Disability Inclusion through Infrastructure and Cities Investments – Roadmap

A. Main Document

Starting point: the basic **principles of Universal Design**

Understanding impairments and barriers.
The three major barriers people with disabilities experience when accessing infrastructure and urban services:

- Informational barriers
- Physical barriers
- Attitudinal or Behavioural barriers

Introduction to the **key themes to consider for inclusive programming**:

- Policy and Legislation
- Regulatory Environment
- Design solutions & the built environment
- Information and Data
- Cultural and Behavioural Factors
- Financial Resources / Investment

Basic Requirements for Disability Inclusion

Example entry points by infrastructure and urban sector: transport, energy, WASH, housing & land, informal sector, safe spaces and security, formal workers

Using the ICED Gender and Inclusion Framework as a tool to raise Disability Inclusion ambition on your programme

Addressing **Disability Inclusion across the DFID programme life cycle** – using real-life examples of good practice from developing country contexts to illustrate how DI manifests at each stage; mapping key themes against the life cycle

Disability Inclusion support available to DFID country office and central teams

B. Annexes

Annex 1 – Detailed Examples of good practice
Annex 2 – Generic Checklist: considerations across the programme life cycle

ICED Briefing: Disability Inclusion through Infrastructure and Cities Investments

This Briefing Note offers advice on basic approaches to Disability inclusion via infrastructure and urban interventions. This guidance includes:

- *The basic requirements of Disability Inclusion and Universal Design.*
- *The opportunity and scale-up that infrastructure and urban development offers for delivering better development outcomes for people with disabilities.*
- *Advice on how to spot opportunities and entry points to integrate Disability Inclusion into new programmes under design or existing programmes in delivery.*
- *Illustrative examples of good practice from some of DFID's key partner countries.*
- *Practical advice on engaging with infrastructure and urban sectors no matter what your cadre affiliation or background, and how many advisers are already doing so.*

This Briefing Note provides guidance on how to achieve greater disability inclusion (DI) through investments in infrastructure and cities. It is one in a series of ICED Briefing Notes designed to support the implementation of DFID's Economic Development Strategy.

One billion people, or 15% of the world's population, experience some form of disability, and disability prevalence is higher in developing countries[1].

DFID's definition of disability:

"those who have long-term mental, intellectual or sensory impairments which in interaction with various barriers (attitudinal and environmental) may hinder their full and effective participation in society on an equal basis with others".

Source: UN Convention on the Rights of Persons with Disabilities

Well planned infrastructure and inclusive urban services are fundamental to unlocking the potential of people with disabilities. Currently, DI is not consistently addressed across DFID's infrastructure programming and policy dialogue. It is not always clear to DFID staff or partners what DI means in relation to infrastructure and growth[2], and the actions they might take to achieve it. This is coupled with a perception that addressing disability in infrastructure programming is prohibitively expensive and often unaffordable within project or programme budgets.

This note highlights the opportunity for DFID programmes and provides basic, introductory guidance on DI to DFID advisers and managers engaging with a range of infrastructure and urban investments. It sets out opportunities for these investments to deliver positive impacts for people with disabilities (PwDs), presenting the integration of DI design as an important and integral consideration for all urban and infrastructure programming.

We have adapted the three levels of ambition[3] set out in the ICED Gender and Inclusion (G&I) Framework, to illustrate what good practice DI design looks like for DFID investments, highlighting potential risks, opportunities and trade-offs that arise.

[1] World Health Organization (WHO), World Report on Disability (2011)
[2] Results of ICED survey; report
[3] The ICED G&I Framework guides programmes from compliance, to empowerment to transformative change

Infrastructure and Cities as a means for achieving greater disability inclusion

Infrastructure and cities are vehicles for increasing DI through the design and delivery of inclusive public services. But in order to design and deliver inclusive services it is necessary to first understand how disability manifests in these contexts.

Universal Design Principles as a Starting Point

A disability inclusive approach is driven by the seven principles of Universal Design (UD) which support the 'design of products, environments, programmes and services to be usable by all people, to the greatest extent possible, without the need for adaptation or specialized design'[4]. The principles are:

1. **Equitable use:** design that is useful and marketable to persons with diverse abilities.
2. **Flexibility in use:** design that accommodates a wide range of individual preferences and abilities.
3. **Simple and intuitive use:** design that is easy to understand, regardless of the user's experience, knowledge, language skills or concentration level.
4. **Perceptible information:** design that communicates necessary information effectively to the user, regardless of ambient conditions or the user's sensory abilities.
5. **Tolerance for error**: design that minimises hazards and the adverse consequences of accidental or unintended actions.
6. **Low physical effort:** design that can be used efficiently and comfortably and with a minimum of fatigue.
7. **Size and space for approach and use:** design that provides appropriate size and space – for approach, reach, manipulation, and use, regardless of the user's body size, posture or mobility.

Impairments and Barriers

Effective infrastructure can reduce or remove the barriers which lead to disability. Impairments - physical, mental, sensory and intellectual - become disabling when individuals are prevented from participating fully in society because of the aforementioned barriers. For example, individuals denied access to employment because of discriminatory attitudes or inaccessible transport and workplaces.

In accessing urban services and infrastructure people with impairments experience three major barriers which affect them disproportionally.

Behavioural and Attitudinal barriers

Perhaps most significant are the culturally accepted attitudinal barriers that those with disabilities face. Whilst many countries have adopted policies or legislation that protects or

[4] Article 2, UNCRPD

promotes the rights of PwDs, often such legislation does not translate into practice. Ministries, agencies and the public do not always understand how existing spaces and services exclude PwDs, and the potential to improve inclusion. Persons with psychosocial or cognitive impairments can be excluded from financial services, housing and land ownership excluding them from benefiting from existing infrastructure. Persons with physical disabilities can face discrimination and stigma from service providers or other service users.

DFID can play a significant role in promoting the translation of international commitments and national policies into practical building and design codes, and agency level service standards; and can support the training of staff at all levels on the translation of such codes into everyday service delivery. DFID can also play a significant role in supporting behaviour change more widely, using its strong track record of behaviour-led intervention to support innovative programme design.

Informational barriers

Impairments make services more difficult for users to engage with on a 'trial and error' basis. In turn, a lack of access to information on services can prevent users engaging with or trialling a service – it's unlikely for instance that a visually or mobility impaired person or someone with learning difficulties will try using public transport unassisted if there is no accessible information on routes, timetables or service access facilities. By providing route planning apps and/or simple printed materials on accessible routes and services, users are able to make informed decisions and plan their use of services.

Informational barriers also exist for users attempting to access services such as waste disposal or private utilities. People with hearing or sight impairments often have no or limited access to information on service schedules, tariffs or bills. People with learning difficulties can be unable to interpret information provided by bill collectors. Improving information accessibility can have huge impacts, enabling users to make informed decisions when choosing services, advocating for better service provision, managing household budgeting, and avoiding fraudulent overbilling seen routinely in vulnerable households.

Reducing informational barriers is an area where DFID can play a particularly strong role, through its wide variety of programmes in governance, public services (health, education, WASH and local service delivery) and voice and accountability.

Physical barriers

When thinking about physical disability it is common to think of those with the most visible impairments such as wheelchair users. However old age, chronic illness and visual impairments all significantly impact users' ability to physically access services. An older person with deteriorating sight and mobility may only be able to walk short distances, may be unable to easily walk up and down stairs or pavements, and may only be able to see short distances and or interpret spatial depth. Urban environment and infrastructure services therefore need to provide aids such as dropped curbs, grab rails, ramps, allocated seating, large format signage, high visibility markings and regular seating to accommodate such users. It is imperative when considering accessibility that the specific needs of PwDs are considered.

Reducing physical barriers is an area where DFID can play a strong role both via its infrastructure programming and through its investments with Multilateral Development Banks, PIDG and CDC. By advocating for disability-inclusive design in investments and safeguarding the rights of PwDs via mandated safeguard processes for large scale projects DFID can ensure none of its investments needlessly exclude this group.

Disability Inclusion for infrastructure and cities: What does 'good' look like?

Key Themes for Inclusive Programming

When thinking about these principles in the context of infrastructure and cities, it is easy to think only about physical access and the built environment, but physical design solutions alone are not enough to ensure inclusivity.

Interventions need to be designed with the user and service in mind, grounded in an understanding of the country's legislative and policy environment; including its cultural, social and economic context, which can provide opportunities, or indeed present barriers for achieving inclusive cities and infrastructure.

The key themes to consider when planning effective infrastructure and cities are set out below. They are later mapped against the programme life cycle in Table 2.

- A partner country's **policies and legislative framework** may offer entry points to support early integration of DI design. It may also help understand underlying and persistent structural barriers to disability inclusion.
- Where the policy environment supports DI, weak **enforcement of regulations** can be a reason this does not translate into practice. Understanding bottlenecks or opportunities in the regulatory environment and governance structures at national, municipal and local level is critical, as is building institutional capacity to ensure standards are enforced.
- **Universal design is good design.** An environment, or **any building, product, or service in that environment, should be designed to meet the needs of all people who wish to use it.** This is not a special requirement for the benefit of only a minority of the population. It is a fundamental condition of good design. If an environment is accessible, usable, and convenient, everyone benefits. By considering the diverse needs and abilities of all throughout the design process, universal design creates products, services and environments that meet peoples' needs.
- **Information and data** play a significant part in effective infrastructure and urban services. Improving information around service provision can have huge impacts; enabling users to make informed decisions when choosing services, advocating for better service provision, managing household budgeting, and avoiding fraudulent overbilling seen routinely in vulnerable households. Collecting disaggregated baseline data is critical to determine actual challenges faced by PwDs. Awareness campaigns can also be used to build trust and partnership between programmes and beneficiaries, as well as supporting supervision, monitoring and long-term maintenance plans.
- **Cultural and behavioural factors**, which influence social norms around how PwDs are viewed and treated in society, have significant impacts on the effectiveness of infrastructure and urban service provision. Negative social and cultural attitudes towards impairments limit PwDs opportunities – this might include limited access to basic services and restricted exposure or limited engagement with social support and community networks.
- **Financial resource or investment** constraints are common bottlenecks in achieving DI in infrastructure. Adequate programme finance for initial DI analysis and assessments supporting universal design, consultation processes, data collection and monitoring etc. is critical for facilitating DI at each stage of design and delivery.

The cost of ignoring Disability Inclusion

Infrastructure and cities have potential to drive sustainable and transformative economic development that promotes equality, empowerment and economic inclusion. However, the gains of economic growth do not automatically flow to the poorest, many of whom are PwDs, and requires a mindful and deliberate approach to ensure these groups benefit.

Understanding the consequences and opportunity costs of ignoring DI is important to avoid past mistakes and to build commitment and action for improved infrastructure and cities planning and management.

Missed opportunity for inclusive growth

In budget-stretched ministries, with weak capacity and competing priorities, integrating DI may seem expensive, unrealistic and over-complicated. However, the evidence shows that ignoring DI is a missed opportunity for economic growth. Investments in PwDs enhance national economic growth through increased productivity and well-being, reduced stigma and discrimination in the workplace and reduced welfare burden[5]. Including PwDs in the labour market can increase a country's Gross Domestic Product by three to seven percent[6].

Expanding the workforce to include PwDs also expands the potential tax base. Excess unemployment among individuals with cleft lips and palates translated to between US$8 million and US$9.8 million in lost tax revenue in 2012 for the Philippines Government[7]. Investments in PwDs are also of economic importance at the household level. PwDs are enabled to access education and/ or employment, in turn contributing to household income. Studies from Pakistan found that supporting people who are blind to access mainstream economic activity led to an estimated US$71.8 million of gross aggregate gains in household earning per year[8]. Caregivers also have more time for income generating activities, further strengthening household income.

Poor Value for Money

Ignoring DI within programme design and delivery represents poor value for money from an economy, efficiency, effectiveness *and* equity point of view and increases reputational risks for DFID-funded programmes. Such an approach runs counter to the UK commitment to UN Convention on the Rights of Persons with Disabilities (UNCRPD) which specifies a 'twin track' approach to disability where disability is considered in all programming as well as the focus of targeted programmes, and the Equalities Act which underpins the commitment to protecting and promoting the human rights of those with disabilities in all policies and programmes.

How can disability inclusion be designed into DFID interventions?

Spotting opportunities within your programme

Whether you are working on governance or health programming, social protection or disaster relief, it is highly likely that you are already engaging with infrastructure or urban service users, providers or stakeholders, from policy to community level.

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[5] Buckup S., The price of exclusion: The economic consequences of excluding people with disabilities from the world of work, Employment Working Paper No. 43, (2009) International Labor Organization.

[6] International Labor Organization, Inclusion of people with disabilities in national employment policies (2015)

[7] Muntz, H. R & Meier, J. (2013). The financial impact of unrepaired cleft lip and palate in the Philippines. International Journal of Pediatric Otorhinolaryngology, Volume 77, Issue12, pg1925-1928

[8] Awan H, Malik SM, Khan NU. The economic burden of blindness in Pakistan: A socio-economic and policy imperative for poverty reduction strategies. Indian Journal of Ophthalmology. 2012;60(5):358-364. doi:10.4103/0301-4738.100527

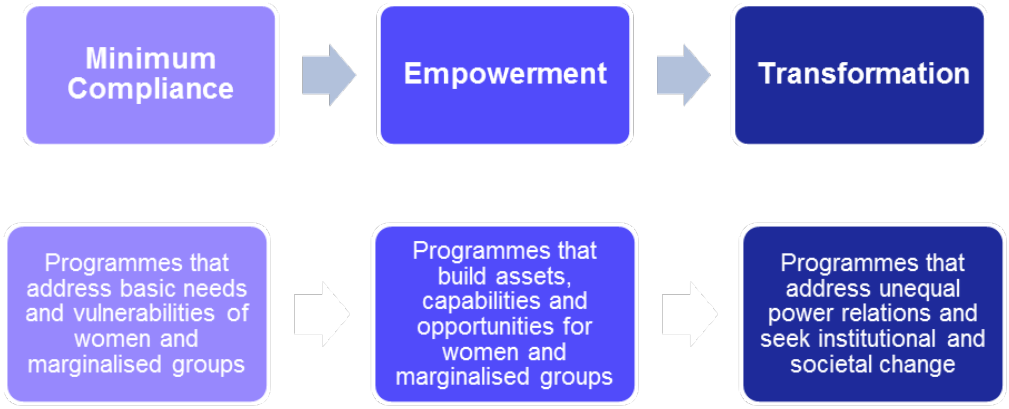
If you are working to improve basic service provision for slum dwellers or to increase economic productivity of poor women in rural areas, you are already engaging with marginalized communities affected by access to water, energy and transport infrastructure services. For example, the MUVA programme in Mozambique which focuses on women's economic empowerment, includes a strong urban and infrastructure component: the programme builds capacity of municipal authorities to design and deliver infrastructure (markets, roads etc.) in a way that promotes economic opportunities for marginalised groups.

Large infrastructure and urban investments also offer entry points to address barriers to DI and at scale. An example is the economic-growth focused Accelerating Infrastructure Investment programme in Nepal (AIIN) which, through innovative benefit-sharing schemes within hydropower PPP agreements, is opening up opportunities for the poorest and most marginalised in remote areas to benefit from large scale infrastructure investment.

These opportunities can be leveraged for greater DI across a wide range of programmes. The following section illustrates how to spot opportunities for integrating DI within DFID programmes.

Raising Ambition for Disability Inclusion: Entry points by sector

The ICED G&I Framework is a tool that has been developed to illustrate the three different levels of impact and ambition for G&I issues within infrastructure and urban investments. It acknowledges that all DFID programmes should respond to the basic needs and vulnerabilities of marginalized groups, in this case PwDs, as a minimum requirement. However, it also encourages extending potential gains by going beyond the basic 'do minimum', to approaches that build individual assets, capabilities, and opportunities resulting in 'empowerment' and lastly, approaches that seek to challenge and shift persistent structural barriers to equality and inclusion, 'transformation'.



Using an adapted version of this framework as an approach, Table 1 (following page) illustrates what 'good' might look like for DI within key sectors of infrastructure and urban, at each level of ambition.

Disability inclusion in cities and infrastructure	'Do Minimum' Address basic needs and vulnerabilities of PwDs	'Empowerment' Build assets, capabilities, and opportunities for PwDs	'Transformation' Address unequal power relationships and seek legal, institutional and societal level change
 **Transport & Road Safety**	Information on public transport made easily accessible to visually impaired via SMS, apps or website. DFID / UK funded public transport services and road programmes incorporate road safety and disability-supportive design elements e.g. boarding devices, allocated seating for PwDs / wheelchair space, safety and access to/from transport service hubs. Safeguarding processes adopted for rural, peri-urban and/or mega-transport projects consult and safeguard people with ALL types of impairments (physical, mental, sensory and intellectual).	Transport services under design consult PwDs to inform service design. New transport services adopt UD principles to create safe and accessible routes linking economic and residential hubs. Specialist services for more severely impaired are made available for transport for work, health and education.	National transport authorities mandate disability-inclusive service design and delivery within policy, and enforce policy at local level. Cities transport networks are designed to ensure PwDs equitable service access. Staff managing transport services are trained on DI, ensuring effective management and delivery of services e.g. station managers are able to evaluate station accessibility issues and address as needed.
 **Energy**	DFID-funded household energy promotion programmes consult PwDs and include programme elements to remove barriers to household access to energy solutions e.g. providing sales information for visually impaired or targeting mobility impaired households through doorstep sales. Safeguarding processes adopted for large energy projects consult and safeguard people with ALL types of impairments (physical, mental, sensory and intellectual).	Ensure all energy services make service information (tariffs, billing, service announcements) fully accessible e.g. offering local language and large format bills, text to voice bills and online/mobile payment options. Installed services (meters, wiring, home solutions) made safe and easily usable by PwDs – e.g. easily visible meter reading, installed at low level for mobility access.	Engage representative groups in planning and decision-making of market-based energy solutions, to increase voice and visibility so that needs of PwDs are integral to the approach e.g. link with local Disabled People's Organisations (DPOs). Affordability of energy services for PwD-headed households considered within energy service planning, with adapted service solutions offered where appropriate.

 **WASH**	All DFID-funded construction of water and sanitation facilities made accessible to aged and mobility impaired e.g. grab rails, raised latrine seats. Programmes promote consideration of disability inclusive facility design when working with local agencies. Safeguarding processes adopted for large water and sanitation projects consult and safeguard people with all types of impairments (physical, mental, sensory and intellectual).	Clear, affordable water/sanitation design standards developed by government agencies for use in publically managed facilities e.g. market and school toilets and community standpipes. Water and sanitation facilities are designed to enable independent use by PwDs e.g. access via a ramp with a gradient of 1 in 15 or gentler.	Engage representative groups and/ or PwDs in planning and decision-making but ensure this is cross-impairment (for community-level) and/ or considers the needs of all family members for household-level e.g. PwDs to identify their design priorities. Disability inclusive WASH design standards are adopted and implemented routinely for all 'public' services (whether procured via public sector or PPP).
 **Safe space & security**	Safety audits on public infrastructure to include assessment of accessibility of design, e.g. assessing barriers to mobility (high pavements, open sewers, lack of crossings, lack of seating for resting), and sensory access (poor lighting, lack of signage, inclusion of sensory guides for visually impaired).	Municipalities design safe and accessible public spaces that facilitate economic activity for PwDs e.g. accessible markets with accessible latrines, and adequate lighting and pavement/road surface designs around transport hubs etc.	National public works agencies adopt disability inclusive policies and standards. Municipalities adopt national standards, and work with DPOs to ensure universal design principles are integral to planning of public infrastructure.
 **Informal Economy**	Ensure consultation processes include PwDs working in the informal economy and residing in informal settlements e.g. meeting venues and information adapted to be accessible to PwDs.	Universal design of urban infrastructure that responds to specific needs of PwDs (more likely to be restricted to informal enterprise work) operating in the informal economy e.g. access routes designed for businesses operating from urban informal settlements.	Municipal city planning working with DPOs and/ or PwDs to ensure universal design principles are integral to planning of municipal infrastructure, land use plans etc. e.g. representation of PWD within municipal planning units.
 **Land & Housing**	At least 10% of DFID-funded shelter and emergency housing made accessible to PwDs. PwDs consulted during design of all housing and land related programmes,	UD standards included in building codes All DFID-funded housing initiatives promote disability inclusive design and ensure >10% of units	UD standards included in building codes AND enforced by government agencies. Land-use planning authorities adopt universal design principles such as

	and barriers identified built into programming.	made fully accessible to PwDs. Government-supported housing schemes ensure websites are accessible for PwDs to ensure equal access to housing services.	dropped curbs, inclusion of seats to aid mobility impaired and supports for visually impaired such as textured paving to indicate junctions. National ministries/justice systems supporting land and property rights, including security of tenure.
 **Formal Workers**	Ensure non-discrimination policies and processes that specify disability are in place, and appropriate grievance redress mechanisms e.g. information adapted to be accessible.	Ensure safe and appropriate labour and working conditions in place to support PwDs e.g. reasonable and accessible accommodation, working at home and sick pay policies.	Employee representatives working with DPOs and/ or PwDs to actively identify and strengthen disability awareness e.g. disability awareness training for managers.

Table 1: Example entry points for infrastructure and urban sectors

Examples: From minimum compliance towards a transformative approach

The following illustrative examples have been prepared to show concretely what DI within infrastructure and urban programmes look like in practice, and how programmes can go beyond the 'do minimum' to actively supporting empowerment of PwDs and in some cases, moving towards transformative change.

Example 1: Inclusive WASH in Uganda and Zambia, the Undoing Inequity project illustrates actions that can be taken under a 'do minimum' approach. It presents how the project took steps to understand the barriers PwDsface in relation to WASH, to develop and test an Inclusive WASH approach and understand the impact of this approach on the lives of the target population in Uganda and Zambia. In particular, this example highlights the importance of addressing attitudinal barriers as integral to DI programme approaches.

Example 2: Dar Es Salaam's Bus Rapid Transit (BRT) System provides an example of a more proactive approach to integrating DI design within urban transport service provision. It moved beyond a 'do minimum' approach that ensured design solutions met the basic needs of PwDs, and actively engaged representative groups to improve service delivery and drive an awareness raising campaign to inform PwDsabout the new service.

Example 3: Enabling disability inclusive education in Pakistan illustrates how a DFID programme operating in a fragile and conflict-affected state is taking pragmatic steps and retrofitting options that can support better DI. It draws on the DFID-funded Humqadam Schools Construction and Rehabilitation Programme (2015-2018) which is constructing up to 20,000 additional classrooms and accompanying missing facilities, such as toilets, outdoor facilities and boundary walls, and will rehabilitate and extend almost 250 Higher Secondary Schools in both provinces. It also highlights how programmes could move towards 'empowerment' and potentially 'transformative' approaches through the programme's establishment of Community Committees for School Infrastructure which represent the needs of a wide range of student, teacher and other stakeholders, and advocacy and awareness raising activities with government stakeholders and development partners.

Example 4: Disability Inclusion in post disaster reconstruction in Haiti presents an example from a fragile context where potentially transformative efforts are being made to ensure DI within long-term recovery planning and activities. It illustrates how the Government of Haiti has been working with a range of actors to take a more inclusive and equitable approach to improving the lives of people with disabilities, including working with the Ministry of Public Works to ensure that accessibility is considered within the new construction standards, particularly for schools.[9]

Full examples can be found in Annex 1.

Entry points across the programme life cycle

To help translate this learning to DFID investments, the following table maps actions and approaches from these examples onto the DFID programme life cycle to illustrate ways in which DI can considered and addressed at each stage.

See table on next page.

[9] Source: https://changingpaces.com/amid-haitis-reconstruction-a-chance-for-a-more-inclusive-approach/

Table 2: Disability Inclusion considerations across infrastructure programme lifecycles

	Inception/Early Concept	Feasibility/Scoping	Strategy/Planning	Design and Procurement	Construction	Testing and Commissioning	Completion, handover and Operation	In use and Service Delivery
Key considerations for programme design	**Policy; Finance**	**Policy; Regulatory; Cultural and Behavioural**	**Finance; Information and Data; Cultural and Behavioural**	**Physical and built environment; Information and Data**	**Information and Data**	**Information and Data; Physical and built environment**	**Regulatory; Cultural and Behavioural; Information and Data**	**Information and Data; Physical and built environment**
Inclusive WASH infrastructure. **The Undoing Inequity project in Uganda and Zambia**	Research and inclusion analysis identified that there is very little access to WASH facilities available for PwDs.	Programme scoping underlined the significant proportion of PwDs excluded from dignified WASH access and highlighted the expected potential benefits of DI.	Baseline survey undertaken to provide a detailed understanding of the challenges faced by PwDs[10]. It was vital to directly consult those with disabilities, as it was found their needs and views were inaccurately represented by other household members. Other relevant stakeholders were also identified including community advocacy groups.	A range of practical and low-cost solutions were developed to allow PwDs across a wide range of impairments access to toilet facilities, bathing, collecting water and transporting water.	Feedback on initial construction and any outstanding problems, by community stakeholders (e.g. PwDsand representative groups).	Innovative solutions were tested by PwDs and improvements were made based on feedback from PwDs and from advocacy/ representative groups. A compendium of tested and practical design solutions was developed for knowledge sharing.	Completion of physical projects was accompanied by a range of capacity building and awareness raising activities for all community members (with a focus on community leaders) to change negative attitudes towards PwDs.	Compendium of design solutions provided guidance and recommendations on required maintenance
Inclusive public transport infrastructure. **DART BRT in Dar es Salaam, Tanzania**	An initial objective of the BRT was to enable urban mobility for the widest possible number of passengers, including PwDs. This commitment was explicit and upfront.	African Development Bank undertook social impact assessments, which identified access needs of PwDs across a range of impairments?	Designs for new, purpose-built buses, station platforms and all connecting pavements and crossings were based on UD principles.	DART worked with the Comprehensive Community Based Rehabilitation in Tanzania (CCBRT) Advocacy Unit to understand the needs of PwDs. This translated into smooth access to stations, platforms with easy access to buses without a ramp and bus design.	Inspections of work to check that construction is conforming to designs and will meet the needs of PwDs	Test runs were performed by the advocacy group. Feedback resulted in improvements being made, such as accessible ticket windows and use of braille on tickets.	Upon the launch of DART in 2016, awareness arising campaigns were run throughout the city on many media platforms. This included information about accessibility, promoted by PwDs who documented their experiences.	Feedback mechanism for all passengers, including PwDs to report problems to DART. Sufficient revenue allows sustainable budget for maintenance, quickly fixing problems which may prevent PwDs access, such as uneven pavements.
Inclusive Education Infrastructure **School accessibility and community committees in Pakistan through the DFID Humqadam Programme**	Enabling education for the greatest number of female students was identified as a key objective of the programme.	Scoping study includes consultation with community, PwDs and advocacy groups. Disaggregated data collected which allows	Community Committee for School Infrastructure (CCSI) are established and trained to identify and communicate the bespoke needs for each particular school.	Detailed consultation with PwDs representing a wide range of impairments from mobility challenges to blindness and deafness.	CCSI supervises all on-going works. Where economically and practically feasible access for PwDsis provided for rehabilitated existing facilities. All new	Feedback from CCSI, students and specialist advocacy groups that represent PwDs	The CCSI is trained to remain involved in day-to-day running of the school. The programme shares lessons learned with relevant government	Maintenance budget and capacity building for CCSI and relevant government departments to ensure accessible

[10] Information about the level of severity of the impairment was collected as per the baseline using the Washington Group Short set of six core questions.

		for a breakdown by impairment.	Costs for additional infrastructure factored in for providing access for PwDsand generally found to be acceptable and worthwhile, considering the equality benefits.		facilities made 100% accessible. Ramps, grab rails, wider doors, bigger windows, clear chalkboards etc. along with accessible toilet facilities (WASH).		stakeholders in Pakistan, as well as other development partners.	facilities are not lost / degraded.
Inclusive Disaster Response for infrastructure. **Haiti post-earthquake reconstruction projects**	Early recognition by NGOs and international donor organisations that reconstruction offered a chance to 'build back better' and to mainstream disability inclusion.	No specific data	No specific data	Guidelines prepared by the Global Partnership on Disability and Development (GPDD) Working Group on Haiti Reconstruction, built on extensive stakeholder consultation including direct focus group discussion with PwDs across a range of impairments.	Guidelines for construction aspects (including transport infrastructure, roads and sidewalks, public buildings, schools) promoted universal design principles and provided practical design guidelines to enable use for PwDs	Testing disability inclusion aspects and making improvements based on feedback was recommended to specific contractors implementing infrastructure projects as part of the reconstruction of Haiti.	Capacity building by NGOs of PwDs representative organisations to represent the needs within specific communities. This helped to ensure sustainability of interventions to improve disability inclusion.	No specific data

Further advice and resources

This briefing note has set out a basic introduction to key concepts, issues and entry points for increasing DI through infrastructure and cities. However, it does not provide DFID advisers and managers with comprehensive guidance on approaching the complexities of designing and implementing DI within larger infrastructure and urban investments.

To respond to the needs and opportunities within these larger, more complex programmes more in-depth, context-specific technical advice is required. As such, the DFID Disability Inclusion Team and ICED facility are working together to provide specialist advice to country office and central teams on approaches that can be applied to specific DFID investments, addressing a range and severity of impairments.

The support available includes:

- **Advice on minimum requirements for DI design** - applying the principles of UD to new and existing programmes.
- **Practical and strategic support to new and existing programmes**:
    - increasing programme ambition on DI.
    - entry points for integrating DI within programme delivery.
- **Support to address risk of dilution of DI ambition** from Business Case to programme delivery. This includes advice on management, financial and technical approaches that lock in DI ambition at each stage of the investment life cycle.
- **Support on upskilling teams** on concepts, issues and entry points for DI and strengthening in-house DI policy, processes, strategies and oversighting capacity.
- **Safeguards for PwDs** – identifying and mitigating DI risks using safeguards processes e.g. IFC standards; approaches for inclusive public consultation and community engagement with PwDs as part of infrastructure and cities programmes.

For further information and/or immediate support please contact the DFID Disability Inclusion Team.

Resources

Agarwal A. and Steele A., Disability considerations for infrastructure programmes (2016)
This reference document identifies and summarises robust evidence of the impact of non-accessible infrastructure on people with disabilities. It also makes recommendations on how to incorporate the principals of universal access into all infrastructure projects. (https://assets.publishing.service.gov.uk/media/57a08954ed915d3cfd0001c4/EoD_HDYr3_21_40_March_2016_Disability_Infrastructure.pdf)

Australian Department of Foreign Affairs and Trade, Accessibility Design Guide: Universal design principles for Australia's aid programme. A companion volume to Development for all: Towards a disability-inclusive Australian aid program 2009-2014 (2013)
This guide is designed to help development practitioners apply universal design. While based on good practice and successful implementation of universal design internationally, this guide is not meant to be prescriptive. It is based on the reality that the barriers people

with disability face vary between developing countries and between locations in-country.(http://dfat.gov.au/about-us/publications/documents/accessibility-design-guide.pdf)

Awan H, Malik SM, Khan NU. The economic burden of blindness in Pakistan: A socio-economic and policy imperative for poverty reduction strategies. Indian Journal of Ophthalmology. 2012;60(5):358-364. doi:10.4103/0301-4738.100527

BOND (2016) The Value for Money of Leaving No one Behind. https://www.bond.org.uk/resources/the-value-for-money-of-leaving-no-one-behinD

CBM, Promoting Access to the Built Environment: Guidelines (2008)
These guidelines reflect on international standards and recommendations about accessibility in the built environment. They have been developed to assist in creating accessible environments.
(https://www.cbm.org/article/downloads/54741/CBM_Accessibility_Manual.pdf)

DFID Policy on Standards of Accessibility for Disabled People in DFID Financed Education Construction
This guidance provides standards for any new or renovation construction education projects funded directly by DFID to allow access by people with disabilities. It promotes use of the fully comprehensive AusAID guidelines on Universal Design and includes a provision for a waiver of the application of standards in certain circumstances.
https://www.gov.uk/government/uploads/system/uploads/attachment_data/file/273923/DFID-Policy-standards-accessibility-disabled-people___.pdf

Frye, A. (2013) Disabled and Older Persons and Sustainable Urban Mobility. Thematic study prepared for Global Report on Human Settlements 2013 Available from: http://www.unhabitat.org/grhs/2013

GFDRR (2017) Disability Inclusion in Disaster Relief Management: Promising practices and opportunities for enhanced engagement. https://reliefweb.int/report/world/disability-inclusion-disaster-risk-management-promising-practices-and-opportunities

GPDD (2011) The Global Partnership on Disability and Development Working Group on Haiti Reconstruction toolkit for long-term recovery that emphasizes the inclusion of all, including people with disabilities. Available at: https://europa.eu/capacity4dev/disability-and-development-network/blog/haiti-toolkit-long-term-recovery-gpdd

International Organization for Standardization, ISO 21542: Building construction – Accessibility and usability of the built environment (2011)
This document specifies a range of requirements and recommendations for many elements of construction, assemblies, components and settings. It also deals with aspects of accessibility managed buildings. (https://www.iso.org/standard/50498.html)

International Organization for Standardization, ISO 9241-171: Ergonomics of human-system interaction, Part 171: Guidance on software accessibility (2008)
This document covers issues associated with designing accessible software for people with physical, sensory and cognitive abilities, including those with temporary disability, and the elderly. It is intended for those who are responsible for the specification, design, development, evaluation and procurement of software platforms and software applications.
(https://www.iso.org/standard/39080.html)

Jones, H. (2014) Mainstreaming Disability and Ageing in water, sanitation and hygiene programmes. A mapping study carried out for WaterAid. https://wedc-knowledge.lboro.ac.uk/resources/learning/EI_WASH_ageing_disability_report.pdf

Jones H. and Reed B., Water and Sanitation for Disabled Persons and Other Vulnerable Groups: Designing services to improve accessibility (2005)
This book and CD-ROM focus on facilities for families in rural and peri-urban areas of low-income and middle-income countries. Many of the approaches and solutions outlined can also be applied in institutional settings, such as in schools and hospitals. They may also be applied in emergency situations. (https://wedc-knowledge.lboro.ac.uk/details.html?id=16357)

Jones, H. and Wilbur, J (2014) Compendium of Accessible WASH Technologies. Developed in association with WaterAid. https://www.gov.uk/dfid-research-outputs/compendium-of-accessible-wash-technologies

Muntz, H. R & Meier, J. (2013). The financial impact of unrepaired cleft lip and palate in the Philippines. International Journal of Paediatric Otorhinolaryngology, Volume 77, Issue12

Sendai Framework Resources: https://www.unisdr.org/we/coordinate/sendai-framework

UN Enable, Accessibility for the Disabled: A Design Manual for a Barrier Free Environment (2004)
This design manual, prepared by the Lebanese Company for the Development and Reconstruction of Beirut Central District, is available from the UN Enable Website. It provides architects and designers with basic information and data for barrier free environments. (www.un.org/esa/socdev/enable/designm/preface.htm)

UNICEF, Accessible components for the built environment: Technical guidelines embracing universal design.
This document provides concise technical guidelines for ensuring accessible construction in all premises and programme infrastructure, as per universal design principles.(http://www.unicefinemergencies.com/downloads/eresource/docs/Disability/annex12%20technical%20cards%20for%20accessible%20construction.pdf)

WHO, Global Disability Action Plan 2014 – 2021
This document provides an overview of global disability concepts and approaches for how challenges for PwDs can be addressed through future programming.
www.who.org/publicaitons

Annex 1 Detailed Examples

Example 1: Inclusive WASH in Uganda and Zambia: The Undoing Inequity project

The Undoing Inequity project was a recent collaboration between WaterAid, the Water, Engineering and Development Centre (WEDC) and Leonard Cheshire Disability (LCD), with funding from Sanitation and Hygiene Applies Research for Equity (SHARE). Working in Amuria and Katakwi districts in Uganda, and the Mwanza West ward in Zambia, the Undoing Inequity project aimed to understand the barriers PwDs face in relation to WASH, develop and test an inclusive WASH approach and understand the impact of this approach on the lives of the target population in Uganda and Zambia.

Selected activities undertaken at key stages of the programme lifecycle

Phase 1: Policy and Direction Setting
Baseline surveys conducted to identify needs, disaggregated by type and severity of impairment.

Phase 2: Planning and Design
Views of PwDscollected to shape designs.

Phase 3: Implementation and Performance Management
Awareness raising undertaken to maximise the long-term impact of the project.

Phase 4: Review and Evaluation
Compendium of Accessible WASH Technologies developed to support future projects.

Baseline surveys[11] were carried out to identify the needs of PwDs. However, even this initial step revealed fundamental flaws in terms of data collection and understanding the problem. The views of vulnerable household members with disabilities were not being properly represented by the head of the household responding to the survey.[12] Collecting data directly from PwDswas found to be vital and the approach was changed to ensure this, and to include focus group discussions. The survey data was disaggregated to include information on type of impairment and severity of mobility challenge using the Washington Group questions.

It was found that PwDs, older people and people with a chronic illness often lack WASH services because of:[13]

- Environmental constraints: Facilities are not inclusive. This includes long distance to toilets; lack of privacy for toilets of bathing areas; and unsafe and inaccessible toilets.
- Attitudinal barriers: Negative attitudes lead to exclusion: for examplePwDs are discouraged from touching or fetching water; are often teased and bullied about WASH related problems; have limited social support; and often face isolation in the family and community
- Institutional barriers: Lack of law, policies, strategies and guidelines on implementing inclusive WASH; lack of consultation or involvement in decision making on WASH policy or facilities; and a lack of information on inclusive technologies.

The programme focused on the critical needs around access to toilet facilities, bathing, water collection and transporting water. In response to the detailed analysis of the needs and constraints to accessing WASH infrastructure, innovative and low-cost interventions were designed. The programme resulted in a very useful *Compendium of Accessible WASH*

[11] Information about the level of severity of the impairment was collected as per the baseline using the Washington Group Short set of six core questions https://blogs.lshtm.ac.uk/disabilitycentre/files/2015/08/Undoing-inequity-inclusive-water-sanitation-hygiene-Uganda.pdf

[12] Available at: http://www.watercentre.org/services/events/wash2014/conference-program/wash-posters/gosling-undoing-inequity-inclusive-water-sanitation-and-hygiene-programmes-for-all

[13] Source: https://wedc-knowledge.lboro.ac.uk/resources/conference/36/Wilbur-1803.pdf

Technologies for use in low-income countries and FCAS,[14] which provides suggested solutions that enable inclusive access to WASH facilities.

Critically, in addition to understanding the physical requirements of PwDsand developing appropriate design solutions, the programme also addressed community **awareness raising and behaviour change**. Attitudinal problems are a huge constraint to PwDsbeing able to access WASH facilities, as well as many other types of infrastructure. An important element is capacity building for local WASH committees who can advocate the needs of PwDsto government and community leaders. The programme also raised awareness amongst entrepreneurs of the opportunities to help provide inclusive WASH solutions.

Example 2: Dar Es Salaam's Bus Rapid Transit (BRT) System

Construction of the first phase of Dar es Salaam's Area Rapid Transit (DART) was completed in December 2015 at a total cost of €134 million funded by the African Development Bank, World Bank and the Government of Tanzania. The first phase commenced operations in 2016, with a total length of 21 kilometres with dedicated bus lanes on three trunk routes with a total of 29 stations. The DART system provides rapid transit for 160,000 passengers a day[15] and provides a good practice example of disability inclusive design for a transport infrastructure project.

Selected activities undertaken at key stages of the programme lifecycle

Phase 1: Policy and Direction Setting
Tanzania's building code and legislative arrangements relevant to disability and UD mapped.

Phase 2: Planning and Design
PwDsengaged to identify the adaptations needed for the DART system to be accessible.

Phase 3: Implementation and Performance Management
Test of improvements by PwDs.

Phase 4: Review and Evaluation
DART system showcased through the 2018 Sustainable Transport Award given by the Institute for Transportation and Development Policy.

During the initial design phase, UD standards were adhered to such that disability access was mainstreamed through the design. Near to completion, a civil society group called the Comprehensive Community Based Rehabilitation in Tanzania (CCBRT) Advocacy Unit was engaged to understand the detailed needs of passengers with disabilities. In early 2016, the unit partnered with DART to ensure the public bus system was safe and accessible for PwDs. To assess this service, members of the advocacy team including people with hearing and visual impairments and physical disabilities tested the stations and rode on DART buses throughout the city.[16]

Their travel experience was positive overall, and they shared recommendations for improvements, such as installing a lower ticket window for people in wheelchairs, adding disability awareness signs in Kiswahili, and including braille on tickets. After DART's launch in May 2016, the Advocacy Unit visited the project again to test improvements and help an awareness raising campaign to inform PwDsabout the new service. The awareness raising campaign was disseminated through normal media channels as well as through the CCBRT

[14] Available at: https://wedc-knowledge.lboro.ac.uk/resources/learning/EI_Compendium_of_accessible_WASH_Technologies.pdf
[15] Source: https://brtdata.org/location/africa/tanzania/dar_es_salaam
[16] Source: http://www.ccbrt.or.tz/news/detail/news/access-for-all-public-transport-disability/?tx_news_pi1%5Bcontroller%5D=News&tx_news_pi1%5Baction%5D=detail&cHash=05f918b8c3c3b9a64e239d9a185e875c

communications to their members with disabilities, which helped reach those who may struggle to access television, radio, internet, newspapers and billboard posters.

DART has reduced commute times by more than half for some residents, who previously faced upwards of four hours stuck in traffic every day.[17] It is being hailed as a success story for sub-Saharan urban transport and has recently won the 2018 Sustainable Transport Award given by the Institute for Transportation and Development Policy (ITDP).

However, accessibility is not universally included in BRT schemes. For example, in Lagos, Nigeria, even basic requirements for accessibility such as access ramps and handrails have been omitted. As a result, the system is unusable for many PwDswho would have benefited from an inclusive design process.[18]

Example 3: Enabling disability inclusive education in Pakistan

There are an estimated 27 million PwDs in Pakistan. According to UNESCO 1.4 million children with disabilities are not a part of the formal education system, mainly due to inaccessible infrastructure. In 2015, it was estimated that only 5% of schools across the country have any form of accessible educational infrastructure[19]. Realizing the importance of accessibility to school buildings for all, the DFID supported Humqadam Schools Construction and Rehabilitation Programme (2015-2018) has taken key steps to improving the situation in Punjab and Khyber Pakhtunkhwa (KP) provinces.

The programme aims to construct up to 20,000 additional classrooms and accompanying missing facilities, such as toilets, outdoor facilities and boundary walls, and to rehabilitate and extend almost 250 Higher Secondary Schools in both provinces.

Selected activities undertaken at key stages of the programme lifecycle

Phase 1: Policy and Direction Setting
UD principles incorporated into project thinking from the start.

Phase 2: Planning and Design
Local community engaged to input into designs for each school.

Phase 3: Implementation and Performance Management
Community Committee for School Infrastructure established to test infrastructure and identify ongoing challenges.

Phase 4: Review and Evaluation
Lessons learned shared with government stakeholders and development partners.

The local community takes ownership for the design inputs to each school and prior to construction their needs and suggestions form the basis for the design brief. All of the schools covered by the programme are benefitting from new and renovated educational infrastructure that will enable students with mobility challenges to attend classes. Hard level paving, ramps, grab rails, wider doors and accessible toilet facilities along with bigger windows and highly visible chalkboards have been installed, which has enabled access for students, teachers and members of the public with mobility and vision challenges. Retrofitting of existing educational facilities to ensure accessibility is contained to where it is economically, and practically feasible e.g. ground floors made accessible whereas upper floors might not be due to unacceptable cost implications. In such cases the programme encourages the school management to make

[17] Source: http://www.citiscope.org/story/2017/new-bus-rapid-transit-system-earns-dar-es-salaam-2018-sustainable-transit-award

[18] Source: Frye, A. (2013) Disabled and Older Persons and Sustainable Urban Mobility. Thematic study prepared for Global Report on Human Settlements 2013 Available from: http://www.unhabitat.org/grhs/2013

[19] Educational Infrastructure Scoping Study; Aug 2015; Institute of Social and Policy Sciences (ISAPS)

changes to the classroom usage to ensure people with mobility challenges are not required to make regular trips up and down stairs.

The programme has encouraged each community to establish a dedicated Community Committee for School Infrastructure (CCSI) and have provided the requisite training. The role of the CCSI's is to understand and represent the needs of a wide range of student, teacher and other stakeholders, so that their needs are met by the Humqadam programme, local government and the schools. The CCSI's help to identify challenges related to sight, hearing, autism and learning difficulties that are not addressed through the existing physical educational infrastructure. Bespoke solutions can then be proposed and considered.

The programme also shares knowledge on lessons learned with relevant government stakeholders in Pakistan, as well as other development partners. The impact of better quality and more inclusive schools includes a much higher attendance rate, including for students with disabilities, less absenteeism of teachers and more engaged parents and communities, all of which is helping to build an effective and sustainable education system in Pakistan.

Building on successes like this project, DFID is seeking to strengthen the accessibility of all DFID-funded educational infrastructure. Under the *DFID Policy on Standards of Accessibility for Disabled People in DFID Financed Education Construction*, all new school construction that DFID directly and solely finance must incorporate UD principles to ensure the resulting construction is fully accessible to PwDs. Changes to an existing education structure which are directly financed by DFID that affects or could affect the usability of the structure must also adhere to universal design principles, unless these alterations are technically infeasible and/or constitute an undue burden to the grantee or contractor.

Example 4: Disability Inclusion in post disaster reconstruction in Haiti

The United Nations Convention on the Rights of Persons with Disabilities (UNCRPD) commits national governments to ensuring access and inclusion, including in response to natural disasters, emergencies and conflict situations. This is also supported by Priority 4 of the Sendai Framework which aims to empower women and PwDs to publicly lead and promote gender equitable and universally accessible response, recovery, rehabilitation and reconstruction approaches."[20]

However, despite an increasing worldwide focus on disaster risk reduction as opposed to mere disaster response, most city and related government agencies fail to adequately plan for – or include – persons with disabilities in their disaster management activities. This causes severe inequities in access to immediate response, as well as long-term recovery resources for people who have disabilities prior to the disaster and those who acquire a disability as a result of the disaster.[21]

When Haiti was devastated by a powerful earthquake in 2010, an estimated 220,000 people were killed, 300,000 were injured (many of which have had to live with a permanent disability as a result) and more than one million people were left homeless. The earthquake destroyed vital infrastructure necessary to respond to the disaster such as hospitals, air, sea, and land transportation facilities, as well as critical communication systems. Worse still, almost 100

[20] Source: https://www.preventionweb.net/files/44983_sendaiframeworkchart.pdf
[21] Source: https://www.un.org/development/desa/disabilities/issues/disability-inclusive-disaster-risk-reduction-and-emergency-situations.html

per cent of municipal buildings were destroyed and 40 percent of government staff killed.

It is estimated that there are about 800,000 to one million PwDs in Haiti,[22] and while the tragedy of the earthquake cannot be undone, the massive reconstruction required has offered a chance to build back in a way that is more inclusive for those with disabilities.

This process was partly enabled by an initiative of The Global Partnership on Disability and Development (GPDD) Working Group on Haiti Reconstruction, which, among a range of interventions, developed a toolkit for long-term recovery that emphasizes the inclusion of all, including PwDs.[23]

The GPDD created this tool in order to provide development partners, UN agencies, government departments, and other stakeholders some useful and proactive planning strategies and tools to incorporate inclusive disaster recovery and reconstruction practices that benefit people with disabilities and other vulnerable populations. Seven major thematic areas related to disability inclusive recovery and reconstruction were selected: Physical Environment; Livelihood, Employment and Social Protection; Transportation and Communication; Education; Health; Capacity Building of DPOs; and Organizational and Operational Issues.

Selected activities undertaken at key stages of the programme lifecycle

Phase 1: Policy and Direction Setting
Lessons learned from previous projects used to produce a toolkit regarding inclusive disaster recovery and reconstruction practices.

Phase 2: Planning and Design
PwDsengaged to identify adaptations required.

Phase 3: Implementation and Performance Management
DPOs established and engaged to continue to represent the needs of PwDs in communities.

Phase 4: Review and Evaluation
Training provided to government and community leaders to ensure inclusivity is sustained.

The Government of Haiti has also been working with the support of UNICEF to take a more inclusive and equitable approach to improving the lives of PwDs, including working with the Ministry of Public Works to ensure that accessibility is considered within the new construction standards, particularly for schools.[24]

A wide range of international donors such as USAID[25] and NGO projects have also sought to maximize the voice of PwDsin the reconstruction of Haiti. A particularly poignant example is the work of international NGO CBM who have implemented an advocacy and capacity building project for disability inclusion in Haiti. This project has contributed in changing mentalities and making the inclusion of PwDsa reality in Haitian society, through a series of training sessions to government and community leaders on topics related to the needs of people with disabilities. CBM have complimented this approach with the establishment of DPOs, to represent the needs of PwDsin communities. They have also funded specific improvements to physical infrastructure, usually to enable disability access to public buildings, including a Town Hall and several schools.[26]

[22] Source: https://changingpaces.com/amid-haitis-reconstruction-a-chance-for-a-more-inclusive-approach/
[23] Available at: https://europa.eu/capacity4dev/disability-and-development-network/blog/haiti-toolkit-long-term-recovery-gpdd
[24] Source: https://changingpaces.com/amid-haitis-reconstruction-a-chance-for-a-more-inclusive-approach/
[25] Source: https://www.usaid.gov/haiti/persons-disabilities

[26] Source: http://www.cbm.org/Inclusion-of-people-in-Haiti-478589.php

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Annex 2 Generic Checklist – considerations across the programme life cycle

Inception/ Early Concept	Feasibility/ Scoping	Strategy/ Planning	Design and Procurement	Construction	Testing and Commissioning	Completion, handover and Operation	In use and Service Delivery
Identify and understand the partner country's legislative framework Identify the country reputable PwDs representative organisations and their focus for support Determine the DI absolute needs with government and civil society partners	Use confirmed realistic construction costing Do not raise expectations, ere on the conservative side when determining numbers of facilities Adhere to all concepts of UDs, functionality over aesthetics Design the procurement process to support all aspects of anti-corruption	Conduct baseline survey to determine actual challenges faced by PwDs. Recipient communities made aware of broad programme parameters and how they can assist with supervision, monitoring and long-term maintenance	Use the procurement process to encourage collaboration between government reps, infrastructure designers, and DPOs to set the parameters for the proposed designs, including programme timing and funding Design for the full spread of disability, mobility, sight, hearing, ageing and learning disabilities etc. Use the procurement process to encourage all consulting groups, suppliers and contractors to employ, where possible PwDs Incorporate general UD principles into all facility designs Ensure that the procurement procedures will guide and manage recruitment of certified competent contractors. Make provision for technical training for small community-based contractors	Ensure that design packages articulate UD requirements Ensure adequate supervision, monitoring and reporting Utilise specialist DPOs to do regular monitoring Establish and train a Facilities Management Committee (FMC) prior to completing any individual facility	Prior to handover to FMC ensure that all aspects of the facility and its utilities are working correctly and safely Ensure the contractor prepares a full set of 'as-built' drawings and manuals for installed plant	Ensure the contractor makes the FMC fully aware of all daily, weekly, monthly and annual maintenance requirements	Ensure the governing ministry has all the information they require to incorporate the completed facility into their systems Use the accessible assets to encourage host govt. and dev partners to adopt the UD principles Document and share lessons learned to all interested parties.

Disclaimer

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