of integration into groups means the economics of oxen hire becomes less likely, and mechanisation a pipe dream. For the larger landowners, it means less likelihood of being considered for tractor hire schemes, limited information around financial products or support that could help them make the leap up the technology continuum.

For the small numbers of PWDs who have enough land to make tractor purchase a viable investment, then access to finance also becomes a constraint. However, we would argue that from our research, the likelihood of PWDs taking the risk to invest solo in mechanisation is so rare that the core problem still circles back to their isolation from potential partners.

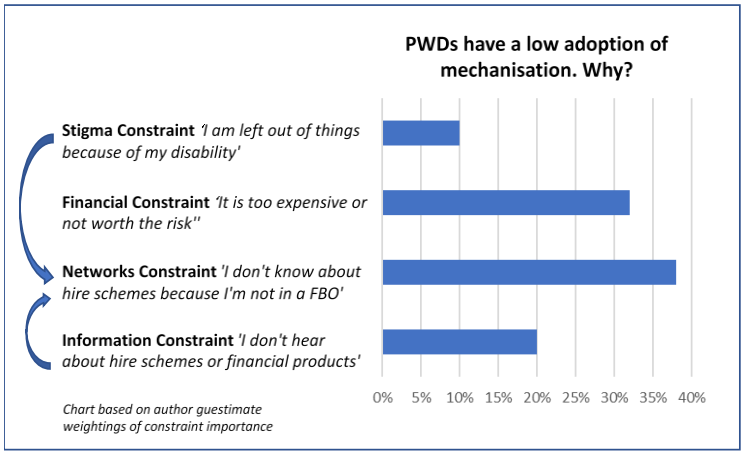
6.1.3. Constraints for PWDs in Land Preparation

There are a number of constraints within the land preparation market system which is resulting in the underutilisation of improved land preparation services and products.

Many of the issues faced by PWDs are universal, not least the issue of the marginal profitability of the traditional farming system versus improved land preparation technology. However, there are a number of 'barriers plus' that are experienced by PWDs, which makes analysing constraints more complex because of multiple interrelated factors. These will vary still further by disability type or economic status. Let us take low adoption of mechanisation as an example (Figure 21): We observed above that smallholder PWDs are most likely to participate in mechanisation as part of a group lease/hire scheme. Therefore, one of the main constraints to the low adoption rates is that they are not part of farmer groups. This correlates with access to information (as PWDs are less likely to hear

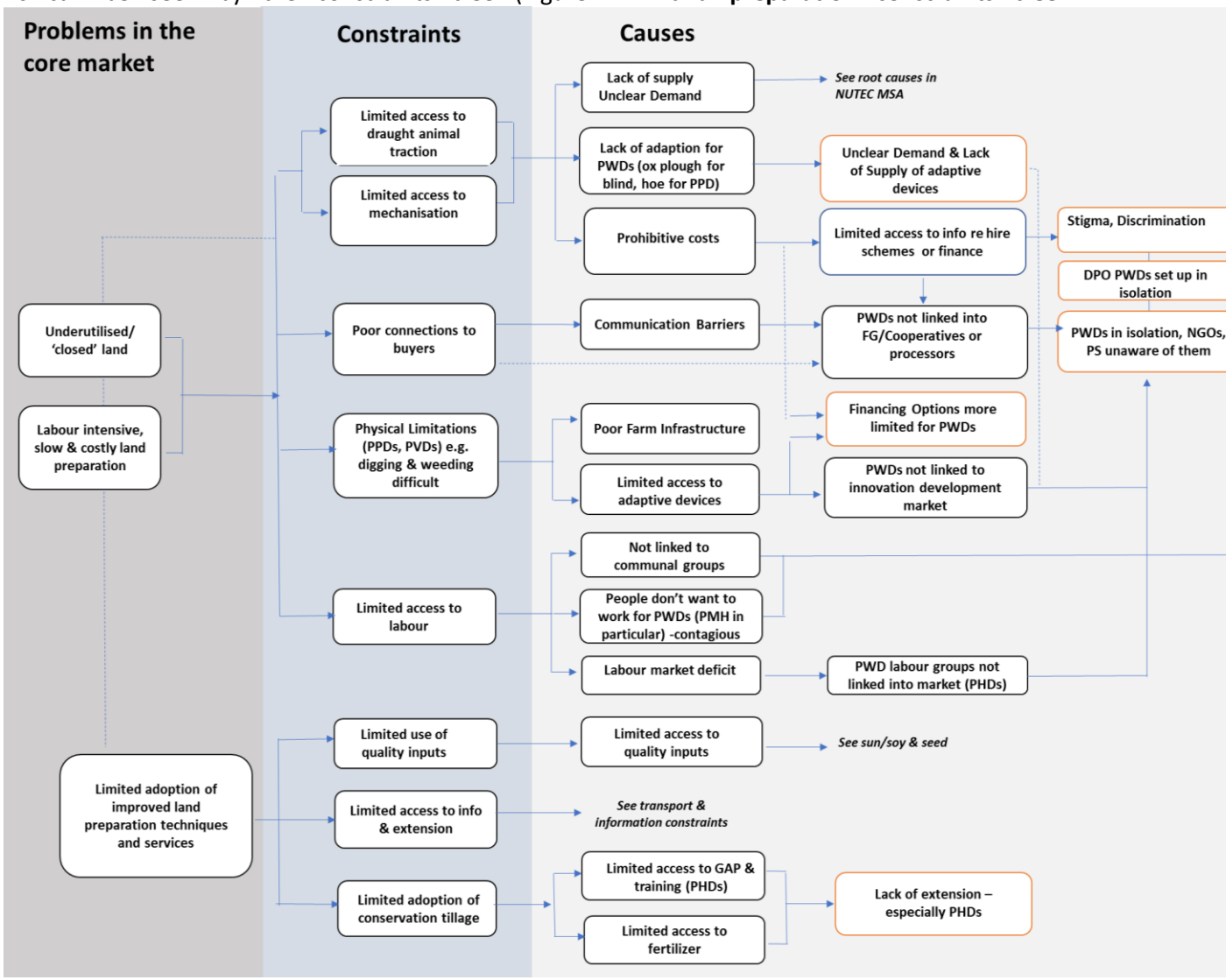
about hire opportunities) and is compounded by stigma – as this could be a reason PWDs are not part of FBOs. Access to finance may be the key reason for low adoption for non PWDs (see NUTEC MSA), and whilst we see it is a factor for PWDs, it is not the only constraint.

Figure 21: Reasons for low adoption mechanism for PWDs



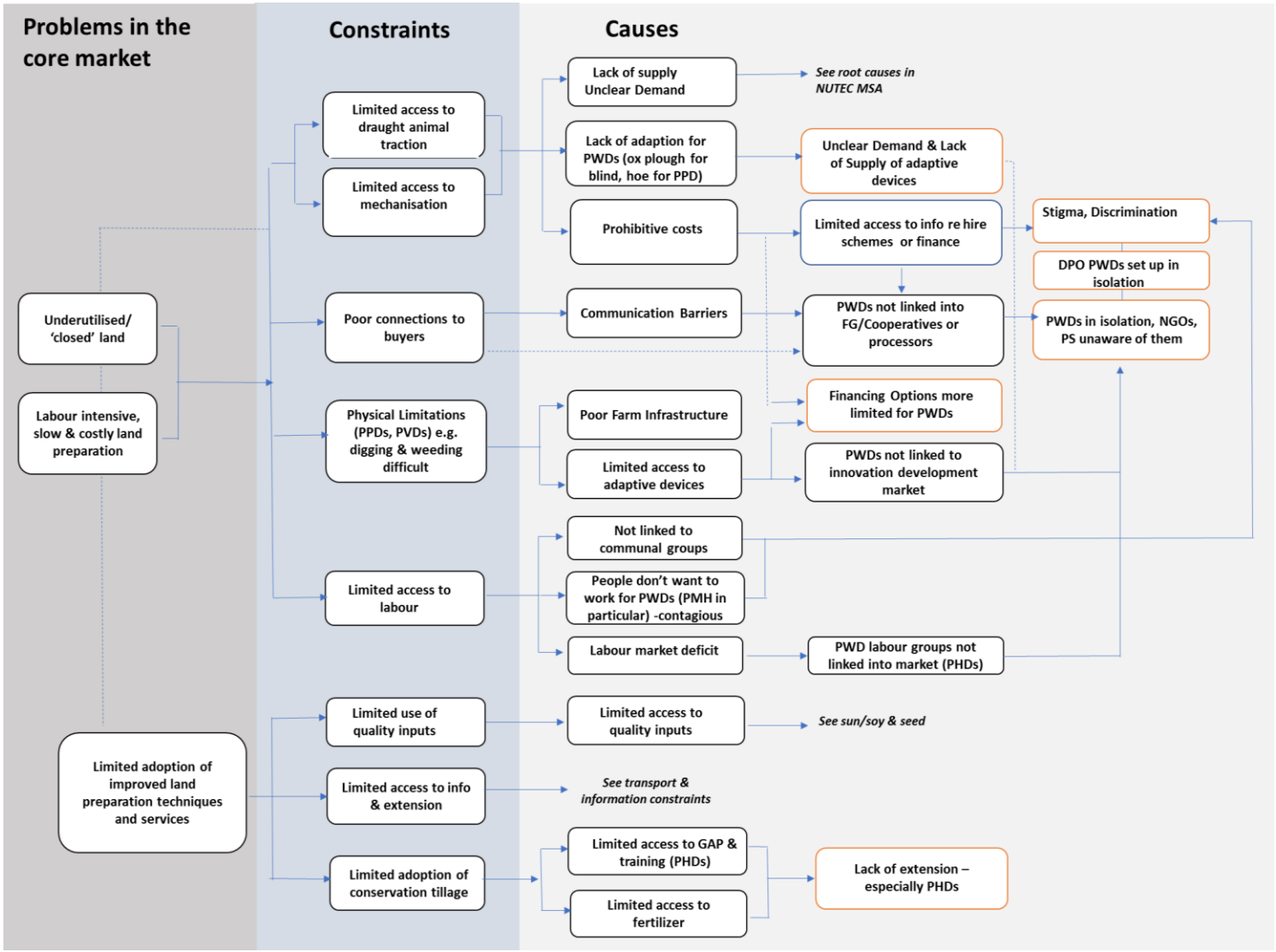
In this section, we identify and analyse these disability specific constraints in more depth and drill down to the root causes that might be susceptible to eventual intervention

As can be seen by the constraints tree (Figure 22: **Land preparation constraints tree**



), the key constraints are 'underutilised land', 'labour intensive and slow land preparation', and 'limited adoption of improved land preparation and services'. To some extent, the first two constraints are an effect of the third but there are other factors at play such as access to labour and connectivity to market.

Figure 22: Land preparation constraints tree



Constraint: Limited access & adoption of draught animal traction and mechanisation

Even though mechanisation is increasing amongst commercial and medium scale farmers, PWD with larger amounts of land do not seem linked to this revolution. Smallholders struggle to access tractor services across the board, but PWDs may find it especially hard for the following reasons:

(a) *Prohibitive costs:* To buy a tractor would be a huge investment, reportedly 1000 times the outlay of the average smallholder.[56] Draught Animal Traction (DAT) is slightly more affordable but still a large upfront cost. This is well outside the affordability of smallholders. To hire machinery is a more likely solution but to undertake this alone is expensive and risky as it would generally involve a large loan. Financing options tend to be more limited for PWDs (a result of self-stigma, invisibility and discrimination), making the investment even more unlikely. Whilst our research indicates PWDs are not wholly risk averse to investments in agriculture, they are also more susceptible to shocks and setbacks[57]. They would be unlikely to undertake this type of investment without risk sharing.

(b) *Low visibility:* PWDs are not generally perceived to be viable market actors with large amounts of land. This means that whenever a GoU (Government of Uganda) or donor initiative comes up to

[56] See NU-TEC MD Land Preparation MSA

[57] PWDs are more likely to be robbed; have a medical emergency

increase access to DAT or mechanisation, PWDs are not targeted and may not hear about opportunities. The same is true for targeted land preparation financial products.

(c) *Poor linkages to groups:* Group membership is essential to make the economics of mechanisation (and even DAT) work for the small farmer with 5-10 acres or so, yet we know PWDs are rarely part of such groups. For most larger farmers too, it is preferable to be part of a group-hire rather than risk an expensive investment alone.

(d) *Equipment is not adapted for PWDs:* This is an issue depending on the type of equipment and the type of disability but can mean additional costs for PWDs to cover labour to operate the equipment and can increase the stigma as lenders are less likely to want to loan equipment to PWDs if they think they would be unable to operate it.

Constraint: Poor connections to buyers

Some PWDs have land that is underutilised: it may not be cleared or it may be unopened so it will not be suitable for growing. If PWDs were better linked to markets (and guaranteed off-takers), they would be more inclined to take credit or a loan and invest in mechanisation or oxen hire[58].

Constraint: Disability related limitations

Some PWDs face physical limitations which make land preparation harder. The physically disabled can struggle to dig with ill-adapted hand tools and the visually impaired find weeding problematic. Both these groups say planting could be made easier with seed planters, although these are not generally in use.

(a) Limited access to assistive/adaptive devices: PWDs do not have the access they require to assistive devices (white canes/wheelchairs/crutches). They are also not well linked to adaptive device markets or innovation hubs: they have no adapted farm tools such as shorter or lighter hoes. They are not part of development initiatives to design or modify implements that would save them time and effort.

(b) Poor farm infrastructure: People with visual and physical difficulties can struggle to move around at the farm level due to uneven ground (worse after the rains). This means they rely on family members to assist them to the fields which impacts on their levels of productivity.

Constraint: Limited access to labour

(a) *Limited access to hired labour*: Some PWDs find accessing hired labour challenging due stigma associated with their disability. Often non-PWDs believe disability is a curse or associated with witchcraft and can be contagious and therefore wish to avoid contact with them. This is especially true for those with a mental health disorder or conditions such as epilepsy.

(b) *Limited access to reciprocal labour:* PWDs are rarely linked into communal labour groups due to transport issues and the perception they will not be able to add value.

(c) *Lack of labour in the labour market:* There is a general lack of hired labour available, an issue for many farmers. There are groups of PWDs (hearing impaired) who work as labourers but they are not well linked into labour markets and rely on a few key people to hire them through their DPO.

Constraint: Limited access to information (including extension)

Poor field practices are partially related to limited agricultural knowledge. There are many sources PWDs look to for information (see section 5.4), but limited access to formal extension services and training is a particular constraint.

[58] Field research, Gulu Feb 2017

Constraint: Limited adoption of Conservation Tillage

Conservation tillage is a fairly new idea in NU for both draught animal traction and mechanisation. PWDs lack knowledge, equipment and inputs so adoption rates are negligible. These are the same issues as for non-PWDs, as outlined in NU-TEC MD land preparation MSA, although with additional barriers around access to knowledge.

6.2. Aggregation and Storage

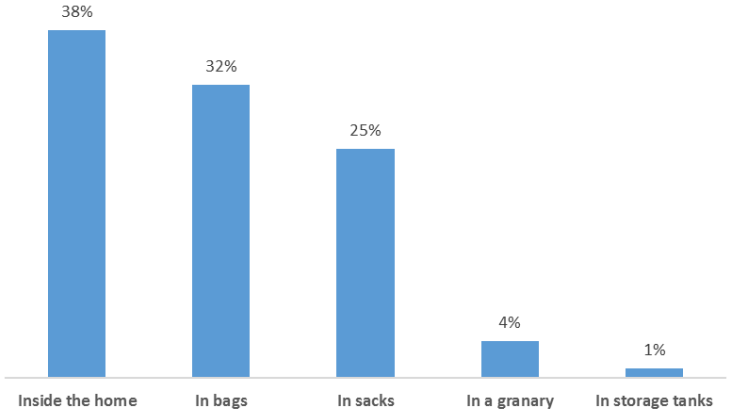
The aggregation and storage market has two different but integrated functions (aggregation and storage). The market is primarily differentiated around various levels of actors: smallholder producers, primary or village level aggregators, traders, grain handlers, and processors. PWDs look to have a fairly low level of integration with these players, thus limiting the aggregation and storage options available. There are, however, confounding factors at play such as additional transport barriers and trust issues which will be explored in the section below under 'rules'.

NU-TEC MD's argument is that increased access to improved aggregation and storage facilities will enable farmers to improve grain quality and generate better bargaining power via bulking and large scale sales. This, in turn, will improve the incomes of smallholder farmers and help drive production.

6.2.1. PWDs as Actors within the Aggregation and Storage Market System

78% of PWDs in this study growing cash crops use some level of storage facility. As can be seen in Figure 23, the home is the most popular place for storing produce. Our qualitative research suggests those who use 'sacks' or 'bags' still do so at the home level, sometimes leaving the sacks outside under a sheet or a tree. The sacks and bags are likely to be home-made as opposed to the more robust models currently on the market, for example polypropylene bags. Very few PWDs use granaries (4%) or storage tanks (1%), and reportedly they do not access or use more formal storage facilities such as public storage centres. Our research suggests that some PWDs who are working as part of groups attached to DPOs might use conference rooms as a storage facility.[59]

Figure 23: Forms of storage facilities used by PWDs for cash crops (by % of cash crop farmers storing crops, n = 176)



The most commonly stored crops are Beans (50%); Maize (33%); Groundnuts (31%); Sim Sim (Sesame) (27%); Cassava (25%).

[59] NUDIPU Gulu conference room

6.2.1.1. Rationale for Storing Produce

A number of reasons were given for storing produce, 56% of participants listed 'later consumption' as one reason, supporting the opinion that PWDs, like many other farmers, integrate cash crops with subsistence farming. Other key reasons demonstrate a more market-oriented focus: 40% cited that 'waiting for the price to improve' was an important reason, whilst 20% said they could 'make money after the harvest'. The concept of safety came up a number of times – both in the quantitative research (33% listed this as a reason to store produce) and in the qualitative research. Examples were given of produce being stolen at, or on the way to, public storage units. This is supported, to an extent, by the evidence presented in section 5.7, where we observed PWDs have a higher likelihood of being stolen from. **The need to lock produce away seemed particularly important to PWDs**: a key reason against using public storage units is the fact that anyone can access and therefore steal produce, hence the preference for home storage.

Our qualitative research found **PWDs understand the importance of storage as a way of reducing post-harvest losses.** They cited that often losses could be as high as 40% if inadequate storage is used[60]. Many PWDs recognise the home is not the best place to store produce due to weevils, rodents and moisture. However, the general consensus is that home storage, whilst substandard, is the only real option PWDs have at present due to a number of confounding factors, explored below. This suggests that whilst there are a number of barriers around access to storage, lack of knowledge may not be a huge problem for the most part.

Indeed, out of 21% who do not store their crops, only 6% said that 'it is not a good idea'; the majority (65%) cited the fact that they do not have sufficient surplus to warrant storage and 15% said that there is no suitable place for them to use. The reasons why PWD are not using good storage are more complex and are explored in more detail in the constraints analysis. Broadly, reasons include lack of trust, difficulty in accessing storage, poor linkages to bulking and aggregation schemes meaning they see little point in storage and have less access to subsidised facilities.

6.2.1.2. Linkages

There are a number of actors within the aggregation and storage market system: smallholder producers, primary or village level aggregators, traders, grain handlers, and processors. However, PWDs generally seem to be employed (informally or formally) at the smallholder producer level. Our qualitative research indicates that **there are very few, if any, PWDs working as aggregators at any level.**

Our research indicates PWDs have some level of connection with the various actors, with 10% of survey participants selling the majority of their produce to traders and 18% to wholesalers (essentially larger traders who sell directly to business or processers). However, the majority sell to individual households or people (29%) or else to retailers (28%).

This suggests a mixed level of integration with the various actors within the market system. There is some variety by crop type; for example, those who sell to wholesalers are more likely to sell soybean. It also indicates whilst there is some level of access to aggregation services this is not widespread.

Low levels of inclusion within the market system could be due to PWDs not being well linked into agricultural networks: at the individual level, PWDs are unlikely to be part of producer groups or cooperatives, with only 8% of survey participants being part of a planting, weeding and harvesting group and one person part of a cooperative (see section 5.8). This has potential implications in terms

[60] Blind focus group, Gulu

of income, as FBOs benefit from higher margins due to collective bargaining. **By selling at the farm gate, PWDs miss out on the opportunity to market at a premium rate** (see example in sunflower/soybean section).[61]

Another area where PWDs are not well linked is into the grain handler or processing market. This could be due them being less visible to Village Agents (VA) (primary intermediaries between producers and buyers), again due to poor integration into community and agricultural networks. From conversations with some of the larger processors, they could not recall any obvious examples of VAs who were PWDs. However, it seems VAs are often put forward by members of the community, so it is unsurprising that no PWDs have been put forward by their counterparts.

6.2.1.3. Opportunities for PWDs

In the personality and skills section above, data suggests PWDs are deemed trustworthy, honest and reliable. These traits are not just self-reported but recognised by those who work with them. There are opportunities that will bring benefits to PWDs both in the short-term and as the aggregation and storage market develops.

In the short term, including PWDs at the VA aggregation level could link a number of additional producers into the market system. Thinking about the positive features of PWDs as trustworthy and reliable, in an area that is rife with mistrust, drawing contracts with PWDs might be a good opportunity. There are also a number of PWDs who could be employed within processing sector:

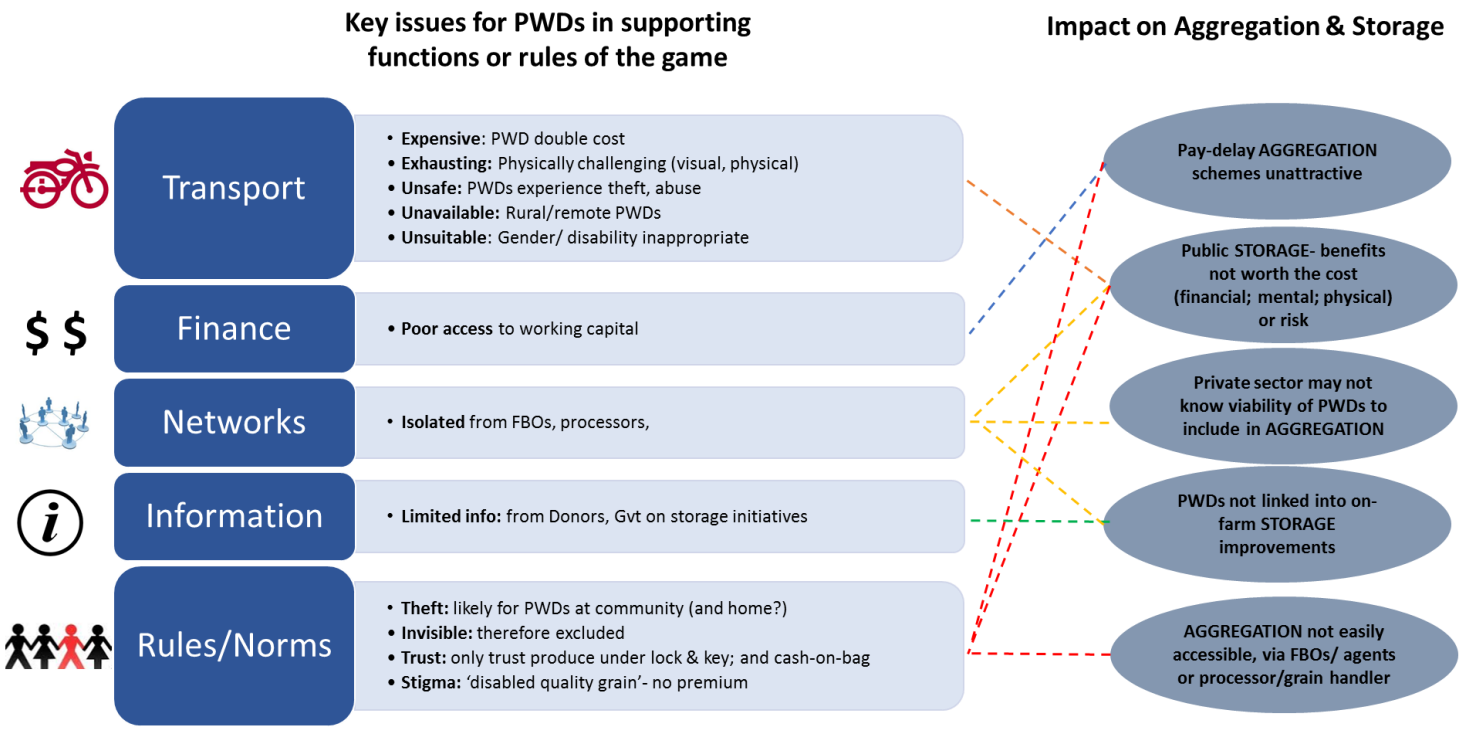
- As employees, e.g. store managers using advanced technologies for quality testing of grain, communication and financial management; **(mainly those with physical disabilities)**
- As workers, supporting the lifting and storage of goods/produce; **(mainly those with hearing impairments)**
- As distributors of new technologies for on farm storage such as polypropylene bags and possibly working in the manufacture of metal storage containers; **(all PWDs)**

6.2.2. PWD- Specific Supporting Functions and Rules: Summary

The situational analysis above provides detail around supporting functions and rules in relation to PWDs. Figure 24 provides an overview summary of key findings that have an impact on the aggregation and storage market system.

[61] Marketing as a group both increases the bargaining power of the farmer (getting him/her a better price) and reduces overall transport costs, allowing more of the premium to be captured by the farmer.

Figure 24: Summary of issues and impacts for aggregation and storage



The three key issues for PWDs within supporting market functions and rules are transport, trust, and linkages. These factors combine in a way that inhibits PWDs' access and agency within the storage and aggregation market.

PWDs face many barriers around accessing transport, as discussed in the transport section above. They are subject to higher costs and stigma but the overall issue is the emotional and physical effort involved in leaving the home environment. This would make PWDs less likely to use public storage at the best of times, although they could still be incentivised if they saw the value. Unfortunately, PWDs do not trust public storage units as produce is not locked away. This fear is not unfounded: PWDs in this study *are* susceptible to theft, and we have seen from the section on stigma that they feel less safe outside the home environment.

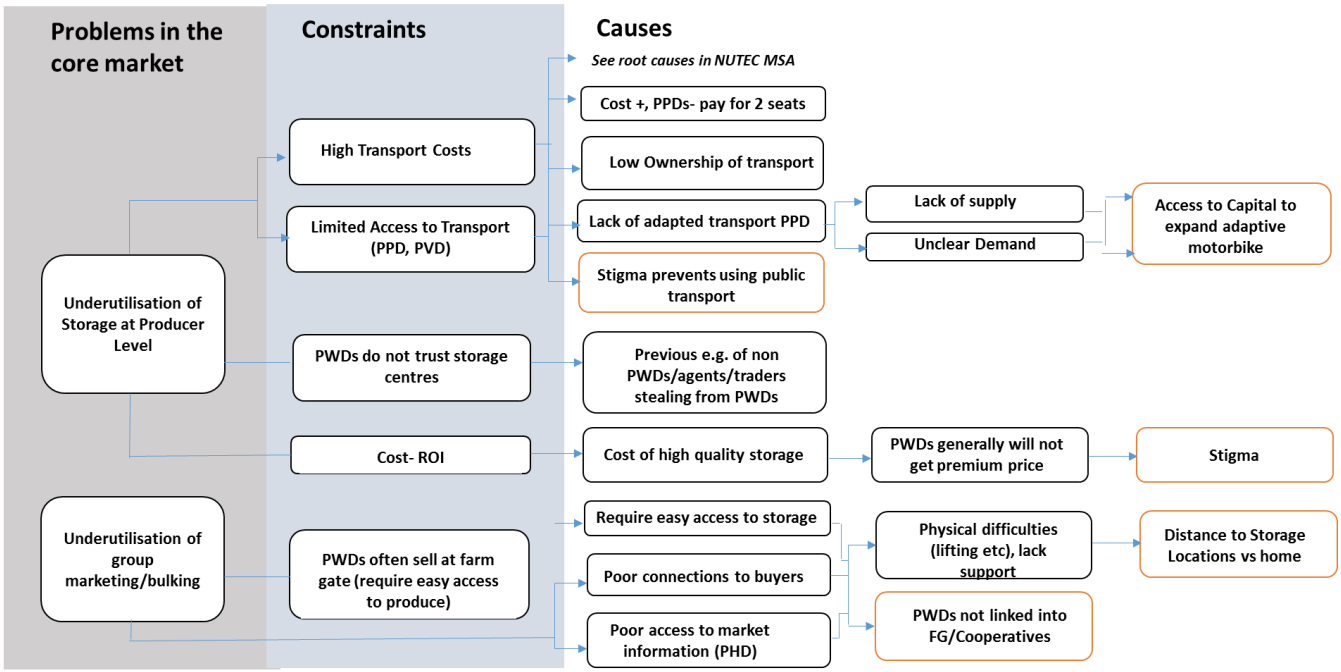
PWDs are not well linked to networks and do not have strong relationships to other players in the aggregation system. There are several drivers for this, including stigma (social and internalised) and the fact PWDs are invisible and isolated. This means they are currently not involved in group marketing, often preferring to sell at the farm gate.

6.2.3. Constraints for PWDs in Aggregation and Storage

The following analysis presents the underlying constraints and causes of the problems for PWDs in the aggregation and storage market.

As can be seen by the constraints tree (Figure 25) the key issues are transport, trust, uncertain economic returns and poor linkages to other actors, which is both a cause and effect of selling at the farm gate.

Figure 25: Aggregation and Storage Constraints tree



6.2.3.1. Underutilisation of quality storage at the farm level

PWDs understand the value of improved storage to reduce post-harvest losses but believe the costs (financial; transactional; physical) outweigh the benefits.

Constraint: Costs of Transportation to Local Storage (Physical, Mental, Financial & Transactional)

PWDs experience 'barriers plus' when it comes to transport (see 5.5). Mobility challenges interplay with issues such as safety and stigma, creating additional physical and mental burdens. On top of this, PWDs often have to pay extra for public transport. The time, effort and costs required make it difficult to justify transporting their grains to a storage facility when they know they will have the option to sell at the farm-gate. Feeding into this are the following issues:

(a) *Transport unavailable or unsuitable:* Depending on the disability, not all modes of transport are appropriate (e.g. people who cannot walk find it difficult to ride a boda boda). Women with disabilities face additional barriers due to gender norms, for example, it is inappropriate for them to ride in a truck, even if it is more comfortable for them than a boda boda. This limits available transport options. This issue is exacerbated in remote areas where transport is already scarce.
(b) *High transport costs:* PWDs may be liable for additional fares such as a 'loading' or 'crutches' fee. They will often have to pay for their guide, interpreter or carer – especially the visually and hearing impaired.
(c) *Physically challenging:* Even with the help of a carer, moving around sacks of grain is tough for PWDs. The physical effort of getting in and out of transport whilst transporting heavy goods is often not seen as worthwhile.
(d) *Mentally challenging:* PWDs feel safer inside the home environment. At the community level, they are more likely to experience negative attitudes and feel more exposed to theft. Leaving familiar places can make PWDs feel tired, disorientated and less in control.
(e) *Low ownership:* few PWDs own or have access to their own transport as shown in figure 4.

Constraint: PWDs do not trust storage centres

Farmers have serious misgivings about using public storage units and they are certainly not well used across Northern Uganda at present. A key reason for this is lack of trust. PWDs believe their produce is unsafe in a public place because it is liable to be stolen. They do not trust the warehouse managers or other non-PWD farmers not to steal their grain, or siphon some off to sell. Whilst these fears may be somewhat conflated, data suggests PWDs have had produce stolen in the past and we know that they are generally more vulnerable to theft (see section 6.6). The fact that produce is open, potentially vulnerable and not locked away is a serious disincentive for them to use public storage.

Constraint: Uncertain Return to Investment in High Quality Storage

The upfront costs of high quality storage are deemed too risky for many PWDs, especially given the pre-conception by some that they are unlikely to receive a premium for grain due to their disability. Improved on-farm storage may reduce post-harvest losses and improve quality but PWDs do not always receive up-to-date information around options and would need to be well linked to markets to justify the investment. Factors feeding into this constraint are:

(a) Cost of High Quality Storage: Improved on-farm storage can be costly and there is evidence to suggest the high quality metal silos used in Northern Uganda are only affordable when heavily subsidised. PWDs are not linked into networks that would provide information about on-farm solutions, whether subsidised or not. Hire of public facilities are even more expensive and, again, PWDs miss out on subsidised rates via farmer group membership. PWDs will therefore almost universally opt to use the 'free' space in their house or farm.

(b) Uncertain Quality Premium on Grain: Some traders allegedly refuse to give PWDs a fair price for better quality grain – stating that it is 'disability quality'. The extent to which this is true is debatable (see price study in sunflower/soybean section), but the lack of foreseeable reward acts as a disincentive for PWD to invest in quality storage.

6.2.3.2. Underutilisation of Cooperative/FBO warehouses and group marketing

Some PWDs operate in disability farmer groups and participate in bulking, such as the PWD groups around Lira or those in Aboch and Awach (see 5.8). However, on the whole PWD are not well linked to FBOs or cooperatives, meaning they do not benefit from group marketing as a result of:

(a) Poor connections to markets and buyers: Selling at the farm gate is both a cause and effect of isolation from markets: PWDs sell at the farm gate because they are not participating in group marketing and have poor connections to market information and buyers; they are not participating in group marketing and have poor connections to market information and buyers because they are isolated, so the obvious choice is to sell at the farm gate.

(b) Poor marketing and market information: PWDs have limited access to market information. This means they do not have all of the information available to assess the cost/benefit of selling or storing. PWDs are not generally part of bulking schemes (either via FBOs or agents), which means they have less bargaining power and may receive less money.

6.2.4. Interventions

Possible interventions are explored in section 7. Briefly:

- **For storage** - linking PWDs to on-farm storage solutions. The evidence shows that the trust and transport barriers are too high to warrant trying to incentivise them to use public storage units.

However, if PWDs can be better integrated into the overall system then there is greater likelihood of PWDs becoming involved in vertically integrated aggregation and storage systems.

- **For Aggregation** - linking PWDs to an e-trader platform, so that they are linked into markets without necessarily having to physically go anywhere. Another idea is to link them to aggregation schemes within a specific market system e.g. see sunflower and soybean village agent intervention suggestion.

6.3. Sunflower and Soybean

The total value of the fats and oils products market in Uganda is just under USD350 million with only 35% accounted for by domestic production. It is a fast-growing market with significant potential for growth[62].

Sunflower and soybean are oilseed crops grown in the Northern regions of Lango and Acholi. They can be processed into several end products[63]. The main value of sunflower is in its oil content whereas in soybean it is in the meal product; a superior product compared to sunflower and cottonseed meal. The major processors are currently based in Lira and according to NU-TEC MD are operating at less than 30 % capacity, predominantly down to low supply.

NU-TEC MD hypothesise that '*if supply through processing plants could be increased, unit costs will come down. This should mean the vegetable oil will be more competitive with imports, not only of sunflower and soybean products, but also of the dominant competitor, palm oil*'. The market change logic that underpins this also denotes that smallholders would have better access to a more stable market; there would be more opportunities for labourers; other market systems would benefit such as animal feed; processors would run more efficiently; and consumers would benefit from price reductions.

The following section aims to provide an insight into how PWDs are currently participating as actors within the sunflower and soybean market system across West Nile, Acholi and Lango. It draws on evidence from the situational analysis above and the NU-TEC MD MSA. Note that the analysis below provides a broad overview and cannot be taken as statistically significant due to the low number of observation points.

6.3.1. PWDs as Actors within the Sunflower and Soybean Market System

From this research, there do not look to be vast quantities of PWDs involved in sunflower or soybean production. Whilst there may be a lack of commercial PWDs in this area, our initial research suggests it is still worth exploring the role of PWDs within this market system for the following reasons:

1. There do not look to be the same gender divides as there are in mainstream sunflower/soybean production
2. PWDs have access to land and are willing to try new crops (65% said they are willing to diversify and try new crops). They are also extremely concerned about weather. Crop switching could be a good opportunity to increase climate resilience
3. Private Sector actors within the oilseeds market system are interested in engaging with PWDs

[62] The Ugandan export has doubled over the last five years. Nationally, decline in silver fish from Lake Victoria means high protein soybean meal is a sought-after ingredient in poultry feed. In addition, the fast foods market is growing rapidly, as is the general population

[63] Sunflower is processed into vegetable oil used for edible oils, margarine, wax and soap blends. The process derives a meal by-product that is sold as an ingredient for livestock and fish feed. Soybean is processed to produce edible oil and a meal by-product, which is also sold as an ingredient for livestock and fish feed.

4. PWDs are trustworthy and hardworking – good character traits when it comes to contract farming.
5. There is potential to increase incomes of PWDs by linking them to a growing and productive market. By starting with PWDs already engaged and encouraging expansion whilst endorsing other PWDs to switch into the market, NU-TEC MD can help stimulate the overall supply whilst improving income and resilience of PWDs.

Of PWD growing cash crops in the quantitative survey, 8% produce sunflower and 19% produce soybean. Often the two are grown together, sometimes with cotton. Some PWD participants in the qualitative research have more recently switched to growing sunflower, including those with more land and those from Arua but the overall numbers still look to be small. The more popular cash crops are Cassava, maize and sim sim (see section 5.2.2).

When grown as *cash crops*, both sunflower and soybean are grown more frequently in Lango (around Lira). This is to be expected due to the fact that the main processing plants are located around Lira. However, interestingly, when grown as a *food crop* soybean becomes more popular in Gulu - overtaking Lira production. More research needs to be done to understand this but it could indicate that soybean is being grown for a different purpose in Acholi region. Indeed, qualitative research suggests farmers are looking to soybean to improve soil fertility due to its nitrogen fixing elements, so it is plausible that PWDs are integrating soybean into their crops for this reason across Acholi.[64] It could also indicate that PWDs are not linked in to markets appropriately.

6.3.1.1. Gender and Disability

We observed in section 5.2.6 that the gender norms around labour contributions do not necessarily seem to apply to PWDs. Here we see a similar observation: although generally in Northern Uganda, men are more involved in the farming of cash crops (like soybean and sunflower), with **PWDs the gender balance seems more equal, for example of those farming soybean as a cash crop, 42% were female and 58% male**. Further, during the qualitative research, when questioned around the decision to grow sunflower a female participant answered *'I had some bad harvests because of no rains and I had heard that sunflower was a better option so I told my husband we would give it a try. So far it has worked well. I can also use the stems for cooking for my children'.* The gender balance is encouraging and suggests an opportunity to increase further access for women with disabilities. There appear to be a substantial number of women's cooperatives working in sunflower and soybean that have established models for transformative change, thus providing the opportunity for cross fertilisation of learning**.**

From our sample of qualitative and quantitative research, **the majority of PWDs growing sunflower and soybean are people with a physical disability.** People with a visual impairment are the second most likely PWDs to be growing these crops and the other two categories are not well represented at all. Our research did not indicate any disability-related barriers that would prevent certain PWDs from growing these crops. The higher proportion of physically disabled persons is found across all cash crops and may be due to (a) the sample being skewed towards those with a physical disability [65] (b) the fact that physical disabilities generally have a higher level of visibility within society, with potentially greater access to extension and other agricultural services (c) a reflection of physical disability prevalence.

[64] Focus Group, deaf and blind Gulu

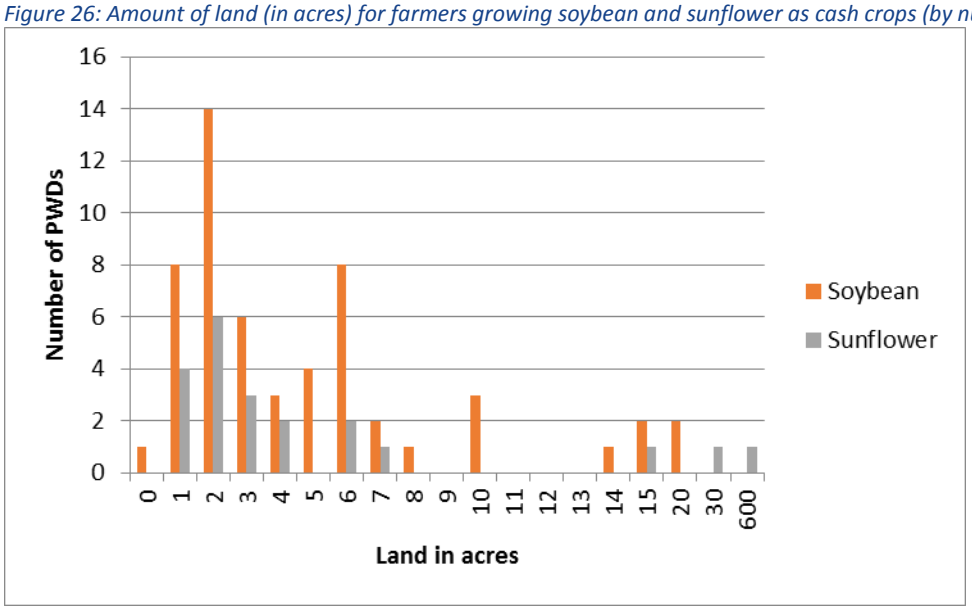
[65] Where numbers of PWDs are small such as sunflower growers it is not possible to control for factors impacting significance

6.3.1.2. Planting and Land Distribution

From those PWDs asked via our qualitative research, it seems as though **soybean is grown from February to June and Sunflower from August to December.**

We do not have enough data to accurately estimate how much land is given over to just sunflower and soybean. However, **Figure 26 below provides an overview of land distribution amongst farmers currently engaged in growing sunflower and soybean as cash crops**. We also know that these PWDs grow around 3.5 different crops on average.

Figure 26: Amount of land (in acres) for farmers growing soybean and sunflower as cash crops (by number of respondents)



6.3.1.3. Income and Yield

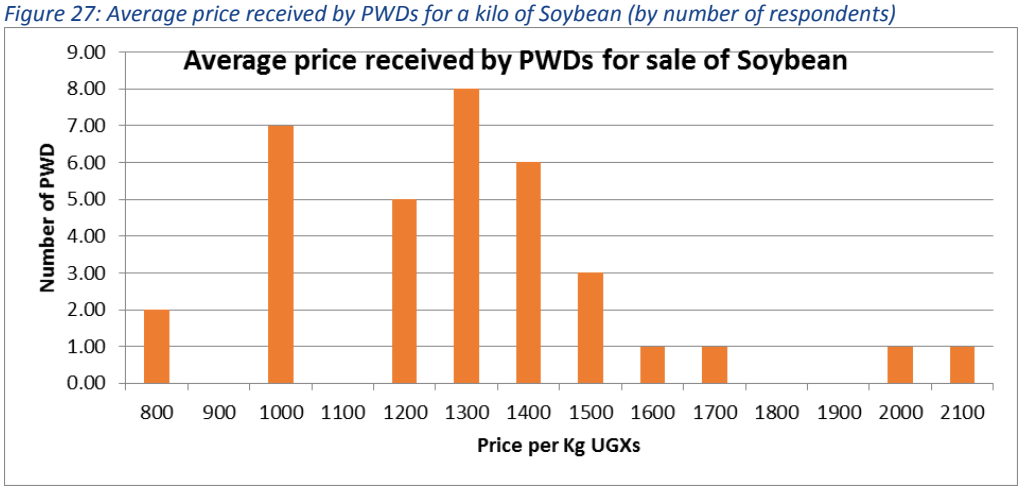
Cash crop farmers who produce sunflower are most likely to sell to individual households or wholesalers (both 35%); retailers (22%) or traders (9%). Cash crop farmers who produce soybean are most likely to sell to wholesalers (41%); individual households or people (25%); retailers (21%) or traders (5%).

Although the limited number of data observations means it is difficult to draw concrete conclusions, we can see that for both crops there is a tendency to sell the majority to individuals or retailers rather than traders or processors. However, PWDs selling soybean as a cash crop look to be better integrated into the market, with over 40% selling to wholesalers.

There are not enough data points to draw meaningful conclusions from the sale of sunflower. The reported average sale price received by PWDs for soybean can be seen in Figure 27. The graph shows a fairly standard distribution curve, with the average price at 1,300 UGX per Kg. This price is generally around the current local average and indicates that, for at least the small minority of PWDS involved in soybean production, they are well linked into markets, able to negotiate a fair price and are economically viable actors within the industry[66].

[66] This information needs to be checked against current market prices in NU, which were difficult to ascertain

Figure 27: Average price received by PWDs for a kilo of Soybean (by number of respondents)



It is difficult to estimate the average yield from our quantitative data due to the inconsistent measurements used. The average for 32 PWDs for soybean might be around 350kg (but this is heavily caveated due to inconsistencies)[67].

PWDs referenced a number of challenges when it came to yield productivity for sunflower, including poor quality seed, birds, pests, weeds.

For PWDs growing soybean, the main issue seemed to be weather, particularly drought. There were several references to low rainfall negatively impacting yield (see section 5.2.7). This is a huge concern for PWDs growing soybean and suggestions were made about access to agricultural insurance.

6.3.1.4. What drives PWDs' decision to grow sunflower and soybean?

Qualitative research yielded four key factors that drive decisions around crop planting for PWDs:

- **Free or subsidised inputs**
  - PWD are given inputs by a neighbour, NGO, Government or Donor scheme
- **Tradition, friends and neighbours**
  - This works both for maintaining tradition and trying new crops: PWDs grow crops because their father, grandfather and neighbours grow them but will also try out new areas if they see friends and neighbours successfully producing them: *'I switched to soybean because my friend started growing it and doing well.'*[68]
- **Resilience: in mitigation to personal disasters**
  - A number of reasons cited were around mitigating future risks as a result of a negative experience with other produce. For example, one producer switched to sunflower after maize was ruined by drought, saying that it is likely to survive and there will be people to sell to, but even if she cannot find a buyer the family can eat the sunflower.
- **To improve productivity**
  - A number of PWDs said that they chose soybean due to the fact they had heard *'it would solve their soil problems'*[69]
  - Three PWDs in qualitative research had started growing sunflower to improve the productivity of their honey via bees

[67] PWDs preferred to use local measurements rather than Kg, for example, sacks, bags, basins.
[68] Male participant, Visually Impaired Workshop
[69] This is possibly misguided- see information section below

6.3.1.5. What do the Private Sector think of PWDs as market players?

Agribusinesses could not generally provide statistics on the number of PWDs working directly or indirectly for them. Whilst PWDs are thought to be present within their workforce population (Mukwano employs around 7,000 people for example), data on disability was not readily available. They could not easily recall examples of PWDs working as Village Agents, factory workers or in more prominent leadership positions. This is not very surprising and broadly confirms findings from the workshops and quantitative survey indicating PWDs are clustered at the producer-end with limited integration with networks and other actors.

Generally, our research revealed positive perceptions of PWD producers amongst agribusinesses. Actors referred to the positive attributes of PWDs – particularly with reference to their loyalty, trustworthiness and ability to work hard, as these were assets that they particularly value. One interviewee referenced that they liked working with women due to their focus on producing high quality grain and their ability to build strong relationships – and in a similar way could see how PWDs could be beneficial to the business.

In theory, therefore the Private Sector would be willing to work with PWDs but different players have different business models and we therefore need to think about the different incentive structures.

Private Sector actors made the following suggestions to enable PWDs to gain stronger benefits from the oilseeds production and marketing:

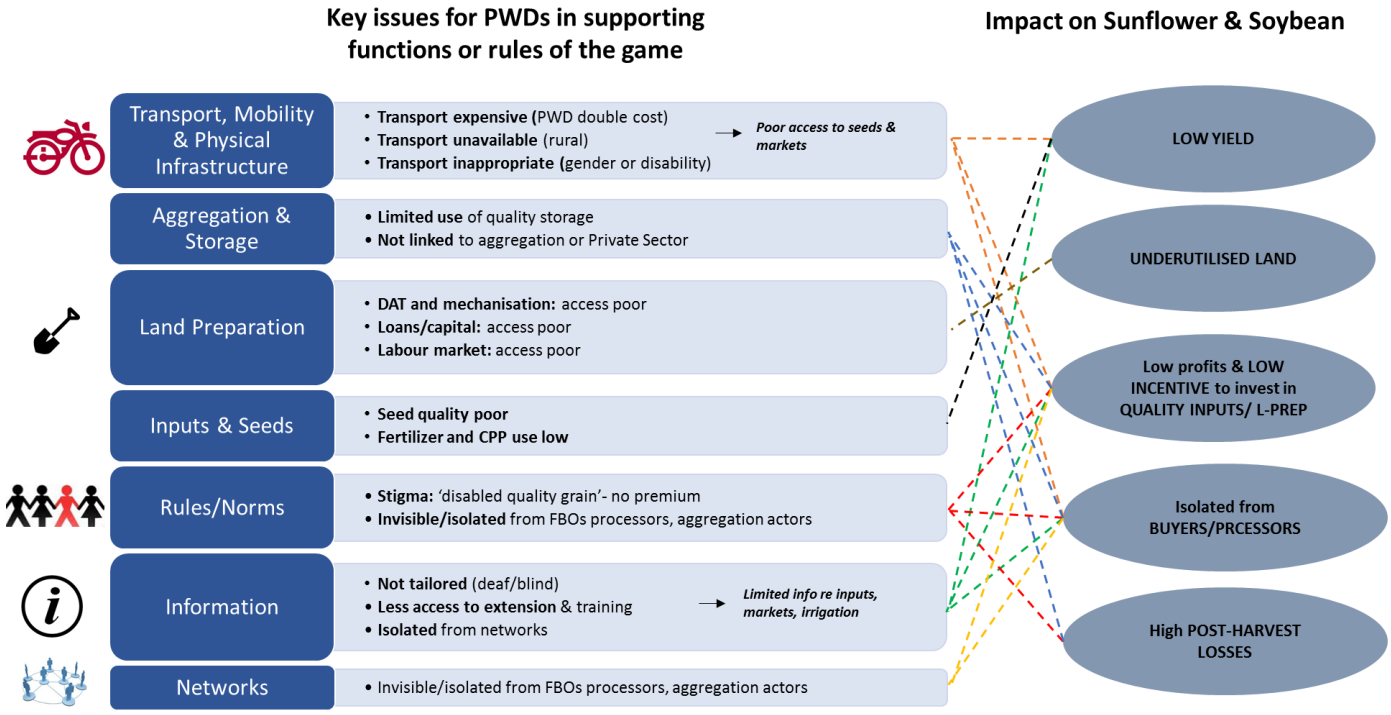
- Raise awareness within the sector: hold briefing or stakeholder meeting with oilseed sector actors to understand and discuss (a) more detail about PWD potential (b) data and/or contact links into the PWD sector. This could be done via OSSUP [70]
- Recruit PWD farmer coordinators and extension officers
- Ensure PWDs attend training and demonstrations
- Awareness raising using role models to improve PWDs' confidence and agency and promote their involvement in marketing.

6.3.2. PWD-Specific Supporting Functions and Rules: Summary

The situational analysis above provides detail around supporting functions and rules in relation to PWDs. Figure 28 below provides an overview summary of key issues and findings that have an impact on sunflower and soybean cash crop activities. The text below provides further detail on the main issues from the supporting functions or rules.

[70] The Uganda Oilseed Subsector Platform (OSSUP) is a network of private, public and civil organisations and institutions, working to increase coordination and improve capacity across the sector

Figure 28: Supporting Function & Rules summary for sunflower/soybean



In the sunflower and soybean market system, we see how the 'barriers plus' faced by PWDs within the interconnected markets of land preparation, aggregation and storage and seeds, negatively impact on their ability to maximise yield and profits. These issues are explored in more detail in the corresponding market systems and constraints section below. In short, PWDs face the same issues that plague the **seed market** as a whole: poor quality counterfeits, lack of access to quality seeds, lack of knowledge and poor access to credit. They also face 'barriers plus' such as discrimination, where traders refuse to pay for 'disability quality grain'; transport; and poor network linkages, meaning they are less likely to have a guaranteed off-taker reducing the incentive to invest. Poor access to the labour market and other groups make animal traction and mechanisation unlikely for PWDs, leading to a reliance on rudimentary **land preparation** techniques. This means land may not be opened or fully utilised. Inadequate use of **storage** leads to high post- harvest losses.

The other three key issues for PWD within supporting market functions and rules are stigma, information and market linkages. These factors combine in a way that inhibits PWDs' access and agency within the sunflower and soybean market, and as such more detail is provided below.

6.3.2.1. Information

Poor yields are largely a function of poor field practices, which are in turn a function of poor extension services. Section 5.4 notes that extension services are poor across NU but that PWDs have worse access to sources of agricultural information, for example, hearing impaired cannot rely on the radio; exclusion from formal training and extension due to invisibility; transport constraints and isolation from the rest of the farming community.

In the sunflower and soybean market system, lack of information creates two key issues. First, PWDs do not receive information about markets: pricing, demand from processors, aggregation schemes, inputs. Second, PWDs are not receiving good information about field techniques for optimum yield.

The first issue means PWDs are not linked into markets properly with less access to quality inputs and with less incentive to grow more, with no off-taker ready to buy. The second is also leading to poor adoption of good agronomic practices and a number of misconceptions. An example of this is for PWDs growing soybeans, who do not use fertiliser:

> *We don't like spending money on expensive chemicals so we use soybean to fix the nitrogen in the soil. This is a good solution for us as it solves the problem of soil and makes it fertile…it is a win win…*[71]

The belief that (a) fertiliser is not required and (b) soybean will fix nitrogen in general are both misguided. NU-TEC MD notes that Soybean grown without *Rhizobium japonicum*, will not fix nitrogen (and loses a key part of its benefit). A study of soybean farmers in western Kenya found that yield increases of 26 % could be achieved simply by using *rhizobium inoculum* (NU-TEC Sunflower/Soybean MSA).

Another major consequence of information deficit is the limited adoption of any farm-level irrigation or moisture retention techniques. PWDs did not seem to know about basic planting practices for water soil retention; how to dig trenches for natural irrigation; or how to store water in buckets to use at a later date. Considering the concerns around climate change and the fact that 96 % of cash crop farmers in our sample have experienced drought, this is a serious problem (more so for soybean than sunflower, which is naturally more drought and flood resistant).

A final example of the negative impact of poor access to information is the use of poor quality seeds. There is knowledge around the different types of sunflower seeds but there are still some misguided beliefs such as; *'I got some hybrid good quality seeds. This is good and has set me up. I saved them from my first harvest and use these now and sell them to my neighbour*'.

6.3.2.2. Social Rules and Norms

Many of the issues previously discussed concerning PWD being isolated from other market players is a result of decades of marginalisation and stigma. Disability networks are now embedded but working separately from other agricultural networks, so linking these together will be crucial for PWDs to gain better access to this market system. PWDs are unconvinced they will receive any premium on better grain because of the stigma attached to being disabled, which acts as a disincentive to invest in higher quality hybrid seed (see seeds section for more detail).

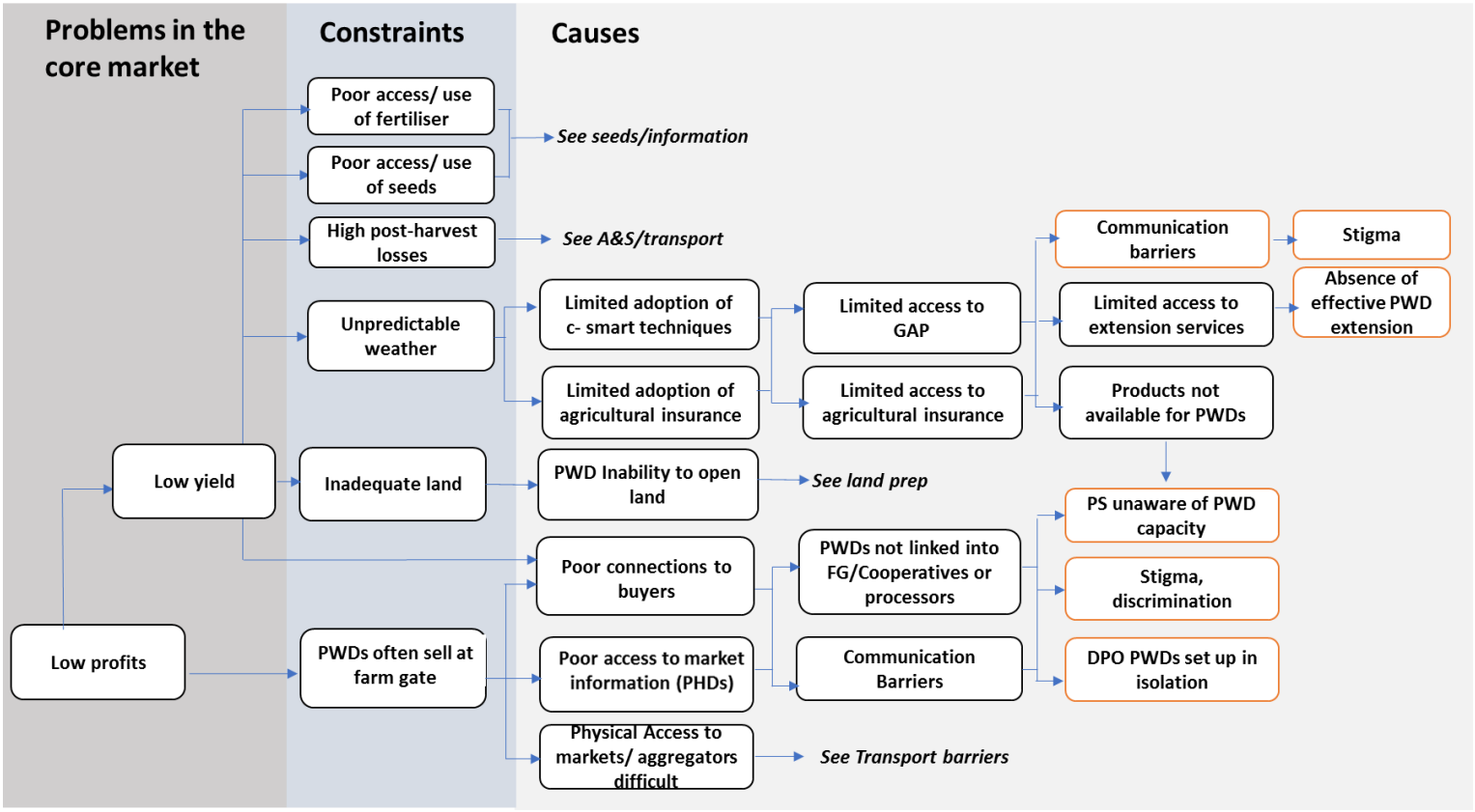
6.3.3. Constraints for PWDs in the Sunflower and Soybean Markets

The following analysis presents the underlying constraints and causes of the problems for PWDs in the sunflower and soybean market system.

As can be seen by the constraints tree (Figure 29), PWD face two problems in the sunflower and soybean market: low profits and low yield. These are, to an extent, related (lower yield means less to sell so reduced profits). However, there are more complex factors driving both issues related to market integration and access to extension.

[71] Female participant, Hearing Impaired Workshop

Figure 29: PWD constraints within Sunflower and Soybean Market



6.3.3.1. Low yields of grain

During NU-TEC MD field interviews with non PWD stakeholders, it was found that the average yield is around 600 kg/acre. This is lower than the potential if Good Agronomic Practices were followed: using just one herbicide plus fertiliser has been shown in farmer field demonstrations to double yield of sunflower grain to some 1,200 kg/acre (UOSPA interview September, 2015).

Although we have no concrete evidence from our quantitative survey, our qualitative research suggests the yield for PWDs is *lower* than the already low 600 kg/acre for both sunflower and soybean. There are a number of possible causes for this:

(a) *Poor access & use of quality seeds:* the existence of poor seed quality is a core failure of the market in general: the issue is not restricted to PWDs. There are five additional barriers faced by PWDs:
- They are unconvinced they will receive any premium on better grain because of the stigma attached to being disabled, which acts as a disincentive to invest in higher quality hybrid seed
- They find it physically more difficult to get to market to buy inputs, so have less choice over supplier
- They may be discriminated against and sold counterfeits (PVDs find it difficult to check; PMHDs find it difficult to challenge)
- They generally have less access to information than non PWDs
- They are not well linked to groups/processors so do not benefit from easier access to quality seeds

(b) Poor access & use of fertiliser & CPPs: Some PWDs growing sunflower reportedly use rock phosphate but the use of fertiliser generally seems low. Soybean growers do not seem to use any

fertiliser at all. This looks to be caused by two key issues, misinformation and cost (mainly due to isolation from networks).

Misinformation: PWD Soybean growers do not use fertiliser. They believe (a) fertiliser is not required as their lands are so fertile and (b) soybean will fix nitrogen in general. Both points are misguided. PWDs also tend to avoid CPPs, believing that the hand hoe is the most effective way of keeping control of the weeds.[72] There are many reasons why PWDs face additional barriers when it comes to accessing information (see section 5.4). These can be disability related (the hearing impaired cannot hear the radio) but may also relate to broader issues such as transport barriers and the general lack of extension in the region. As always, poor integration into community social networks isolates PWDs further.

Cost: Heavily linked to misinformation (why invest if there is no good reason to?), high cost of CPPs and fertiliser is a disincentive for any smallholder. PWDs are more isolated from groups and networks so less likely to gain access to trial products and unlikely to hear about benefits from early adopters. PWDs are often not linked in to dedicated financial schemes to incentivise uptake due to general lack of visibility.

(c) *Inadequate post-harvest handling:* As seen in the section on aggregation and storage, PWDs are not storing produce effectively, relying on home-based solutions. This leads to high post-harvest losses and substandard grain with a high degree of moisture content. There are three key reasons PWDs are not using more effective storage units such as village-level warehouses: PWDs do not trust their produce will not be stolen; it is not worth the physical and mental effort of transportation (especially considering that produce is often sold at the farm gate); poor linkages to groups, agents and other actors in the aggregation system.

(d) *Unpredictable weather:* This is an issue for any tropical climate due to unpredictable rainfall causing both flooding and prolonged drought. Climate change is already impacting Uganda and the impact of this is only set to increase. This is having an adverse impact on the soybean market – reducing overall yield. Sunflower is a drought and flood-resistant crop so less likely to be impacted by weather. PWDs are more susceptible to the effects of climate change for three reasons. First, they have a weaker social network and more likelihood of experiencing other shocks and setbacks. Second, they are not well linked to networks, so they are less likely to hear about index insurance or lease irrigation products. Third, they have less access to information so miss out on key extension and information that promote good field practices for farm-level irrigation water retention.

(e) *Inadequate land under crop:* There are two considerations here, land that is underutilised/un-open and land that is being prioritised for something else (e.g. to grow a food crop). As seen in the section on land preparation, PWDs have limited access to animal traction or mechanisation. They are not well linked to communal labour groups and often find it difficult to hire enough labourers for land preparation or harvesting. Physical and visual difficulties can limit productivity and there has been little done in the way of adapting tools or improving farm infrastructure. This culminates in a reliance on rudimentary hand tools and family labour which means that there is land currently underutilised or unopened. This presents an opportunity to increase land under crop by (a) encouraging PWDs not yet operating within this market system to switch or incorporate these crops (b) facilitating opening of land for larger smallholders already growing sunflower and soybean.

6.3.3.2. Low Profits

Possible reasons for low profits are as follows:

(a) Poor connections to markets and buyers: Selling at the farm gate is both a cause and effect of isolation from markets: PWDs sell at the farm gate because they are not participating in group

[72] Field Research, Sunflower grower Acholi

marketing and have poor connections to market information and buyers.; they are not participating in group marketing and have poor connections to market information and buyers because they are isolated, so the obvious choice is to sell at the farm gate. Soybean and Sunflower growers tend to sell to individuals or retailers and are less well linked to processors.[73] Indeed, key private sector actors seem unaware PWDs are operating in the sunflower and soybean market system, reflected by the underrepresentation of PWDs in the larger processing contractual arrangements or Village Agent set-ups. There are many reasons driving poor connections. Whilst stigma (and self-stigma), communication and transport are undoubtedly barriers, it seems the key issue is around poor visibility and lack of network integration between the disabled population and business level players. During discussions with processors, they expressed general unawareness of PWDs' market presence and viable strengths and expressed concerns about how to effectively target PWDs. This is encouraging: an information gap is easier to overcome than deep-rooted social constraints. There is also potential to explore the linkages between PWDs and wholesalers within the soybean market, to determine whether these relationships can be leveraged further.

(b) *Poor access to market information:* PWDs have limited access to market information. This means they are less likely to know the difference between the farm-gate and other prices for sunflower and soybean. Limited awareness around pricing, coupled with isolation from other players means PWDs may lack the incentive or momentum necessary to overcome some of the physical and mental challenges they face (transport, for example) deciding instead it is simpler to sell at the farm gate. This, in turn reduces their profits.

6.4. Seeds

Seeds are the most basic inputs for any farming system as they ensure quality and quantity of produce as well as continuity of crop varieties**.** It is recognised that improved seed is one of the cornerstones for agricultural growth in Northern Uganda. **However, our research suggests that improved seeds are used by very few PWDs, who instead opt to develop their own seeds** resulting in poor yield and low resilience to climate change. This is not uncommon: it has been noted that only 10-20% of farmers across NU use improved seed.[74] A key issue looks to be the dysfunctional market itself, although there are a number of 'barriers plus' for PWD such as poor access to markets, limited access to information and weaker networks.

NU-TEC MD believes there is growth potential, particularly within the more commercialised sector of the market, which will result in higher quantities of improved seed. This will be achieved in part via linking low income groups and poor farmers with the seed producers.

This section briefly summarises broader market issues, providing context before focusing on the engagement of PWD within the seed market system.

6.4.1. Market Overview

Uganda's seed industry is composed of two overlapping systems: the formal and the informal sectors. The formal sector (the source of improved seeds) makes up 15% of the market and the key components within this sector are scientific breeding, commercial seed companies and the regulatory framework. The informal sector (local or home-saved seed) makes up the remaining 85% of the market: farmers recycle their own seed, which deteriorates over time, giving declining yields and poor quality crops.

[73] According to field research, retailers still often come to the farm gate to buy.
[74] See NUTEC Seeds MSA for more detail

Farmers are reluctant to use improved seed, despite a need to increase resilience against climate change and increase productivity. This is for many complex reasons, mostly around uncertain profitability and risk.

Two of the biggest 'market spoilers' are:

1. *Government of Uganda (GoU) Operation Wealth Creation:* Under the Government NAADS scheme (National Agricultural Advisory Services) provides seeds for free to farmers – thus potentially eroding the market.
2. *Counterfeit and poor quality seeds:* There is widespread prevalence of poor quality and counterfeit seeds. Whilst efforts are being made to improve regulation and oversight, smallholders are reluctant to risk the investment in seeds that they know could be of poor quality.

6.4.2. PWDs as Actors within the Seeds Market System

In theory, PWD smallholder farmers have the potential to participate within the seed market system from both a supply and a demand side. However, as explored below, **PWD participation is currently heavily weighted towards the demand side within the informal seed subsector.**

Supply side- imports

Only around 5 % of the seed in the formal market in Uganda is accounted for by imports, mainly from Kenya, South Africa, India, and Australia. Additional information can be found in NU-TEC MD Seeds MSA. Whilst availability of improved seeds via imports may have consequences for smallholders including PWDs, they are not directly involved within the sector.

Supply side- domestic

There are many steps involved with seed production within the formal sector in Uganda (e.g. breeder seeds; foundation seeds; multiplication; processing; marketing; distribution). Information about these different phases can be found in NU-TEC MD seeds MSA.

Seed companies in Uganda generally combine two mechanisms for seed production, as outlined below:

Figure 30 Formal Seed Multiplication in Uganda

Two models to produce seed in Uganda:

1. Commercial Multiplication Farms

- Seed quality easier to control, monitor & measure due to good GAP; technologies and inputs and sufficient labour

2. Contracting Smallholder Seed Multipliers (individuals; farmer groups and cooperatives)

- Most seed companies provide/subsidise foundation seed for multiplication
- All seed companies provide extension services & many provide/part-fund training at the farmer group level to ensure production monitoring.
- Seed multiplication can offer increased profits (30%) and security via guaranteed buyer.
- To undertake multiplication, farmers require land (around 2-3 acres). They also need to factor in the cost of land preparation.
- *Ugandan Seed Company Contract Models*
    - **NASECO:** Contracts 1,000 individual farmers and 2 cooperatives (in Kasese). Farmers are identified each season by extension workers.
    - **Equator Seeds:** Contracts 51 cooperatives with 32,000 members to produce 40% of their total seed supply

Once harvested, seeds are cleaned, processed and packaged. Proper cleaning and processing is vital as this can have a significant impact on the quality of the seeds[75]. Farmer groups undertake a basic cleaning, or winnowing to remove the chaff. Further cleaning and treating takes place by seed companies, who then clean, dry, remove stones, treat with pesticide, grade, test for moisture, weigh and bag the seeds. Some seed companies hire sorters for grading as casual labourers (usually women).

Our qualitative research suggests PWDs do not participate in the formal supply side of domestic production: lacking contracts with seed companies either as individuals or groups to undertake seed multiplication. They also demonstrate a lack of awareness about the possibility for integration within this sector referencing that *'seed production happens at the research institutions or overseas'*. PWDs in this study were therefore unaware that Ugandan seed companies have contracts with smallholder farmers who engage in seed multiplication under the necessary guidance and extension. They also lacked knowledge around the benefits this could bring and how to engage in this process. PWD in this study also look to have limited participation within the seed labour market; with only two examples of employment as seed sorters, both women with mental health disabilities working for Victoria Seeds.

Considering the market demand for high quality seeds this presents an opportunity to link PWDs with seed companies to engage in multiplication. This could help improve or diversify income for PWD due to the higher returns for seed multiplication versus crop production. There could also be an opportunity for PWDs to enter the labour workforce. [76]

Demand side

PWDs, like any other smallholder farmer, have a high demand for seed. What is less clear is how this demand splits between the formal and informal sector. Demand is driven by a number of market forces such as access to supply, information, market linkages and climate. These factors also cause demand to fluctuate between the formal and informal markets.

6.4.2.1. PWD Seed Source and Variety

The formal Ugandan seed market comprises a number of potential distribution channels[77]. However, our research indicates **PWD tend to obtain seeds from the informal seed sector**, such as local markets and home saved seeds with much less reliance on agro-input dealers, social networks, community-based systems and seed organisations. Only 15% of PWDs have a regular supplier of inputs (including seeds) and the majority use their own funds to buy inputs rather than using credit from suppliers. Some PWDs look to be linked to formal Government schemes such as Operation Wealth Creation which distributes free seeds directly to farmers, but this can be dependent on crop type, seed availability and the regional priorities attached to the inclusion of PWDs (see section 5.8).

Broadly therefore, **PWDs tend to use predominantly home saved seeds or local varieties, but use improved varieties when they have access to these at reduced prices via government or donor schemes.** However, our qualitative research demonstrates it is difficult to make general comments on seed choice. This is because there is:

- **variation between PWDs,** both in terms of seed source and seed variety.
- **variation at the individual level**, with the same person using different distribution channels and seed varieties depending on crop type or other external factors
- **variation in seed choice by crop**

[75] Packaging needs to allow seeds to breathe to ensure the seed embryo remains viable for germination

[76] Anecdotal evidence suggests women with mental health disorders may be good at seed sorting, able to focus and concentrate for long periods of time: further evidence required.

[77] Such as seed companies to agro-dealers, wholesalers or agents; agro-dealers to individuals or farmer groups; seed companies direct to individuals or farmer groups; government direct to farmers.

- **variation by region**

It also became apparent that seed choice is influenced by complex multi-factorial factors related to the external environment and were subject to change under periods of stress. Broadly, we can draw the following conclusions around seed choice for PWDs for these key crops:

Sunflower - PWDs growing sunflower use a mixture of home saved seeds and hybrid seeds but usually only when they are supplied at a reduced cost. PWD are unconvinced they will receive any premium on better grain because of the stigma attached to being disabled, which acts as a disincentive to invest in higher quality hybrid seed.

Soybean – Some PWD growing soybean receive free or subsidised seeds (via donor schemes) and tend to recycle these at the farm level. Seeds are also obtained via local markets, home saved sources and, less frequently, via agro-dealers (more common in Lango than Acholi). PWD in the qualitative research indicated difficulties in accessing high quality seed, citing incidents of counterfeits and poor access to distributors.

Cassava - Some PWD from West Nile have received Cassava from the Operation Wealth Creation, whereas PWD interviewed from Acholi believe their local variety is more marketable and tasty so they use home saved or local markets (note that asking neighbours is usually fairly common for Cassava but this is not common practice for PWD study participants, suggesting a weaker social network or possibly speaking to difficulties in transport).

Maize - PWD in this study are more likely to get improved Maize from agro dealers, although there is still a large proportion overall sourced from local markets or the home. Participants reference that improved varieties produce better results in terms of yield and seem more resistant to climate change. This suggests PWD may be willing to invest in higher quality seeds where they see the evidence and benefits of working with them.

Beans - PWD rely on home saved, local markets and a higher quality improved variety, initially distributed by NAADS (especially in West Nile; some in Acholi). Further questions reveal it is common practice to recycle the improved variety so the assumption is that PWDs in this study are using a mixture of improved, local and recycled-improved.

6.4.2.2. Seed Utilisation in Periods of Stress

During stress periods, reliance on local markets increases and home saving reduces, although it still plays an important part. PWDs explained that this is due to their not being able to save as many crops for seed due to food requirements[78]. They are also less likely to purchase higher quality varieties from agro-dealers because of problems accessing capital.

Interestingly, **climate change (specifically drought and flooding) means PWDs seem *less likely* to use improved seeds and *more likely* to use home saved or local varieties**. There appears to be two reasons for this: firstly, participants referenced that local varieties are more adaptable to drought, based on their experience with these varieties and the confidence they have gained over time using them. Secondly, an alternative reason put forward by some is that they would not want to risk a costly investment on improved seeds if the harvest is likely to be ruined anyway. PWD reportedly struggle to deploy coping mechanisms aimed at enhancing crop production. Some report they would ideally like to plant earlier to mitigate the risk of adverse weather but their lack of access to enhanced land

[78] Field research, Lango Feb 2017

preparation technologies and labour made this difficult as it meant they were reliant on first rains to soften the soil, by which time it was often too late.

6.4.2.3. Do PWDs have enough inputs to meet their needs?

All of the qualitative participants said that they struggled to get access to enough quality seeds to meet their needs. Participants from Arua said OWC provided good quality seeds but not nearly enough for their land so they mixed these with local or home-saved seeds. Furthermore, 76% of participants in the quantitative survey said they do not have enough inputs to meet their needs[79]. There may be variation by crop type in terms of seed availability, for example, cassava was reportedly more difficult to get hold of than maize[80].

Participants in the qualitative research discussed **issues with seed quality received via donor or government schemes**, stating that it was often ruined because it had arrived too late and then been stored inappropriately for months. There were multiple references to first-hand experiences with poor quality and counterfeit seeds that failed to germinate, explored in more detail below.

Interestingly though, **there does not seem to be a common perception of what quality seed is or does**. Much discussion came around uniformity and taste rather than higher yields, income and improved climate resilience. The majority of PWD, like the rest of NU, are not using improved seed. However, only 11% of survey participants rate the quality of inputs to be 'bad' or 'very bad' which suggests an information or knowledge gap[81].

Qualitative research suggests that PWDs living in more rural areas may be using lower quality seeds than those living closer to large towns. Being further away limits their ability to engage with GoU schemes, particularly when the amount of seeds is few. It also means they are more likely to rely more heavily on home saved seeds due to the transport difficulties associated with accessing markets. This is unfortunate because there looks to be an inverse correlation between land size and proximity to towns (with larger plots further from towns) that would benefit from quality inputs to help make the move from smallholder to commercial farmer. Further research needs to be undertaken on this issue as data points were too few from the quantitative research to draw concrete conclusions.

6.4.2.4. What influences decision making?

It is difficult to ascertain the drivers behind crop choice because of the variation across PWDs outlined above. Perhaps the more pertinent question is why PWDs are not using improved seeds more widely, given the importance of quality seeds to improved yield and climate resilience. The main reasons are:

- PWDs are unconvinced they will receive any premium on better grain because of the stigma attached to being disabled, which acts as a disincentive to invest in higher quality hybrid seed
- PWDs find it physically more difficult to get to markets to buy inputs, so have less choice over suppliers
- PWDs may be discriminated against and sold counterfeits (e.g. visually impaired find it difficult to check seed quality)
- PWDs generally have less access to information
- PWDs are not well linked to groups/processors so do not benefit from easier access to quality seeds

These issues are explored in more detail in the subsequent section on supporting markets and rules.

[79] 76% do not have enough inputs-for all or some of the time
[80] Field research, Gulu, Feb 2017
[81] 57% of survey participants think the quality of their inputs is 'good' or 'very good' and an additional 24% as 'OK'

6.4.3. PWD-Specific Supporting Functions and Rules: Summary

The three key issues for PWD within supporting market functions and rules are stigma, information, and linkages. These factors combine in a way that inhibits PWDs' access and agency within the seed markets.

Some PWD have knowledge around the benefits of using quality seeds but lack detailed information that would enable an objective cost/benefit analysis. Others in this study demonstrated an information gap, failing to understand the higher yielding and climate resilient potential of improved seeds.

There are confounding factors at play, that can combine risk in a way that makes the decision to use improved seeds seem like a wager with unknown odds. One such risk relates to stigma. There have been instances where PWDs are not given the requisite premium on quality grain due to discrimination from traders asserting that it is 'disability quality'. Another risk is the poor quality of seeds: PWDs are susceptible to the counterfeit seeds that plague the market, sometimes taken advantage of due to their disability. They have also experienced improved seed failure from GoU or donor schemes due to inadequate distribution or storage. Even taking these issues into consideration, many PWDs are interested in improved seeds but the risk of solo investment and non-guaranteed returns is too high. The key issue therefore looks to be poor network linkages. PWDs are unlikely to be part of farmer groups or co-operatives and are not well linked to aggregators, wholesalers or processors, creating two disadvantages: first, it means reduced access to trusted quality seed and the opportunity to buy inputs on credit; second, PWDs are unlikely to have a guaranteed off-taker for their premium produce. This final barrier looks to be key, because overcoming it would mitigate most of the other potential risks.

Given the importance of information, social norms and network linkages are the seeds market, these issues are explored in more detail before looking more broadly at constraints.

6.4.3.1. Information

Broadly, our research indicates that PWD within this study can be split into two groups when it comes to knowledge around improved seeds:

Group 1: There are PWDs in this study who understand the benefits of using improved seeds[82]. Where possible, they will link to OWC to obtain improved varieties but struggle to access quality seeds via other methods due to multiple issues such as finance, transport and poor network linkages. The knowledge gap with this group centres around the return on investment equation: qualitative research suggests some PWDs are not aware of the cost/benefits by crop type of using improved seeds in terms of increased yield and greater climate resilience, making it difficult to justify the investment. Of course, there are other reasons at play here – notably the lack of off-taker and issues around stigma preventing guaranteed or improved returns, thus again, acting as a disincentive.

Group 2: There are PWDs in this study who demonstrate a low level of awareness around the benefits of using improved seeds. Whilst *'improved quality'* was often cited, it became apparent that the meaning of this was not always understood, with references to *'better taste'* and '*vegetables that look the same'*. Whilst these might be factors to consider, some of the key benefits around increased yield and climate resilience were not referenced or understood. Indeed, many PWDs use local seed varieties, believing them to be the wise choice for climate resilience due to their being *'well-adapted by now to the local environment',* which could indicate a lack of awareness around the role improved

[82] Qualitative research suggests PWDs in this group are more likely to have a commercial focus and/or bigger land plots

seeds have in climate resilience. This is unfortunate given that 53% of PWD who are cash crop farmers cite weather as a major constraining factor and 96% of them have experienced drought which demonstrates a knowledge gap to be filled.

6.4.3.2. Social norms

Participants in the qualitative workshops discussed instances where they had invested in higher quality seed but had been unable to benefit due to stigma:

> *I had been able to qualify for some improved seed via OWC but it was not enough for my land, so I took a loan from my VSLA and bought some additional seed from someone I know at the cooperative. I produced well grain that season so was very happy but the person I am usually selling to did not come to my farm as he had gone away…a new trader came and when he is seeing me he said it could not be good grain so I could not get a good price. He said it was disability quality and would not pay*[83]

This anecdote was reiterated by other PWDs who had experienced similar issues. A limitation here is that many traders in Uganda do not use accurate grain quality testing methods, relying instead on looking and biting. This subjectivity can result in discrimination towards PWD where traders think they can get away with paying less. Whilst in practice this discrimination is probably not widespread, the possibility is enough to act as a disincentive for PWD considering the investment in higher quality seed, especially given all of the other uncertain factors such as unpredictable weather and the lack of guaranteed off-taker.

There were a number of examples given that demonstrates PWD, like others in Northern Uganda, have fallen victim to counterfeit seeds, often sinking savings into improved varieties that failed to germinate[84]. Some participants deemed the formal seed market as too risky, maintaining that *'even if our seeds are not as fanciful or good quality, we know they work…but others you never know until it is too late'*[85]*.* Taken in this sense, the decision to use local seeds could be perceived as rational on the basis of risk versus certainty in an environment where there is limited room for error.

Social norms also look to play a part in governing behaviour when it comes to seed utilisation. This came out strongly within the qualitative research, with PWDs referencing seed that had been 'handed down' and varieties that were specific to a particular region. One participant noted:

> *We have done it this way for many years and our fathers before us. It is part of our heritage and it works. Why would we want to change? Especially to something that costs more and means we have to rely on others not ourselves*[86]

It is important not to underestimate the traditional values and pride that are associated with home seed saving and the sense of independence it can give to some of the PWDs in this study.

6.4.3.3. Networks and linkages

The anecdotal evidence provided by the PWDs in this study who *had* made the switch from home-saved to improved seed said a key factor was having a trusted guaranteed buyer as this reduces the risk of investment. Therefore, for those PWD who understand the benefits of improved seeds it seems

[83] Female participant, Mental Health Workshop
[84] Soybean seemed to be a common example during qualitative research
[85] Male participant, Physical Disabilities Workshop
[86] Ibid.

they would be willing to purchase as long as they are assured of a buyer for the grain. It follows that making the change from crop producing to seed multiplication could also be facilitated by better linkages to seed companies and access to a guaranteed off-taker.

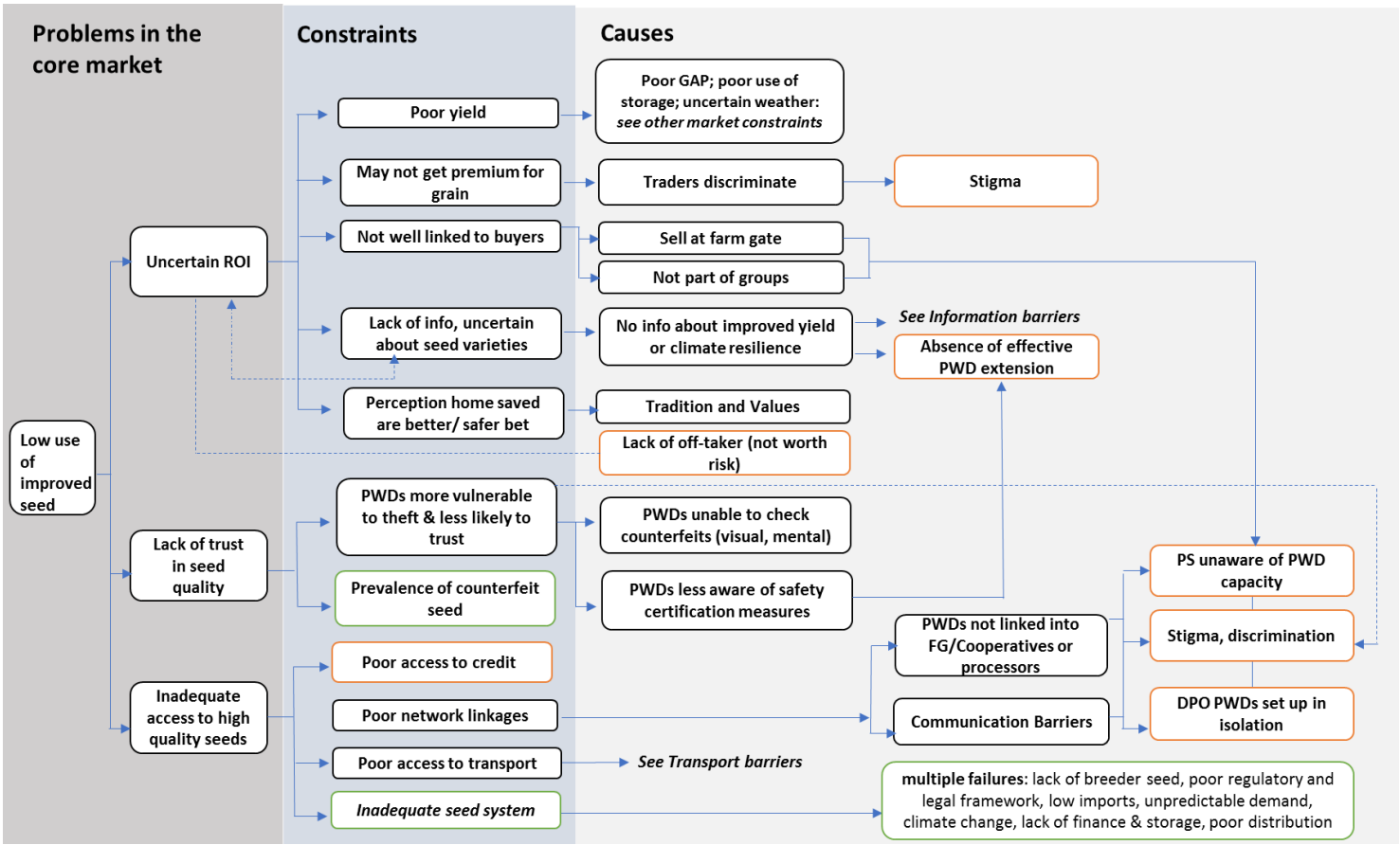
PWDs are not well linked to other market players such as farmer groups/co-operatives, traders, agro-dealers, processors. This makes it difficult for PWDs both to access higher quality seed whilst acting as a general disincentive to invest due to poor connections to buyers. PWDs in this study demonstrate some linkages to government and donor activities such as OWC but this appears to be dependent on regional priorities and sub-county knowledge of disability networks (see section 5.8). Where PWDs have been linked to these schemes, we have anecdotal evidence suggesting this can help incentivise them to make the switch to the formal seed sector for some crops, as they are able to see the benefits first hand but without the immediate financial risk. This strengthens the need to improve linkages for PWDs to gain better access to this market system.

6.4.4. Constraints for PWDs in Seeds Market System

The following analysis presents the underlying constraints and causes of the problems for PWDs in the seed market.

As can be seen by the constraints tree *Figure **31***, the key issues are uncertain economic returns caused in part by limited access to information, stigma and poor linkages to other actors; lack of trust in the seed market and limited access to quality seeds caused by poor access to credit and transport, poor network linkages and some fundamental inadequacies of the seed market. Taken together, these factors restrict access to and use of improved seed by PWDs.

Figure 31 PWD Constraints Tree for Seeds Market System



Constraint 1: Uncertain Return on Investment

Smallholders in Uganda tend to be risk averse which impacts on their decision to apply new technologies or purchase inputs, such as improved seeds. Quantitative research demonstrates PWD are not averse to agricultural investment but they are conscious about the need for adequate savings to fall back on, in case they require medicine or are unable to work due to their disability. Some PWD understand the benefits of improved seeds but with so many variables impacting the return on investment, it is often considered risky. PWD themselves exacerbate this risk by applying poor field practices, not applying fertiliser or farm-level water retention techniques for example, meaning yield will not be optimised. Others may not have all of the information necessary to make a decision based on costs and benefits.

(a) Poor yield: Evidence from this research indicates many PWD in this study rely on traditional labour methods and have limited knowledge and adoption of fertiliser, CPPs and on-farm irrigation techniques. There are a number of reasons for this including absence of extension, traditional practices and soil depletion. Combining this with unpredictable weather and limited adoption in quality storage (resulting in further yield losses), this results in a yield that is well below average.

(b) Poor access to information and extension: For all PWD, limited access to information on how to *apply* inputs such as seeds, fertiliser or pesticides means their investment becomes more uncertain and risky, therefore lowering the expected benefits and reducing application. As noted above, some PWD in this study want to use improved seeds but lack the nuanced crop-level detail to help them calculate the return on investment equation. Other PWD in the study demonstrate a general lack of knowledge about the benefits of using improved seeds over home-saved in terms of higher yielding and climate resilient properties. Without this information, they are unable to calculate the returns making it difficult to justify the investment.

(c) Not well linked to buyers: To invest in high quality seed represents a large outlay of capital, particularly when the main alternative variety (home-saved) is essentially free. As noted above, PWD are influenced by the presence of a buyer or off-taker for their product, but, unfortunately as explored in section 5.8, PWD are currently not well linked to other market actors such as the processors in the oilseed sector. This acts as a disincentive to invest in improved seed.

(d) PWDs may not receive premium for quality grain: Some PWDs in this study have been discriminated against by traders and other buyers who refuse to recognise better quality produce, instead paying them unfairly for 'disability quality grain'. Whilst in practice discrimination against PWDs may not be widespread, there are certainly enough anecdotes and stories to act as a disincentive for PWDs to invest in high quality seeds as they will not make their money back.

(e) Preference amongst some for traditional methods: Some PWD in this study discussed a preference for home-saved seeds, proud to continue the tradition passed down by their families. They also referenced that these seeds are a free resource and are reliable, suggesting this is a rational decision also.

Constraint 2: Lack of trust in quality seeds

The seed system is underpinned by mistrust at all levels. One could argue that this is simply a symptom of the inadequate seed sector as a whole (see subsequent constraint). It is clear that mistrust is an issue encountered by all actors and is not specific to PWD, although they experience two 'barriers plus'.

(a) *High prevalence of counterfeit seed:* there are multiple reasons for the high prevalence of fake seed on the market, including lack of inspection, regulation and enforcement.

(b) PWDs more vulnerable to theft and are less likely to trust: PWDs in this study referenced occasions where improved seed had been purchased (e.g. maize; soybean; sunflower) that transpired to be

counterfeit: grain sold as seed, seed on the top of the bag and rice at the bottom, expensive seed that failed to germinate. Whilst these stories are not uncommon, both qualitative and quantitative research suggests PWD are likely to be the victim of theft. Many PWD were also unaware of preventative measures to look out for to protect against counterfeit[87] suggesting the information gap some PWD face makes them even more vulnerable (see section 5.4).

Constraint 3: Poor access to high quality seeds

Poor access can, in part, be attributed to the core inadequacies in the seed sector as a whole. Issues include: lack of breeder seed, poor regulatory and legal framework, low imports, unpredictable demand, climate change, lack of finance and storage and poor distribution to remote areas. This is not covered in detail here as it is a barrier to all and is not specific to PWD but for more detail see NU-TEC MD seeds MSA. PWD encounter three 'barriers plus' in accessing improved seeds:

(a) *Poor network linkages:* Some PWDs in this study referenced that it was difficult to obtain improved seed. This could partially be attributed to the poor network linkages (described in section 5.8): we know that seed companies and distributers often do business with cooperatives, farmer groups and even individuals. Isolation from these groups and networks means PWDs are not linked in to the current distribution channels.
(b) *Poor access to transport:* additional transport constraints mean PWD find it more difficult to source quality seed and they are more isolated from markets, networks and buyers. As a cause and effect of this they often sell at the farm gate which offers little incentive to invest in higher quality seed.
(c) *Access to credit*: For the PWD in this study who understand the benefits of improved seeds, low utilisation can be partially attributed to low incomes. Lack of integration into farmer groups or cooperatives means that access to advance credit is unlikely and 75% rely on their own funds. The low purchasing power may affect affordability of seed, particularly certified seed from market sources, a situation that may be worsened during stress periods due to reduced household incomes/assets to finance seed purchases.

    Some PWD said they had considered investing in hybrid seeds but are reluctant to make the commitment to be tied into buying new seeds year on year.[88] Another financial consideration is the cost of land preparation. This is explored in more detail in section 6.1. The evidence suggests PWDs face difficulties in adequately opening, weeding and harvesting their plots, meaning they will not generate a good return on investment for purchasing or multiplying seeds.

7. INTERVENTION SUMMARY

This section summarises high level key findings before drawing on all the evidence presented so far to present interventions for PWD engagement within NU-TEC MD market systems.

7.1. Summary of Key Findings to inform Interventions

There are several reasons why it is important to include PWD when scoping market developments within NU-TEC MD. Firstly, it has been noted that there are significant economic losses related to the

[87] There are a number of safeguard certification schemes in place to look out for: barcodes, certified seed authority coloured stickers, scratch codes are also being piloted but nobody in qualitative research knew about these.
[88] saving hybrids for replanting does not produce plants with the same characteristics or quality as the original

exclusion of PWD in the labour force (Walton, 2012). Secondly, there is evidence to support the social benefits from empowerment when PWD are economically independent. Finally, it supports the wider policy drive to 'leave no-one behind'. The following key findings from this study both support and contradict existing research on PWD, the majority of which did not, until now, focus on PWD as current market actors.

7.1.1. PWDs as actors in Agriculture

- There are PWDs actively participating in agricultural market systems across Northern Uganda. **Many demonstrate a high degree of economic empowerment**, with 81% owning land (43% being sole owners), 83% owning houses (63% being sole owners) and 69% owning assets such as mobile phones. Access to financial services was higher than anticipated, with 68% participating in VSLAs and other informal institutions and 35% with a bank account.
- **PWDs are not the same**: there is variation between them in terms of their access and agency within market systems and not just by disability type. The overall differentiating factors are more attitudinal, societal and demographic as demonstrated by the range of farmer groups represented in the sample; subsistence farmers (2%), subsistence smallholder farmers (17%), commercial smallholder farmers (45%), medium scale (25%) and large scale (3%) famers.
- **Gender norms are not as pronounced as the rest of NU**, with women growing cash crops and a more equal division of labour roles, suggesting that disability rather than gender is the key factor driving agricultural practices. Whilst there are areas where women have less access and agency than men (such as access to bank accounts), the divide is not as stark as the literature would lead us to expect and in some instances, gender roles are reversed, with visually impaired men more likely to experience violence in the home than their counterparts.
- **PWDs face many of the same challenges faced by all smallholders** of Northern Uganda, such as poor access to seeds, inputs, improved land preparation techniques and extension. Many issues are the result of core market failures, whilst others surround the fundamental economic hardships and risks involved in smallholder farming.
- **There are some areas where PWDs experience 'barriers plus'** such as physical access to markets and limited access to information. The **key constraint for PWDs are the poor linkages** they have with other players across the market systems, particularly the private sector and other community players who overlap with the business environment such as traders, agro-dealers and farmer groups. This means PWDs are invisible to other key market players, impacting on their ability to engage in activities such as aggregation and group marketing. It also impedes their ability to link with reliable off-takers. Ultimately, this means PWDs have no certainty over income and may receive less than market price due to selling at the farm gate (both a cause and consequence of poor market linkages). This, in turn, means they are less willing to invest in high quality inputs such as improved seeds or inputs, perpetuating the cycle of poor yields.
- **There is potential to overcome this barrier via leveraging the disability machinery** across Northern Uganda. The disability networks are strong and have representation from the grass-roots to the Ministry. NU-TEC MD is ideally placed to utilise the strength of the DPO networks to facilitate linkages to result in economic empowerment (explored in more detail below)
- **PWDs have personality traits and attributes that are considered appealing** to the private agricultural sector, such as: Honest and Trustworthy; Reliable and Loyal; Determined and Hardworking. These strengths are not just self-reported, and can be used to leverage private sector engagement.
- **PWDs can experience negative stigma**, particularly those with a mental health disorder. PWDs feel less safe (28% reporting negative feelings in this regard), less respected (36%) and less valued (32%) at the community level. However, **there are few instances where disability-related discrimination has a negative impact on access and agency** within agricultural market systems.

Access to loans is a possible exception, but even here PWDs noted other issues such as limited capital were more pronounced.

- It has generally been assumed that by creating an environment where negative attitudes and discrimination are less, PWDs will in turn be able to access opportunities, leading to employment and eventually, acceptance in the wider community. However, the findings of this work suggest that the cause and effect might be reversed - that **by becoming more visual in society and demonstrating their viability as economic players, PWDs will fast-track their inclusion within society.**
- For PWDs in this study, a market development approach is not only possible but could be transformative. It is recommended that **the disability inclusion agenda is shifted towards economic empowerment, via the development of an M4PWD EE framework**. This will provide key practical guidance around what disability inclusion and empowerment looks like in practice, as this is currently a gap in the literature. **This will need to be considered within the wider disability context of leaving no-one behind,** as discussed in the interventions section below.

7.1.2. PWDs in NU TEC MD Market Systems

- **Land:** Whilst PWD do own and have access to land, the largest challenge is the inability to join shared labour groups to prepare the land and benefit from animal traction or tractor hire services. This reduces their productivity and further removes them from potential market networks (including ability to negotiate prices; access farm machinery; or link to Government or donor agriculture initiatives).
- **Aggregation and Storage:** PWD have low integration with aggregation actors and are rarely involved in aggregation themselves. The majority of PWDs store their own crops at home, despite acknowledging that this leads to wastage and spoilage. This is driven by a significant fear of theft if the produce is stored externally and compounded by difficulties in accessing transport.
- **Seeds:** PWD have a limited involvement with the production and sale of improved seed varieties (which is a potential missed opportunity), whilst demand is predominantly through the informal sector (as with most smallholders). Some PWDs lack knowledge on the benefits of improved seeds to increase yield and protect against climate change, whilst others understand the benefits but deem the risks too high: all PWD lack trust in the quality of seeds and poor network linkages means there is no guarantee for their return on investment.
- **Sunflower and Soybean:** Of those PWDs growing cash crops in the quantitative survey, 8% produce sunflower and 19% produce soybean. The constraints in the interconnecting market systems above negatively impact on PWDs' ability to maximise yield and profits. Information is a key barrier, particularly with reference to the use of fertiliser and irrigation practices in the soybean market. As always, poor network linkages mean PWD are not linked into other actors, meaning they may not receive adequate income to justify investments in improved field practices and inputs. Stigma means PWD may not receive a premium for higher quality grain, again reducing the incentive to invest in quality inputs.

7.2. Theory of Change for PWD Engagement within NU-TEC MD Interventions

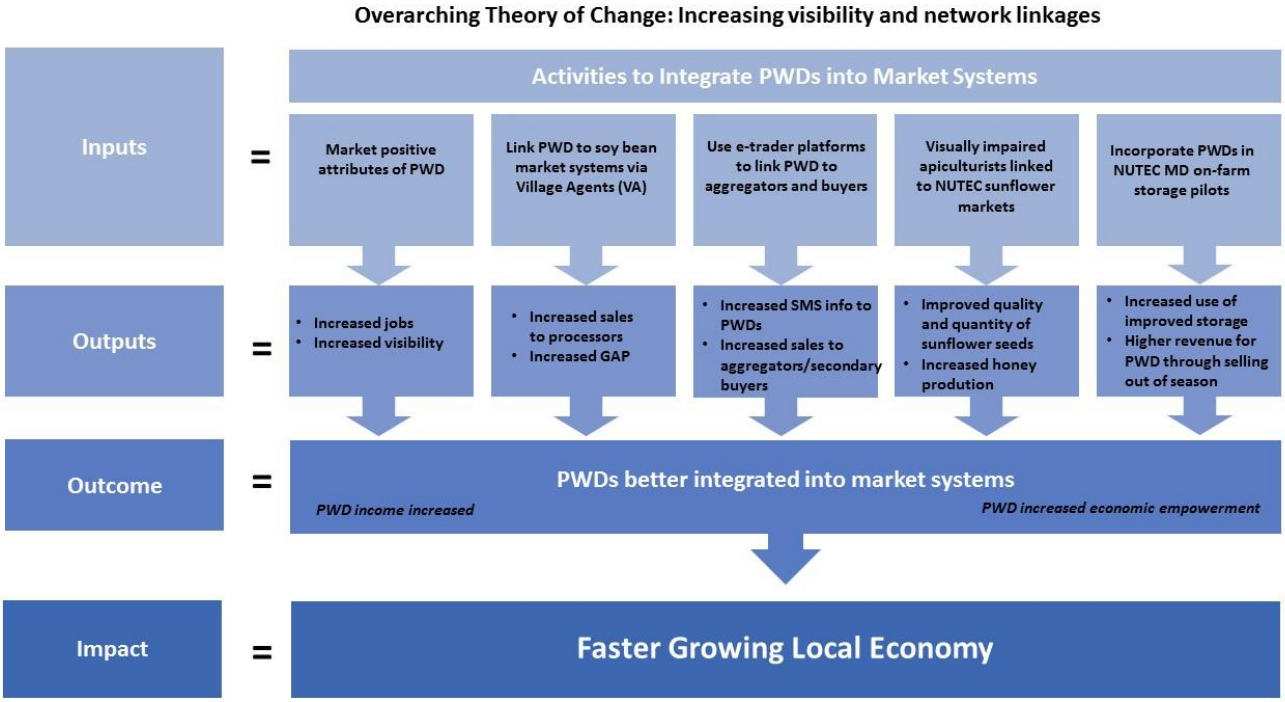
Often, PWD face **similar constraints** to others, such as limited use of quality storage, and limited adoption of quality inputs. Here, PWDs would receive the greatest benefit from being linked to **existing NU-TEC MD interventions** such as the provision of on-farm storage and the Village Agent model.

Sometimes PWD are **participating well**, and may even have a **comparative advantage** as market players, such as skill within the labour and apiculture markets. In other areas, PWD have a **comparative disadvantage** as market players, such as poor network linkages and access to information. Here, **new interventions** are proposed, designed to overcome PWD specific barriers or maximise market advantages. Examples include linking apiculturists with sunflower producers and e-trader platforms.

In addition, another potential could be an **overarching intervention** designed to increase visibility of PWDs to other market actors and create practical guidance around how to include PWDs for economic empowerment within programming.

*Figure **32*** below outlines the overall Theory of Change for a selection of these interventions and how they lead to a faster growing local economy with a focus on economic inclusion of PWD.

Figure 32 Overarching Theory of Change: Targeted and Mainstreamed M4P Interventions



7.3. Leveraging Key Relationships: PWDs and the Private Sector

Section 5.8 explores the existing linkages PWDs have with other market actors. A key finding is that disability networks function in isolation to other actors, particularly the private sector. This is an issue as it segregates PWD from the market, reducing their visibility and perceived viability as market actors.

As illustrated by the overall theory of change, many of the proposed market development interventions rely on creating or improving relationships between PWDs and other market actors, particularly the private sector. It is therefore important to think carefully about how to improve these linkages in practice.

The table below briefly examines some of the incentives and dis-incentives to consider when looking to build a relationship between PWD, their disability networks and the private sector. An additional barrier is the current absence of meaningful relationships between these players: Broadly, PWDs and their networks do not know how to sell their strengths to the private sector; and the private sector do not have an incentive to engage with PWDs beyond auspices of social responsibility.

Many of the disincentives on the private sector side can be overcome via the proposed model of engagement which demonstrates PWDs can be easy to reach with minimal effort. However, the importance of building the right links with the disability networks cannot be overestimated: it is crucial to recruit or assign a DPO(s) with the tenacity and business acumen to help NU-TEC MD proactively assess and mitigate the potential barriers in order to broker meaningful relationships across intervention partners. Our research demonstrates these PWD exist and would be willing to take on this role.

Figure 33 Incentives and disincentives for improved market linkages between PWDs and Private Sector

Private Sector organisations	Persons with Disabillities
Incentives	
• PWD have skills appealing to PS: honest; hardworking; loyal. These have been verified by others and are not just self-reported • PWD can rapidly co-ordinate to work together (especially if there is an incentive to do so) • PWD are currently working within this sector, with access to land. • PWD are willing to diversify and plant new crops • The disability machinery offers a simple way to link with PWD for a mutually beneficial partnership • PWD offer untapped market potential to fill supply gaps in labour and grain • Building a diverse workforce can be a selling point for the PS, providing media or research opportunities	• Increased income, opportunities and economic empowerment. • Many PWD are already undertaking these activities, this would see a greater return for similar inputs • Increased advocacy and visibility within the market, creating additional opportunities in other sectors • Increased socio-economic integration within local communities
Disincentives and Mitigation	
• The benefits of working with PWDs in the region are relatively unknown, therefore the effort of reaching PWD is not worth the risk • *Mitigation: Initial costs and risks could potentially be shared with NU-TEC MD or could be mitigated via the involvement of a third party (relevant NGOs or disability groups) who may help cover any additional time/financial burdens* • Fear that there would be expectation of additional costs (devices etc.) • *Mitigation: In general, it should not be necessary to make adaptations or change approach, although with time such adaptations may help to increase productivity* • Perception that PWD are too hard to reach; too much would need to be done to include them • *Mitigation: There are existing PWDs and groups that can co-ordinate themselves. The disability machinery facilitates easy access*	• Hard work - to sell strengths to PS will involve thought around incentives, barriers and mitigation, a new way of thinking for disability networks • Unknown benefits: time required to broker relationship but output unknown (could be spent on productive income generation) • *Mitigation: It might be necessary to offer a possible financial safety net to incentivise participation* • Integration may increase possibility of negative stereotyping • Unknown how well PWDs will be accepted • *Mitigation: consider the use of champions on both sides*

7.4. Interventions: PWD Targeted Interventions

This section outlines the proposed interventions which would specifically target PWD actors present within the market and their entry points for private sector engagement. In addition, linkages with current NU-TEC MD pilot initiatives have also been highlighted.

7.4.1. Intervention 1: Linking sunflower producers with visually impaired apiculturists

Summary of key evidence and constraints

There are two key pieces of evidence which, whentaken together, support the intervention to link PWDs working in apiculture and sunflower producers or processors.

Firstly, our research identified that Apiculture (the production of honey through bee-keeping) looks to be an area where PWDs are actively engaging as market actors. Bee keeping is attractive to PWDs for a number of reasons. Firstly, it does not require a lot of land so it can be done alongside existing agricultural activities. Secondly, disability does not seem to limit capacity of PWDs to successfully engage in honey production, for example visually impaired are adept at using touch or taste to assess whether honey is ready. Thirdly, it can provide a mechanism for social inclusion at the community level because it presents the opportunity for PWDs to release bees at the village or farm level, helping with pollination, whilst also selling honey to the community. PWDs in this study report that this has helped to reduce stigma and help them become embedded in the community. Beekeeping is often done in pairs and PWDs said that they can link up to support one another (e.g. hearing and visually impaired) or join with an able-bodied partner, with both having advantages. Finally, some PWD in this study report that able bodied members admire their bee-keeping abilities: although communities value bees and honey, there appears to be some superstitions meaning that some local communities are afraid of bees.

Apiculture is a growing market in Uganda and according to the Plan for the Modernisation of Agriculture (PMA), importers are still dominating the market as Ugandan bee-keepers are currently all small-scale apiculturists using traditional techniques which commonly produce lower yields. In 2005, the demand for honey in Uganda was approximately 3.600MT per annum with an estimated annual production of 1.538MT leaving a deficit of 2.062MT each year, which is currently filled with imports from neighbouring DRC, Rwanda and Kenya. It is anticipated that the demand has increased still further since then. Level of production is largely based around the size of the hives as well as their location and proximity to the right vegetation. The international demand for honey and value-added by products such as wax and propolis is growing, partially driven by a rapid decline in honey production in the USA due to increased use of pesticides and climate change (USDA, 2016). Whilst small scale Apiculturists would currently struggle to meet regulations to comply with international trading standards, this is a market that looks set to grow, offering market growth potential.

There are PWD Apiculturist entrepreneurs in NU who aim to capitalise on this. An example is HIVE Uganda Ltd., that started in 2013 as a registered entity and has been operating out of Gulu since its establishment. The co-founder and current Managing Director is visually impaired and has ensured that HIVE Uganda becomes a mechanism for increasing the number of visually impaired people generating an income through apiculture across the region. To date, HIVE has trained 32 visually impaired people in apiculture and each was given five hives as a start-up. HIVE Uganda then aggregates the honey and by-products from all 160 hives, processes it, packages it, brands it, markets it and sells it. This model is operating at profit but there is great potential and interest in expanding the company into a larger-scale producer given the right short-term investment and correct placement of the hives to ensure the highest yield possible e.g. near sunflower fields. The company is exploring the international market and has recently been given certification for exporting wax to the European

market[89]. There are also other associations of PWDs and individuals who were identified though our research[90].

In itself, this offers NU-TEC MD a new potential market area where PWDs look to be operating either individually or networked in groups. There are also significant possibilities for growth both as a market sector and for PWDs: the barriers currently faced by PWDs (e.g. traditional hives, difficulties in bulking, processing, packing and marketing) could be better understood and addressed via improved knowledge and linkages, so an M4P approach could be beneficial.

The second piece of evidence looks at sunflower productivity: In December 2011, a study carried out by Chambo *et al.* found a *'higher production of seeds in sunflowers is found with the introduction of colonies of bees'.* Bees, unlike other species, perform more lengthy visits when reaching for both the pollen and the nectar. This leads to them touching both the anthers and stigmas of flowers, which allows increased amounts of pollen to fall on the stigma. In addition, bees naturally perform a higher frequency of visits to the sunflowers at times when flowers are abundantly filled with pollen compared to other insects. The study went on to conclude that '*the introduction of Africanized honeybees on agricultural crops, especially in sunflower cultivation, is an alternative to increase seed production.'*

Proposed intervention

This intervention sees NU-TEC MD facilitating a relationship between PWD apiculturists and smallholder sunflower producers/processors. This has been selected as an easy market entry point: an intervention that will in itself improve market linkages and income for PWDs. It also offers additional opportunities to gather and review evidence to conduct a rapid MSA on the broader apiculture market to see whether it is a viable new market system for NU-TEC MD to enter at this stage in the programme[91]. There are several models for consideration:

Option 1: Link PWD apiculturists (mobilised via the disability machinery) and HIVE Uganda Ltd directly with smallholder co-operatives and producer groups working in the Oil Seed Sub Sector such as Alito. NU-TEC MD would need to consider how to provide extension to the producer groups around the benefits of bees to sunflower production and subsidise linkages initially (as there would be little incentive for producers to fund a partnership until results are proven).

Option 2: Link HIVE Uganda Ltd with smaller processors or those with private commercial land to provide contracts for the bee keepers and record yield changes with respect to both quantity and quality of sunflower seeds. There is potential to scale up this model to include other processors once it has been demonstrated to work effectively. There is also the potential for a business expansion model for the processors to supply modern hives (see box below) and purchase, process, package and market the honey.

Option 3: The introduction of larger, higher-yielding hives (see box below) as an initial investment in more productive hives would be both sustainable, easily exited and with a high return on investment which would interest private sector honey or wax producers and other agricultural investors. Learning could be leveraged from Honey Care Kenya who have successfully introduced a market access scheme linked to Langstroth hives that has been adapted by several not-for-profits and private sector players.

[89] Field Research Feb 2017

[90] DeafNET aims to empower the Deaf with skills through a Beekeeping project, and there are other NGOs and individual PWDs working to produce honey

[91] Note the UNDP 2012 Value Chain Analysis of the Apiculture Sub-Sector in Uganda as a starting point

Intervention partner(s)

It is recommended that HIVE Uganda Ltd is considered as an initial intervention partner as the company is well placed to connect NU-TEC MD to additional PWD apiculture groups. There is also the alternative to work with non-PWD apiculture organisations: it might be worthwhile considering a joint venture. WimRob Bees is a honey and wax aggregation and production company operating in Lira, exporting locally and nationally, whilst also offering extension via their commercial business unit arm[92].

Potential leverage for crowding in

Once this intervention is piloted and the increase in quality and yield of both sunflower seeds and honey products is realised, the findings can be used to encourage more private sector edible oil investment into the apiculture market. Similarly, as the export market for organic fair trade honey increases, there is potential to have international honey and honey product investors crowd in to the Ugandan market – something that is not currently existing in Uganda. In addition, there is some added value to the HIVE brand being supportive of PWDs' economic empowerment which could also be leveraged to encourage international investment in the brand. The story of HIVE Uganda Ltd, its origin and its charismatic visually impaired co-founder could be marketed to further diversify or expand the pro-poor change this mutually beneficial intervention would have brought about.

Advantages and disadvantages of different types of bee-hive

- The **Langstroth Hives** are used by just 2% of bee-keepers in Africa so are not well known but have been shown to have the highest yeild of honey whilst being the easiest hives from which to extract the honey. The reason behind the high yield is that the comb is on a frame so it can be easily replaced and therefore harvested twice during large nectar flows. In addition, the brood chamber is undisturbed by the harvest meaning the bees will be present to produce again in the next honey flow thus increasing sustainability. The disadvantage of these hives is that they are difficult and expensive ($120-$150) to construct and produce very little wax and no honeycomb as the comb remains in the hive and isn't harvested. In addition, the harvesting/processing requires an additional step of centrifugation to extract the honey.
- The **Top-Bar Hives** are used by approximately 10% of African bee-keepers, they hold large numbers of bees and produce good quantities of high quality honey whilst leaving the brood undisturbed ready for the following honey flow. It is easy to harvest, smoke and inspect the combs and fairly cheap to construct ($20-$35). The disadvantage is that it takes some time to harvest the honey and as the combs hang from bars they are not well supported making it difficult to move once in place - although, ironically, they are the easiest of the hives to steal as thieves can block the bees exit so they cannot protecting their colony during the theft.
- The **Log Hives** are the most widely used in Africa as they are cheap and easy to make, can be produced locally without the need for a carpenter and can house large numbers of bees. They produce the largest quantities of wax and are very hard to steal. The disadvantage of the Log Hive is that it is not possible to inspect the comb, the honey quality is reduced as the handling of the comb frequently dirties the honey and often honey is lost in the process of harvesting. It is also difficult to smoke and often infested with insects making the honey and the wax of lower quality.

[92] See http://abeescompany.com/category/events/ for an example of a collaboration partner

7.4.2. Intervention 2: Marketing the strengths of PWDs to enter the labour market

Summary of key evidence and constraints

This study aimed to identify, amongst other things, positive attributes associated with PWD which could be used as leverage points for creating a business case with which to encourage investment in pre-existing market structures and systems. This intervention, explained below, has potential to increase the number of PWDs within the labour market, which in turn will increase social inclusivity of PWDs within their communities.

There are key constraints within the farm labour market which could act as entry points for NU-TEC MD interventions:

- All commercial farmers require labour, especially at critical times and even small-scale farmers may need assistance occasionally
- Farm labour is often scarce and there are high costs associated with hired labour
- Farmers from Acholi reported they had to 'import' labourers from Lango and bear the additional costs of transportation in addition to daily rates
- PWDs who have land often have limited access to hired or communal labour
- Depending on the type of disability, PWDs are rarely able to participate in communal labour schemes as they are not perceived to be able to give the same amount of labour back into the group
- PWDs can find it problematic to hire labour owing to issues around stigma and access to credit
- Groups of hearing impaired farm labourers are often underutilised due to communication constraints

This study indicates firstly, there are groups of PWDs, specifically young hearing impaired men, who are available for labour hire and already organised into groups and; secondly the community, private sector and local farmers have already associated positive personal attributes with hearing impaired men including that they are strong, fit, willing, trustworthy and reliable.

If NU-TEC MD is able to leverage these selling points to private sector businesses and investors, whilst finding interventions to mitigate the challenges with current poor linkages, networking and communication, then this would be a mutually beneficial market entry point which would result in increased availability of farm labourers, reduced cost of farm labour leading to increased profit and more land opened and cultivated whilst at the same time increasing the social inclusion of PWDs within their communities.

Description of the intervention

With the following interventions, NU-TEC MD could enter the market and leverage change:

1. **Create linkages between networks of hearing impaired farm labourers and private sector investors:** firstly, through educating private investors about the underutilised potential both in terms of labour for their own land and contracting out labour to other businesses at profit and secondly by using the DPO networks to identify and link with pre-existing groups of men with hearing impairments already operating as farm labourers.
2. **Subsidise the labour or private sector time costs initially:** this could be a short-term incentive to encourage private sector to pilot the use of PWDs as farm labourers (e.g. to enable them to develop the business case and contractual arrangement). Once the private sector recognises the potential of PWDs, this subsidy could be phased out to ensure sustainability of the intervention.
3. **Scale up linkages via inclusivising stakeholder platforms and filling labour gaps:** the concept of inclusivising existing multi-stakeholder platforms and creating change agents is explored in the overarching intervention below. However, it could help facilitate scale -up of

this intervention by closing the knowledge gap and increasing visibility of PWDs across the private sector: as the seed market and oil-seed sector grow, there will be additional roles in processing and seed companies that could be filled by PWDs who have appealing skills that can be sold to the private sector.

Potential Intervention partners

As a starting point, NU-TEC MD could initiate linkages with NUDIPU or the Uganda National Association of the Deaf (UNAD) as umbrella organisations for the hearing impaired. In addition, the Gulu District Disabled Persons Union could provide the linkages to the correct DPO and associations to facilitate this intervention.

Potential leverage for crowding in

With this model, crowding in would be a simple process: by education and demonstrating to the private sector that these workers are strong, reliable, hard-working and trust-worthy, they could agree to take them on as full time employees or to formalise their relationship with the pre-existing networks by having them on a retainer. The private business could then use them as labour themselves, when required, at a slightly cheaper rate with the proviso that the business also contracts them out as a group to other private sector actors at a profit. This would ensure that the investor would see both a return on their investment with respect to lower labour costs as well as a financial gain to recruiting the groups to work for them exclusively.

7.4.3. Intervention 3: E-Trader Platform

Summary of key evidence and constraints

There are some key constraints that provide evidence in support of a trading platform: the first relates to information and the second to aggregation (with transport, stigma and network linkages as key considerations).

PWDs experience several 'barriers plus' around information access (see section 5.4). The root causes are physical access; isolation (at the group and individual level); invisibility and network disconnect (right across PWDs and other actors in market system) - this makes it hard for actors to target effectively at a basic level to make sure PWDs receive the *same* information and services as others and also makes it hard to assess demand for adapted/tailored services. There are additional barriers for hearing impaired around the lack of assistive devices or tailored information, although arguably the root cause still lies in the invisibility of PWDs as viable market actors. These issues have numerous adverse market consequences, for example: low adoption of good agronomic practices and poor use of inputs. At a basic level, PWD are not linked into information about market pricing, so often receive less income than the going market rate. Our research suggests PWDs have mobile phones, but do not currently use these as a source for agricultural information. They also do not seem to be aware of the potential of phones to provide these services, for example by SMS messaging.

PWDs do not trust storage facilities and are more worried and vulnerable to theft than other market actors. **PWD find using transport difficult** and more costly so use home storage and often sell to local buyers at the farm gate.

PWDs do not generally participate in group marketing or bulking, meaning they sell at the farm gate. Selling at the farm gate is both a cause and effect of isolation from markets: PWDs sell at the farm gate because they are not participating in group marketing and have poor connections to market information and buyers; they are not participating in group marketing and have poor connections to market information and buyers because they are isolated, so the obvious choice is to sell at the farm

gate. There are many reasons driving poor connections. Whilst stigma (and self-stigma), communication and transport are undoubtedly barriers it seems **the key issue is around poor visibility and lack of network integration between the disabled population and business level players**.

The issues above combine in a way that means, for many PWD, they do not receive the best price for their produce, nor is income guaranteed due to the lack of reliable off-taker. In turn, this means PWDs are less likely to invest in improved inputs and field practices, perpetuating the cycle of poor yields and low profits.

Linking PWDs to an e-trader platform would help to overcome these constraints: it would provide linkages between PWDs and buyers, offering fair market prices and creating a secure market environment. Cash incentives (agreed price payment on delivery) would help incentivise PWDs to transport produce where necessary, helping overcome mobility constraints via financial gains. It could also provide timely information about market pricing via SMS updates.

Whilst there is mixed evidence on the efficacy of e-trader platforms in Uganda, due to the evidence listed above it is suggested as a strategy to explore as it has the potential to overcome several key market barriers to PWDs. There is also evidence to suggest that a new platform that has been developed is demonstrating signs of market success as outlined below:

Kudu is mobile marketplace designed to integrate regional agricultural markets by linking sellers from rural areas with national buyers. It is an SMS-based system developed by Makerere University which currently has 11,971 traders across Uganda signed up and actively using it. It provides current, real-time pricing of the most commonly sold commodities within the agri-business markets. Understanding pricing ensures traders are able to negotiate a fair price and plan their finances or storage of produce according to the rise and fall in price. The evaluation is conducted in partnership with AgriNet, one of Uganda's largest private-sector brokerage companies, to promote Kudu and facilitate trades with on-the-ground services. The evaluation is still underway but a recent presentation found that the SMS information blasts are working well, data visualisations allow traders to buy and sell. There is current exploration into e-bulking to overcome quantity mis-match (CEGA Evidence to Action 2016).

Vision for PWDs

A market that provides PWDs with access to actors and information on a level playing field. This will provide PWDs with the opportunity to link with buyers and off-takers and receive up-to-date information resulting in higher overall income and capacity to invest. This will be achieved by Ugandan e-trader platforms linking with disability networks to ensure the case for investment.

Description of the intervention

This intervention involves NU-TEC MD brokering a relationship between the disability networks of Northern Uganda and an e-trader platform. There are platforms already operating in Uganda, thus providing an easy market entry point that is sustainable whilst involving limited investment.

The intervention will facilitate discussions between KUDU and the disability machinery to form a commercial partnership capable of rolling out the platform to PWDs in Northern Uganda. The focus is on establishing the case for the inclusion of PWDs, including consideration of any cost/benefits of any adaptions that may be necessary to ensure PWD usability.

To facilitate this partnership, we propose NU-TEC MD takes initial findings from this research around PWD mobile phone ownership by region and further demand for market information, using this to initiate discussions with KUDU and the relevant NUDIPU district branch. Alongside this it would be possible to undertake further action research via the DPO machinery to further assess demand for

services and to pilot the platform. It is suggested that phase 1 would see PWDs linked to SMS market information and phase 2 would pilot seller/buyer linkages, working with interested market actors from phase 1 in order to increase the chances of rapid adoption and scale-up.

Potential Intervention partner
KUDU (http://kudu.ug/) is currently operating in Uganda and so linkages should be made to better understand their product and how they can improve the functionality of the market for small-scale farmers. To facilitate the relationship between Kudu and the disability networks, refer to the steps outlined above in 'how to engage with the disability sector', as partnerships will depend on where Kudu is currently operating.

Potential leverage for crowding in
The successful inclusion of PWDs in an e-trader intervention may help to stimulate market players to respond, reaching out to PWDs in other technology based solutions.

7.5. Interventions: Mainstreaming PWDs within existing NU-TEC MD programmes

Whilst it is important to identify key intervention areas which could specifically target PWD, as most PWD experience the same barriers to non-PWD when it comes to on-farm storage and linkages to processors, it would make sense for PWD to also be mainstreamed through NU-TEC MD's current pilot interventions as outlined below.

7.5.1. Intervention 4: Provision of on-farm storage

Summary of key evidence and constraints
Of PWDs who grow cash crops, 78% use some level of storage facility. However, the quality of storage currently in use is poor with a heavy reliance on 'the home', 'bags' or 'sacks'. The sacks and bags are likely to be home-made as opposed to the more robust models currently on the market (e.g. polypropylene bags), and are still used at the home level, often left outside under a sheet or a tree. Very few PWDs use granaries (4%) or storage tanks (1%), and reportedly they do not access or use more formal storage facilities such as public storage centres. This is leading to heavy post-harvest losses, reportedly up to 40%.

Therefore, whilst PWDs understand the value of improved storage to reduce post-harvest losses, they believe the financial, transactional, and physical costs outweigh the benefits of (a) using public storage units, and (b) investing in quality on-farm storage.

Section 6.2 explores the 'barriers plus' for PWDs in terms of accessing quality storage. A key conclusion is that PWDs are very unlikely to use public storage facilities due to issues around transport (mental and physical challenges, on top of high costs) and trust (theft, discrimination and the need to lock produce away). The focus on this intervention is therefore about improving access to quality storage at the farm level.

Vision for PWDs
A market that provides PWDs with access to quality on-farm storage technologies, contributing to reductions in post-harvest losses and improvements in financial returns to producers. This will be achieved by local manufacturers distributing on-farm storage technologies to PWDs at a price to ensure strong case for investment.

Description of the intervention

The World Food Programme (WFP) has been piloting distribution of on-farm storage technologies (including super grain bags, plastic silos and metal silos) and initial findings have been positive: 40,000 participating farmers reduced their post-harvest loss from 60%, to less than 3%, and around 98% achieved a financial return. The technologies appear to increase the families' resilience with improved food security, as the silos are locked, and this contributes to higher personal incomes.

NU-TEC MD has recognised the potential of on-farm storage technologies with the following market vision: *'the manufacture and distribution of new on-farm storage technologies… to be broadly based by multiple distributors (and manufacturers) to maximise access, competition and the sustainability of these technologies'.* As such, NU-TEC MD has already engaged with WFP to pilot the use of (polypropylene) grain bags in Northern Uganda. These bags were selected as an easy market entry point and are reportedly working well.

This intervention, therefore, would see NU-TEC MD working alongside disability networks and WFP to incorporate PWDs within the commercial case for the production and distribution of (a) polypropylene grain bags and (b) any subsequently piloted on-farm storage technologies such as silos.

Potential Intervention partners

NU-TEC MD has already built a relationship with WFP. To facilitate the engagement of PWDs, NU-TEC MD will need to broker an additional relationship with disability networks. There are two options (1) work with an umbrella organisation such as the Gulu Union of Disabled Persons Union (GDPU)[93] an association of persons with disabilities who will be able to mobilise or recruit PWDs as distributers or; (2) work with a partner organisation supporting disability livelihoods development in Northern Uganda such as ADD International or Light for the World. Either option will facilitate linkages with disability networks and DPOs, which will support not only the distribution of storage facilities but provide also the potential to map regional demand to support the commercial business case for production.

There are limited risks associated with this intervention: whilst commercial partners may not have previously thought about PWDs as market players, this research and subsequent DPO mapping will demonstrate the commercial viability of the partnership.

7.5.2. Intervention 5: Integration of PWD with the Village Agent model

Summary of key evidence and constraints

There are several factors underlying poor adoption of improved seeds and good agronomic practices amongst PWD. There are some core market failures such as the high prevalence of counterfeit seed and the inadequate supply of quality inputs and seeds. There are also some 'barriers plus' that further hinder PWDs such as transport difficulties accessing markets or distribution points and limited access to information and extension (a particular barrier for hearing impaired who cannot access the radio, but a barrier for all PWDs for a number of reasons outlined in section 5.4). However, one of the key constraints for PWDs trying to shift from smallholder to commercial farmer is their lack of network linkages and specifically the lack of a buyer. Only 8% of PWDs are part of a farmer group, and many sell at the farm gate rather than participating in aggregation or group marketing. Our research suggests if PWDs had a guaranteed market, they would not only invest in higher quality inputs, they would also dedicate more land under crop.[94]

[93] Or other relevant branches of NUDIPU

[94] Some PWDs have land they are currently unable to open or utilise fully due to reliance on family labour and non-mechanised land preparation techniques

Strengthening access to information and extension whilst providing PWDs with a buyer is clearly an area worth exploring. This intervention therefore builds on a pilot that NU-TEC is already undertaking in Northern Uganda. The proposal is that PWDs are included within the Village Agent (VA) model developed by the Joseph Initiative (JI), which has been successful in building linkages between farmers and large buyers in Western Uganda via Village Agents who provide seed, fertiliser, herbicide and extension guidance.

This intervention sees NU-TEC MD leveraging existing relationships to include and empower PWDs within the JI across NU, focusing on the soybean sector. This intervention area has been selected due to easy market entry: PWDs in Acholi and Lango are growing Soybean and not linked to markets; processors struggle to access sufficient quality and quantity of sunflower and soybean grain leading to lower throughput at their processing facilities; NU-TEC MD have already begun to roll out the intervention (amongst able bodied) providing relationships and learning that can be leveraged.

Vision for the intervention
The PWD VA relationship will drive the adoption of improved practices within the soybean market in NU whilst demonstrating to buyers and processors that PWDs are capable, reliable and viable market players. PWDs will be provided with access to quality inputs, information and access to a guaranteed market for higher quality produce, ensuring incentives are aligned to promote commercial farming. This vision will be achieved via integration of PWDs into the VA model, acting as disability mobilisers, spokespersons and distributers. It will also be driven by processors, where change agents will be identified and will proactively drive the formation of PWD groups or individuals as suppliers.

Potential intervention partners
NU-TEC MD has already started to establish links with the Joseph Initiative, so the proposal is to build on existing relationships and use a regional umbrella organisation such as the Gulu Union of Disabled Persons Union (GDPU).

Potential leverage for crowding in
Once PWDs are embedded within the JI model there is scope to (a) scale up delivery to other regions JI is operating in, applying the same method to integrate PWDs as village agents, or; (b) see others crowd in, replicating the PWD VA inclusive model across other market sectors.

7.6. Overarching Intervention

There is no doubt that disability inclusion has shot up the development agenda, as reflected in some key policy changes. However, there is still a sense that this is difficult to do: that PWDs are too hard to reach and too disadvantaged.

We therefore propose an overarching intervention designed to increase visibility of PWDs to other market actors and create practical guidance around how to include PWDs for economic empowerment within programming.

7.6.1. Intervention 6: Increasing visibility and economic empowerment: M4PWD EE

Summary of key evidence and constraints
This research has demonstrated two key findings that has relevance not just for the NU-TEC MD project but for development partners globally.

Firstly, there is little practical guidance available within the literature about disability and economic inclusion, which makes it difficult to put the concept of PWD inclusion into practice. Indeed, it soon became clear in this project that applying a disability 'lens' to the generic M4P framework would not go far enough to examine the more complex power dynamics that shape market systems, nor determine the extent to which these are liable to shift dependent on the level of access and agency PWDs have within a given market system.

Second, our research demonstrates that, contrary to much of the literature, PWDs are economically engaged as actors within agricultural market systems, with similar or better access to assets and services than non PWDs in the same region. They look to behave like any other rural population in terms of socio-economic engagement, so there is variation between those 'entrepreneur/commercial types' who are better linked to financial services and markets, versus those at the bottom who are not. We have found that economic empowerment drives social inclusion and not the other way around and **that the key issue faced by PWDs is invisibility and the perceived difficulty of reaching them** (which we have shown is not a big barrier in Uganda due to the DPO machinery). These findings have key implications with regards to disability inclusion, suggesting the **overall agenda should shift more towards economic empowerment.**

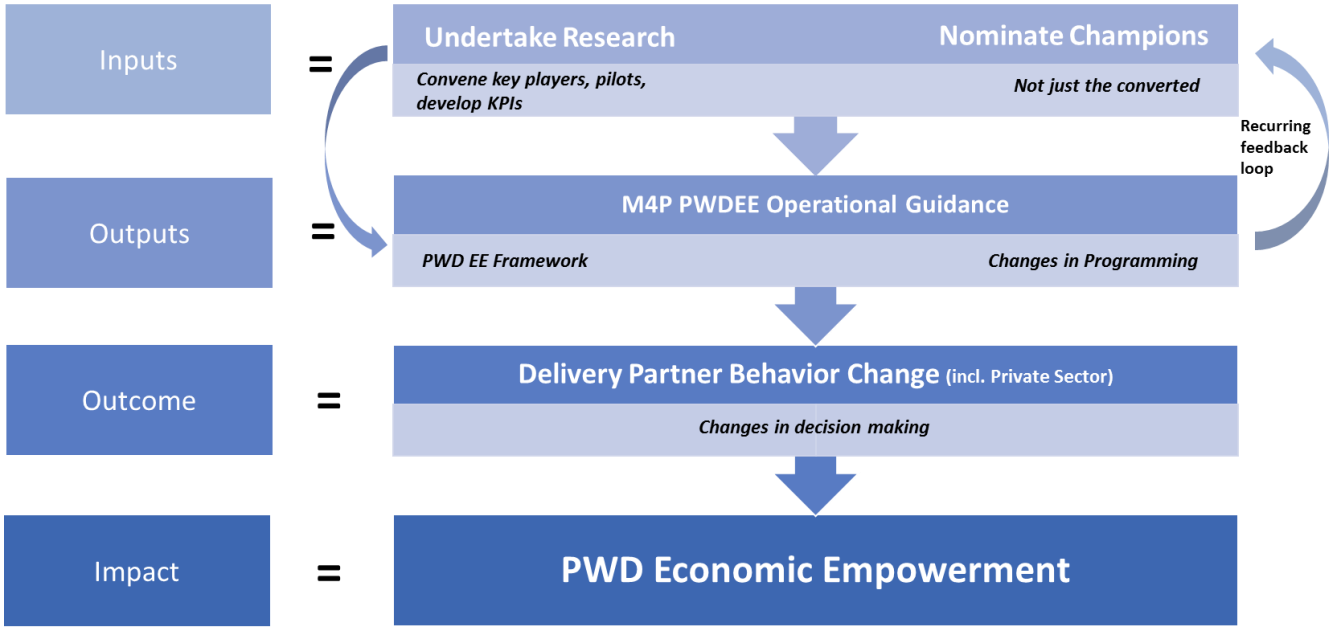
We have seen a similar movement in gender, with the development of the Women's Economic Empowerment Framework and the subsequent integration within programming (such as within the M4P guidance). This sets both process and precedent and gives us a basis to learn from. It is important for us to recognise the importance of a top-down bottom-up approach, with the crucial feedback loop between those on the ground making change and those setting the policy framework. We can learn from the challenges the gender movement has faced in turning buzzwords into tangible change via the inclusion of robust metrics and, more importantly, change agents at all different levels. The recognition that change agents in unlikely places (e.g. male feminist advocates in a male dominated workplace) are more powerful than using the already converted is a key piece of learning to leverage. **This process is more complex than it sounds, due to the need to reconcile partially conflicting policy initiatives** of 'leave no-one behind' within a market development context (see risks and considerations).

Vision

A business environment that supports PWDs to be economically empowered and engaged in decision making with a voice and a choice.

This will be achieved via the development of a clear and practical PWDEE Framework (Persons with Disability Economic Empowerment Framework) and operational guidelines demonstrating the practical application of this framework within a market development approach, feeding into the international M4P Guidelines (M4PWD). This process will be undertaken via a multi-stakeholder approach, championed by change agents across all market sectors and further facilitated by increased numbers of PWDs engaged in multi-stakeholder platforms across Uganda. Bottom-up delivery will drive top-down framework development via an iterative process of action research, led by NU-TEC and DFID Uganda.

Figure 34 Theory of Change M4PWD EE



Description of the intervention

There are two options for interventions:

1) NU-TEC MD takes this research to DFID to consider taking forward via a multi stakeholder approach, discussion forums and a revised publication for the global audience
2) NU-TEC MD and DFID to pilot M4PWD EE during the remaining programme years.

The second option would provide a unique opportunity to put M4PWD into practice whilst forming the basis for the economic empowerment framework: as a market development programme, a core focus of NU-TEC MD is around creating linkages for sustainable transformation. The programme has relationships across entire market systems, from smallholders right through to private sector actors and multi-stakeholder platforms. It is therefore well placed to leverage existing relationships to work towards the vision outlined above. This is not simply a proposal for action research: by implementing any or all of the interventions outlined in the preceding sections within a M4PWD economic empowerment framework it will enable NU-TEC MD to maximise sustainable economic impact for PWDs whilst simultaneously providing evidence to propel the overall disability agenda forward.

Potential for scalability

The approach outlined above would provide the evidence required to take M4PWD EE to scale not within Uganda but across other development settings also.

What our findings suggest is that many PWDs in Northern Uganda could benefit from this kind of approach, especially when combined with an overarching framework for PWD economic empowerment and some practical M4P guidance. To take this forward in a way that leaves no-one behind, we recommend developing a dual approach: whereby M4PWD EE practitioners work alongside another development partner who will focus on the lower end of the disability spectrum, in

order to give them the 'leg up' required to make their first entry into the market, and may benefit from future market development interventions[95].

7.6.2. Supplementary Interventions: Outline Ideas

There are three new interventions that have been considered but not proposed in further detail due to insufficient evidence or uncertain outcomes.

7.6.2.1. Leveraging uncultivated land

PWDs in this study have access to land: 25% having access to 6-49 acres and 3% with 50 or more acres. However, many are unable to open or cultivate their land due to reliance on rudimentary land preparation techniques, poor network linkages and limited access to labour. There are multiple barriers to the adoption of mechanisation (see section 6.1). A simpler solution sees the facilitation of PWDs leasing out their land, increasing their income (and income resilience) and providing investment potential to enable the shift from small to large-scale commercial farming. It would also free land for others, boosting overall economic growth and removing the barrier to land opening when the land is returned after the lease has ended.

It is therefore recommended that NU-TEC MD work with local conveyancing firms to support PWDs with drafting lease agreements. NUDIPU has members who are PWDs and legal officers who may be well placed to support or provide contact links. Alternatively, NU-TEC MD could work via an organisation such as Trocaire who have been working with local governments in Acholi region around land tenure.

7.6.2.2. Agricultural Index Insurance

Like much of Uganda, the PWDs sampled rely on rain water harvesting and have little or no access to enhanced irrigation systems as our research demonstrated through these key findings. In addition, PWDs believe that weather is a key constraint to their yield or crop production. Drought is the biggest concern and has negatively impacted over 70% of respondents in the last three years. There is a lack of adoption of farm-level basic irrigation techniques and crop planting for improved moisture retention. This looks to be due to a lack of knowledge in this area which in turn could be down to limited access to information.

Therefore, it is recommended that the requirement for extension or training specifically around water handling is investigated further. Looking towards more of a market development approach, one option would be to consider regional index insurance through a public private partnership. This would incentivise irrigation extension and adoption of basic practices to bring premiums down.

8. CONCLUSION

There is little practical guidance available within the literature about disability and economic inclusion, which makes it difficult to put the concept of PWD inclusion into practice. Indeed, it soon became clear in this project that applying a disability 'lens' to the generic M4P framework would not go far

[95]A leg up: support to engage in markets: premarket social protection that supports the most marginalised to be in a better position to engage in markets (See the work by ADD International, The Coady Institute and IDS entitled: A TYPOLOGY OF MARKET BASED APPROACHES TO INCLUDE THE MOST MARGINALISED)

enough to examine the more complex power dynamics that shape market systems, nor determine the extent to which these are liable to shift dependent on the level of access and agency PWDs have within a given market system.

Through a literature review, meetings with key NU-TEC MD stakeholders and the field research with PWDs, who are already engaged in agri-business in Northern Uganda, Montrose has collected data, analysed findings and identified potential interventions. It is against this background that we are able to answer the four key questions this project aimed to answer:

1. What is the current situation for PWDs in Northern Uganda in general and specific to economic development including through agriculture and agribusiness?

This research has demonstrated that, contrary to much of the literature, PWDs are economically engaged as actors within agricultural market systems, with similar or better access to assets and services than non PWDs in the same region. Similarly, PWDs behave like any other rural population in terms of socio-economic engagement so naturally there is variation between those entrepreneurs who are better linked to financial services and markets, compared to those at the bottom who are not. We have found that economic empowerment drives social inclusion and not the other way around and that the key issues faced by PWDs are invisibility and the perceived difficulty of reaching them, which we have demonstrated is not a big barrier in Uganda due to the DPO machinery. These findings have key implications with regards to disability inclusion, suggesting the overall agenda should shift away from 'inclusion' and move towards economic empowerment.

That people with disabilities are able to overcome the 'barriers plus', making it harder for them to operate within the market compared to non-PWDs, and yet still compete equally within the market is in itself an interesting finding. That said, there were examples of where PWDs showed a comparative advantage over non-PWDs but not in the agri-business sector. For example, INGOs have trained people with physical disabilities in the art of shoe making and repairs. All participants in the qualitative research agreed that in Uganda, PWDs are believed to provide higher quality services in the shoe-making and repair industry. Other non-PWD actors trying to enter that market rarely succeed as a result of these affirmative social norms. This was the only case referenced by participants where it was clear that PWDs have a comparative advantage and when asked why people believed this, they simply responded *'it is just what everyone thinks – I will always go to someone with disabilities to get my shoes fixed even if there was someone without disabilities who could do it.'*

That PWDs can compete equally within the agri-business market is something which can be leveraged by NU-TEC MD when making the case to the private sector by stressing PWDs' versatility, resilience and determination to succeed when faced with additional constraints compared to non-PWDs. Positive attributes associated with PWDs, as outlined in the boosters table above (see *Figure **17***) include hardworking, reliable, honest and determined – all of which can be leveraged to make the case to the private sector for increased investment in PWDs as important market actors.

2. What are the potential synergies that can be leveraged by NU-TEC MD using an M4P approach, to build on the Community-Based Rehabilitation (CBR) strategy and successfully engage PWDs?

Community-Based Rehabilitation (CBR) was initiated by the WHO following the Declaration of Alma-Ata in 1978 in an effort to enhance the quality of life for people with disabilities and their families; meet their basic needs; and ensure their inclusion and participation[96]. CBR began as a means to increase access to rehabilitation services for PWDs and their families but has expanded into a multi-sectoral approach focussing on equality and social inclusion of PWDs. As WHO explain '*CBR is now*

[96] http://www.who.int/disabilities/cbr/en/

working to improve the equalisation of opportunities and social inclusion of people with disabilities while combating the perpetual cycle of poverty and disability. CBR is implemented through the combined efforts of people with disabilities, their families and communities, and relevant government and non-government health, education, vocational, social and other services.'

The challenges with such significant expansion is that the CBR 'strategy' has become more of a concept and less of an operational framework, with boundaries now so wide-reaching that all INGO, NGO, CBO, DPO work could be accommodated within the remit of 'CBR'. As a result, most organisations are not using a specific approach to underpin their programming and all are implementing an element of CBR, each one approaching CBR differently and none are embracing the concept fully, rather choosing an aspect of the concept which fits within their existing programmes. As a result, it would be impossible for NU-TEC MD to leverage what other organisations are doing or even to learn from their experiences as there is little consensus on what lessons were learnt through implementing a CBR approach. Whilst CBR is a valid and important concept for ensuring social inclusion of all PWDs and their families, our findings suggest there are few, if any, potential synergies to be leveraged which will benefit the NU-TEC MD programme.

That said, if NU-TEC MD were to leverage a strategy to ensure heightened CBR within their programme, it would be to, as mentioned above, shift away from 'inclusion' and move towards economic empowerment of PWDs. A starting point could be to use the Washington Group Questions to assess how many stakeholders already involved in the NU-TEC MD pilot programmes are people with disabilities. It is highly possible that PWDs are already engaged in the NU-TEC MD initiatives but this has not been investigated to date. Once PWDs already operating in NU-TEC MD pilots are identified, efforts could be made to support them to overcome the 'barriers plus' outlined in this report to ensure they are best placed to compete within the market alongside non-PWDs. This in turn will ensure social inclusion with the NU-TEC MD programmes is achieved.

3. What opportunities exist for NU-TEC MD to engage the different PWD impairment groups within the programme's selected markets and what are the potential barriers?

Findings from this research demonstrate that PWDs are already operating within the NU-TEC MD chosen markets so there are a plethora of opportunities through which NU-TEC MD can engage PWDs. A constraints analysis with a PWD lens was carried out which identified the 'barriers plus' meaning those barriers PWDs face in addition to the general barriers all small-scale farmers face in Northern Uganda. In summary, key 'barriers plus' include:

- Limited access and adoption of draught animal traction and mechanisation as a result of prohibitive costs, low visibility in the market, poor linkages to farmer groups and equipment is not adapted for PWDs
- Poor connections to buyers and aggregators
- Disability-related limitations to land preparation, including limited access to assistive/adaptive devices, poor farm infrastructure
- Limited access to labour, including both hired labour (as a result of high costs and stigma) and reciprocal labour (as a result of community believing PWDs are unable to reciprocate and offer labour to others)
- Limited access to information, including extension services
- Limited adoption of Conservation Tillage, possibly as a result of limited information
- Costs of transportation to local storage (physical, mental, financial and transactional)
- Transport is often unavailable or unsuitable for PWDs because of higher transport costs (including having to pay extra for crutches and carers), transport not being adapted for PWDs

so becomes physically challenging, for those with mental health issues transportation can also be mentally challenging particularly as the stigma towards mentally impaired is higher
- Low ownership of transport amongst PWDs as a result of un-adapted machinery and low access to finance to enable procurement of vehicles
- PWDs do not trust storage centres and have been found to be more vulnerable to theft
- Underutilisation of cooperative/FBO warehouses and group marketing because of poor connections to markets and buyers and poor marketing and market information:

Notwithstanding these barriers, there are opportunities for NU-TEC MD to engage PWDs within the current chosen markets. Figure 32 above outlines the overall Theory of Change for a selection of these interventions and how they lead to a faster growing local economy with a focus on the social inclusion of PWDs.

4. Within NU-TEC MD markets, what are the potential strategies and approaches that can accommodate the specific economic development needs of different impairment groups including girls and women with disabilities?

One of the key aspects of this research was to disaggregate the different impairments and understand the potential entry points within the market for each disability group. Findings suggest that, for example, there are opportunities for leveraging pre-existing networks of people with visual impairments operating within the apiculture market and linking these small-scale apiculture businesses to sunflower growers already engaged in the NU-TEC MD pilot projects, so as to form a symbiotic relationship which will see both the improvement in the quality and quantity of sunflower seed and at the same time, improving the quality and quantity of honey being produced. Furthermore, men with hearing impairments were deemed by society and the private sector to have positive attributes such as strength, reliability, trustworthiness, which could be leveraged. Through their association with DPOs, males with hearing impairments have created groups through which they are employed as farm labourers. This also has the potential to be leveraged and there is a strong business case to be made to having the private sector invest in these groups both as their own labourers and as labourers to be contracted out at profit.

With respect to gender inequalities and PWDs, one finding which was of particular interest was the disparity in gender norms between PWDs and non-PWDs. We observed that gender norms around labour contributions do not necessarily seem to apply to PWDs and whilst the farming of cash crops such as sunflower and soybean in Northern Uganda is generally dominated by men, amongst PWDs the gender balance of farmers is equal. Similarly, when focussing on the specific tasks assigned to men and women in the broader market such as seed sorting, the gender inequalities experienced in the general population are not seen amongst PWDs. Further investigation should be made into why and how these behaviours and gender norms have been changed amongst PWDs and lessons could be identified, leveraged and mainstreamed through the wider NU-TEC MD programmes to encourage more gender equality in the non-PWD population through cross fertilisation of learning.

Finally, there is no doubt that disability inclusion has risen up the development agenda as reflected in DFID's key policy changes. This research has demonstrated several key findings that have relevance not just for the NU-TEC MD project but for development partners globally. These findings have both proven and dis-proven pre-conceived ideas about PWDs with respect to their current engagement in agri-business, their access to land, their ability to reverse gender norms and their potential for operating within both the NU-TEC MD market systems and the broader private sector markets. Findings from this report should be shared, suggested interventions implemented and outcomes of pilots disseminated to both development partners to improve their programming and to businesses as a means to leverage crowding in.

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